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To Link this Article: <http://dx.doi.org/10.6007/IJARBSS/v8-i4/4147>

DOI:10.6007/IJARBSS/v8-i4/4147

*Received: 14 Feb 2018, Revised: 29 March 2018, Accepted: 17 April 2018*

Published Online: 23 April 2018

**In-Text Citation:** (Halid et al., 2018)

**To Cite this Article:** Halid, S., Choo, H. C., & Salleh, K. (2018). Intellectual Capital Management: Pathways to Sustainable Competitive Advantage. *International Journal of Academic Research in Business and Social Sciences*, 8(4), 1086–1101.

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**Vol. 8, No. 4, April 2018, Pg. 1086 - 1101**

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## Intellectual Capital Management: Pathways to Sustainable Competitive Advantage

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### Abstract

Managing intellectual capital has gained popularity among both academia and industry setting due to numerous firms' attempts to gain a sustainable competitive advantage. In order to improve the ability of financial statements to offer an adequate picture of the firm's financial position, it will be necessary to capture a wide range of intangible determinants such as knowledge, innovation and intellectual property that are seen as the vital determinants of firms' success. The literature presents a series of intellectual capital management models that illustrate the various facets a firm must consider when managing intellectual capital. Then, the component of elements of intellectual capital are also identified, defined and discussed at different stages of knowledge development to fit better with the theory. Only when intellectual capital management is present, the intellectual capital components of the organisation can be tapped effectively. Though it is acknowledged that intellectual capital management promotes sustainable competitive advantage, intellectual capital management in Asian countries including Malaysia is not as rigorous as countries in the West. Therefore, the aim of this paper is to explore the CICM model for Malaysian firms that will improve the existing models. By employing the model, it is expected that there is a relationship between intellectual capital management and sustainable competitive advantage of Malaysian firms.

**Keywords:** Intellectual Capital, Intellectual Capital Management, Sustainable Competitive Advantage.

### Introduction

There has been little empirical research pertaining to the conditions necessary for the efficient management of intellectual capital (hereafter IC) within organisations, even though there has been a growing recognition of the importance of intellectual capital management (hereafter ICM) in securing sustainable competitive advantage (Marr, 2008; Sharon, 2007; Fincham & Roslender,

2003). According to Tseng and Goo (2005), the competitive success of today's companies depends less on the strategic allocation of physical and financial resources but more on the strategic management of IC. Ding and Li (2010) have found ICM to be indispensable for organisations to stay competitive in today's dynamic business environment.

ICM is the deployment and management of IC resources and their transformation (into other IC resources or into traditional economic resources) is to maximise the present value of the organisation's value creation in the eyes of its stakeholders (Roos et al., 2005). It provides some guidance for organisations to make suitable investments and operational decisions in order to attain competitive advantage (Roslender & Fincham, 2004). Companies with good ICM are able to strive for a more competitive advantage through enhancing value creation efficiency from human creativity, the firms' operational structure and customer-supplier relationship (Latif et al., 2012). According to Hamzah and Ismail (2008), organisations are required to develop distinct ICM in order to exploit their IC. Only when ICM is present, the IC components of the organisation can be tapped effectively.

Managing IC plays a crucial role in the success of long-term business performance (Brennan & Connell, 2000). Earlier researchers have proven that IC is essential for firms' survival and success as there is a significant link between IC and firm performance (Wang & Chang, 2005; Riahi-Belkaoui, 2003). It is claimed that organisational worthiness and success can be created and improved when IC is utilised, applied and managed effectively (Bontis et al., 1999). However, top management face challenges in managing IC as many are still unclear about which types of resources are valuable and which strategies lead to the creation of long term value. It was found that top management does not fully understand the nature and value of IC, how value and wealth is created, extracted and optimised through ICM (Al-Ali, 2003).

It is worth noting that ICM is not rigorously practiced in most Asian countries, including Malaysia. Previous studies had found that Malaysian companies did manage, measure and report IC in bits and parts without realising that they were really dealing with IC (Tayles et al., 2007; Bontis et al., 2000). However, this is encouraging as it indicates that Malaysian companies have somehow started managing IC even though not much is known as to the extent to which Malaysian companies have adopted ICM. Taking into consideration the amount of IC contribution to value creation of the organisation, a company needs to pay more attention to deploy and properly manage its IC components. The overall objective of the research is divided into three research questions that have different perspectives on the same phenomenon: the description of the concept of ICM, the importance of ICM and the existing models for managing IC. The research questions are studied through literature and the researchers propose a new model for ICM, which by applying it in practice getting the results of sustainable competitive advantage.

This paper is organised in six sections. Section 2 presented the concept and importance of ICM for Malaysian companies. Section 3 discussed the most models for managing IC. Section 4 is focused to the description of ICM model. Section 5 presented the sustainable competitive advantage in relation to ICM. Then, section 6 presents the preliminary conclusion. The paper ends with a list of the relevant references for the ICM.

## **Theoretical Aspects of the Intellectual Capital Management Intellectual Capital Management**

In a knowledge economy, intangible resources are the significant factors of job success. Thus, managers need to recognise the concepts which operate IC. For that reason, various researchers propose a set of definitions related to ICM. ICM is a new and unique concept, called “the most prominent source of competitive advantage”, the goal of achieving a model of structural relationships between indicators of knowledge management (Sveiby, 1997). A considerable amount of literature has been proposed on interpretations of the concept ICM. Edvinsson (1997) noted that ICM is ‘leveraging human capital and structural capital together. The goal of the ICM is to improve the company’s value generating capabilities through identifying, capturing, leveraging and recycling IC. This includes both value creation and value extraction”.

In another study, Marr et al. (2003) examined the concept of ICM as a series of actions that occur within the organisation aimed at creating and extracting value. According to Wiig (1997), ICM refers on creating and governing IC from strategic and organisation, governance perspectives to focus on renewing and maximising the value of the intangible assets. Recently, Gogan and Duran (2014) presented a comprehensive review on ICM as a concept used to describe a new approach that refers to managing the IC. Therefore, management of IC has become one of the functions of growth in companies today.

### **Importance of Intellectual Capital Management for Malaysian Companies**

The literature shows in many papers, the importance of ICM in the organisations (e.g.: Kianto et al., 2013; Sanchez et al., 2000). Consequently, the government has plans to transform the Malaysian economy into knowledge-based in the year 2000. This plan was outlined in the policies and directions of Malaysia’s ten years (2001 to 2010) development (Third Outline Perspective Plan). The inauguration of the Malaysian Economic Model (hereafter NEM) was a part of the wider plan of the nation to become an advanced nation in 2020 (Mustapha & Abdullah, 2004). The NEM ([www.neac.gov.my](http://www.neac.gov.my)) aims to transform the Malaysian economy to be on a higher growth path and at the same time yielding higher income based on the principles of inclusiveness and sustainability. The outline of the NEM forms the foundation to build on the roadmap for implementation to achieve all the goals of inclusive, market friendly, competitive, transparent and merit-based high-income economy. The economy will be market-led, well governed, regionally integrated, entrepreneurial and innovative.

Apart from that, eight strategic reform initiatives (SRIs) that are fundamental to achieving the NEM including “enhance the source of growth” (SRI 7) are identified. It is stated that, Malaysia will leverage its natural endowment and sectors of comparative advantage as the main sources of high value-added growth maximizing spillover effects into new areas of activities. Also mentioned under SRI 6 “building the knowledge base and infrastructure” that human capital plays an important role in order to enhance Malaysia’s economic. In other words, the nation’s economic growth would be derived not only from the capital, but also from greater productivity through the use of skills and innovation, which would mean a greater need and demand for highly skilled workers, especially in critical economic sectors towards a high-income economy ([www.neac.gov.my](http://www.neac.gov.my)).

These efforts to transform the Malaysian economy heighten the importance of ICM. As the private sector continues to be the engine of growth in the knowledge-based economy, it is vital for the companies to manage its knowledge and intangibles efficiently. The role of the private sector is significant for transforming the economy into one which allows knowledge, creativity and innovation. Hence, the companies in Malaysia play an ever-increasing and important role in generating growth and assist the nation to attain sustainable economic growth and competitiveness. According to Nejadirani et al. (2012), the essential of ICM and development has become a serious business requirement into a macro national level.

### **Models of Intellectual Capital Management**

There are a considerable number of articles that address ICM from a strategic viewpoint, that is, how to manage the components of IC in order to achieve improvements in business performance through the strategic competitive advantages (Tawy & Tollington, 2012). According to Petty and Guthrie (2000), ICM is more broadly based than just knowledge management, addressing strategies for value creation (Boedker et al., 2005). In relation to this, these strategies are often presented within frameworks (see Spender, 2006; Cuganesan, 2005; Andriessen, 2004; Caddy, 2001) or management models.

ICM is a concept that can be employed to refer to various activities in an organisation (Edvinsson & Malone, 1997). It emerged as a field in the early nineties with the growing concern about how to succeed in a knowledge economy, where organisational learning plays a vital part: ICM as a managerial activity that focuses on the acquisition, development and utilisation of intangible resources in business. In relation to the definition by Wiig (1997), ICM focuses on building and governing intellectual assets from the strategic and enterprise governance perspectives with some focus on tactics. The definitions presented above show that ICM would be a sort of independent management task or discipline executed by a specific organisational role or process (Kujansivu & Lönnqvist, 2008). Suffice to say, ICM is the art and science of managing IC in a way that achieves maximum value extraction which concerned the management of employee brainpower, ideas, knowledge, innovation and practices, in addition to inventions, patents, trademarks, copyrights, and other intellectual property rights. The need for new styles and models for business management to accommodate the unique aspects of managing IC for value maximisation gave rise to a number of theories, practices and tools aimed at recognising, developing and leveraging an organisation's IC (Al-Ali, 2003).

As per the discussion above, it seems that it is difficult to provide a precise definition for ICM since IC covers so many issues which can be managed in varying ways at several organisational levels. Regardless of the conceptual problems, it seems that identifying the key aspects of a company's IC and managing them are important tasks for managers and there are potentially several approaches available in the literature for carrying out management activities related to IC. Academics and practitioners have dealt with several research topics and case studies about the complexity of IC and have looked at the investigation of the ICM to pursue straight and efficient approaches (Grimaldi et al., 2013). Thus, in this study, ICM is used to refer to a managerial activity that takes into account strategically important intangible resources as a whole in order to support business value and to attain sustainable competitive advantage.

Furthermore, according to Kujansivu (2008), ICM often covers IC as a whole (i.e. resources included in human, relational and structural capital).

It should be noted that many academics have debated the concept of ICM (Zhou & Fink, 2003; Wiig, 1997). In the attempts to manage IC, several frameworks, guidelines, tools and method have been discussed and liberated in the literature. Some of these models focused on only measurement while some focused on both measurement and management. They included the Intangible Assets Monitor by Sveiby (1997), the Meritum Guidelines (Meritum 2001), the Knowledge Asset Value Spiral by Carlucci and Schiuma (2006), the Skandia Navigator by Edvinsson and Malone (1997), the ICMS model (Brown et al., 2005), the Value Chain Scoreboard by Lev (2001) and many others. Some of these frameworks such as the Meritum Guidelines provide comprehensive management guidance for ICM (from identification to measurement, development and reporting) whereas others focus on certain aspects of management. For example, Skandia Navigator (Edvinsson & Malone, 1997) is a measurement framework, but it also provides a basis for an external IC statement. The framework consists of five measurement perspectives, which represent different components of IC and financial capital.

Besides the models developed specially for ICM, many general management approaches also cover IC-factors and may be suitable for managing IC (Kujansivu, 2008). For example, the Balance Scorecard seems applicable for measuring and managing IC (Kaplan & Norton, 2004). Other models which capture many IC components and may therefore be more appropriate for managing IC. Some of these models, among others, are the EFQM Excellence Model (EFQM 2008) and the Value Chain Toolkit (Martinez & Bitici, 2006). Although a wide variety of models supporting different managerial tasks are available, the IC literature does not provide much evidence on the organisations which have actually applied the models (Kujansivu, 2006). In other words, these models are mostly theoretical in nature.

Eriksson and Penker (2000) have argued that the common characteristics of the existing ICM models are limited to one diagram or picture which is inadequate as in reality, businesses are complex and could only be presented in multiple diagrams. Also, most of these models were structured business models, for instance, Skandia Navigator (Edvinsson & Malone, 1997) and Balance scorecard (Kaplan & Norton, 2004). Edvinsson and Sullivan's (1996) model focused on the knowledge organisations. The above models only show the elements of the IC and some of them demonstrate the relationships between the elements but they do not reveal the process. Hence, the Capability Management Maturity Model was defined to address an organisation's processes (Shang & Lin, 2010). However, Shang and Lin (2010) found that a matured model should be structured on the collection of elements which emphasise on the maturity aspects of the organisation. Hence, the Intellectual Capital Management Capability of Shang and Lin (2010) were later extended to include elements to facilitate the firms' continual improvement processes. In addition, Ding and Li (2010) proposed an ICM model comprising of three layers; namely the core layer, the expansion layer and the strategy layer. The core layer manages the expansion of the IC. The second layer focuses on the value enhancement of the IC. The strategy layer is on the value evaluation of the IC.

As mentioned by Petty and Guthrie (2000), ICM is broadly based and it is more than knowledge management. It addresses strategies for value creation (Boedker et al., 2005). These strategies are often presented within the management frameworks or models. Table 1 presents a list of ICM models from the management viewpoint.

Table 1: ICM Models from Management Perspective

Author	Model	Management Viewpoint
Marr (2008)	Management Accounting Guidelines (MAG)	The model which outlines five key steps for managing IC namely identifying the IC, mapping the IC value drivers, measuring the IC, managing the IC and reporting the IC.
Chaharbaghi and Cripps (2006)	Metalectic Perspective	A model where the IC is not seen as a thing, but as a process of choice makers exploring possibilities, identifying necessities and exploiting opportunities.
Leitner et al. (2005)	Data Envelopment Analysis	Demonstrates the usefulness of data envelopment analysis as a consulting and management tool to evaluate the efficiency of IC.
Pike et al. (2005)	IC Navigators	The numerical and visual representation of how management views the deployment of resources to create value in the organisations.
Leliaert et al. (2003)	4-Leaf Model for ICM	The first comprehensive model that identifies and quantifies all components of IC. Its aim is to serve management decision-making and reporting tool comprising IC dimensions.

### Model of Intellectual Capital Management for Malaysian Companies

IC is a relatively recent area of research that has attracted the interest along with the development of a global knowledge economy. Thus, there is a general approach to manage IC that has been accepted, but over time, researchers have developed many models of managing IC (Gogan & Duran, 2014). ICM models have been generated to drive managers in deploying and managing IC resources (Roos et al., 2005). In relation to this, many organisations that have implemented a model of ICM reported a large number of beneficial aspects that can be derived from real processes (Ding & Li, 2010).

There has been relatively little research carried out in Malaysia which focused on ICM studies on top and senior management staff. The management of IC of these groups of people is crucial for the continuous value creation within the organisation, and hence to gain sustainable competitive advantage for survival in the knowledge-based economy era. For such reason, this study adopts the Comprehensive Intellectual Capital Management (hereafter CICM) modeled by Al-Ali (2003) which helps the Malaysian Public Listed companies to manage IC components (via knowledge management, innovation management and intellectual property management) in achieving a sustainable competitive advantage.

The CICM model is created to provide a comprehensive framework for the management of IC regardless of its function in the business cycle, and whether it is a resource, a process or a product (Al-Ali, 2003). It is based on the idea that creating value from IC follows the same business process or cycle like other tangible resources and assets. According to Al-Ali (2003), the business cycle involves identifying resources, processing and utilising such resources to develop a new product, service or process, and then launching the product with the main goals of competitive positioning and revenue generation. In other words, IC as a business asset follows the same cycle from being a resource (knowledge) to being processed and developed into a product concept or prototype (innovation) then into becoming a definite asset that can be used for competitive positioning and revenue generation (intellectual property).

The main purpose of the CICM model is to assist the management in strategic planning related to the growth of their IC to achieve and maintain a competitive advantage and generate revenue from their largest asset base (Al-Ali, 2003). According to Al-Ali (2003), the CICM model enables management to (i) develop a new management approach that is better accustomed to business management at a time when IC represents critical business resources, processes, and assets; (ii) make sense of the different approaches offered to discern how and when any of these approaches fit in the CICM model; (iii) synchronise the various programs implemented to manage a group or more of IC to prevent waste of resources and achieve better results; (iv) generate the maximum value from an ICM program by addressing the three functions that IC plays in the business cycle of an organisation, namely, creation, extraction, and maximisation of value; (v) set clear objectives for their ICM activities and thus provide a platform for a suitable measurement system; (vi) set priorities to enable effective resource allocation decisions; and (vii) customise the generic CICM model to the strategic goals and the industry or business of the organisation. Therefore, the CICM model (Al-Ali, 2003) is focused on strategic planning on the growth of the IC. This is supported by a study which found Malaysian companies did manage their IC internally. Other models which focused on measurement alone are not deemed appropriate for this study as it does not focus on IC reporting.

The model as shown in Figure 1 consists of three stages, namely knowledge management, innovation management, and intellectual property management. Each stage has a different purpose. Knowledge management aims to create value or value creation (Mhedhbi, 2013; Abeysekera, 2006; Al-Ali, 2003; Macve, 1999; Edvinsson & Sullivan, 1996), innovation management stage aims issuing value or value extraction (Abeysekera, 2006; Al-Ali, 2003; Macve, 1999; Edvinsson & Sullivan, 1996), and the phases of intellectual property management aims to



maximise or value maximisation (Roos et al., 2005; Al-Ali, 2003). The goal of the knowledge management stage under the CICM model is to manage the knowledge resources of the organisation, whether explicit or tacit, and whether generated by human or customer capital, for value creation (Al-Ali, 2003). Implementing knowledge management under CICM is based on the definition of knowledge management as the process of managing knowledge raw resources for production. Next, the main goal of innovation management is to enable the organisation to tap into its IC scattered across a number of internal and external networks to get to the market faster with a successful, if not a breakthrough, product (Al-Ali, 2003). Being the intermediate stage between knowledge and intellectual property management, the innovation management is concerned with the processes that convert knowledge resources into intellectual property and products. The intellectual property management is the management of patents, brands, copyrights and trade secrets that are the basis of the competitive advantage of a certain business unit and the organisation as a whole (Al-Ali, 2003). It is basically involving the recognition of such intellectual property rights that are of competitive and commercial value to the business unit and its adequate exploitation.

In relation to this, the concepts, methods, practices, and tools that have been developed under these disciplines are presented through the lens of the CICM approach, where they are presented as stages in a comprehensive approach. The model's main proposition is that effective strategic management of IC enables an organisation to sustain a competitive advantage. As a result, the CICM approach brings the three disciplines of knowledge, innovation, and intellectual property management together to form a synchronised approach of business management based on the IC concept. The model will be tested in Malaysian Public Listed companies from the Main Market of Bursa Malaysia. In making sure the success of CICM implementation in the company, all IC resources: Human Capital, Structural Capital, Innovation Capital and Customer Capital play an important role of development of IC at each stage of CICM which as shown in Table 2. This IC resources, however, represents the hidden part of the value of a company, because it comprises the intangible resources of the company, which cannot be measured with the financial tools used in the measurement of tangible assets (Todericiua & Stăniț, 2015) and their roles will help the management to identify rules, systems, practices and tools to execute a strategic plan of CICM successfully. In fact, the significance of the IC resources and its exploitation and deployment had been acknowledged by companies.

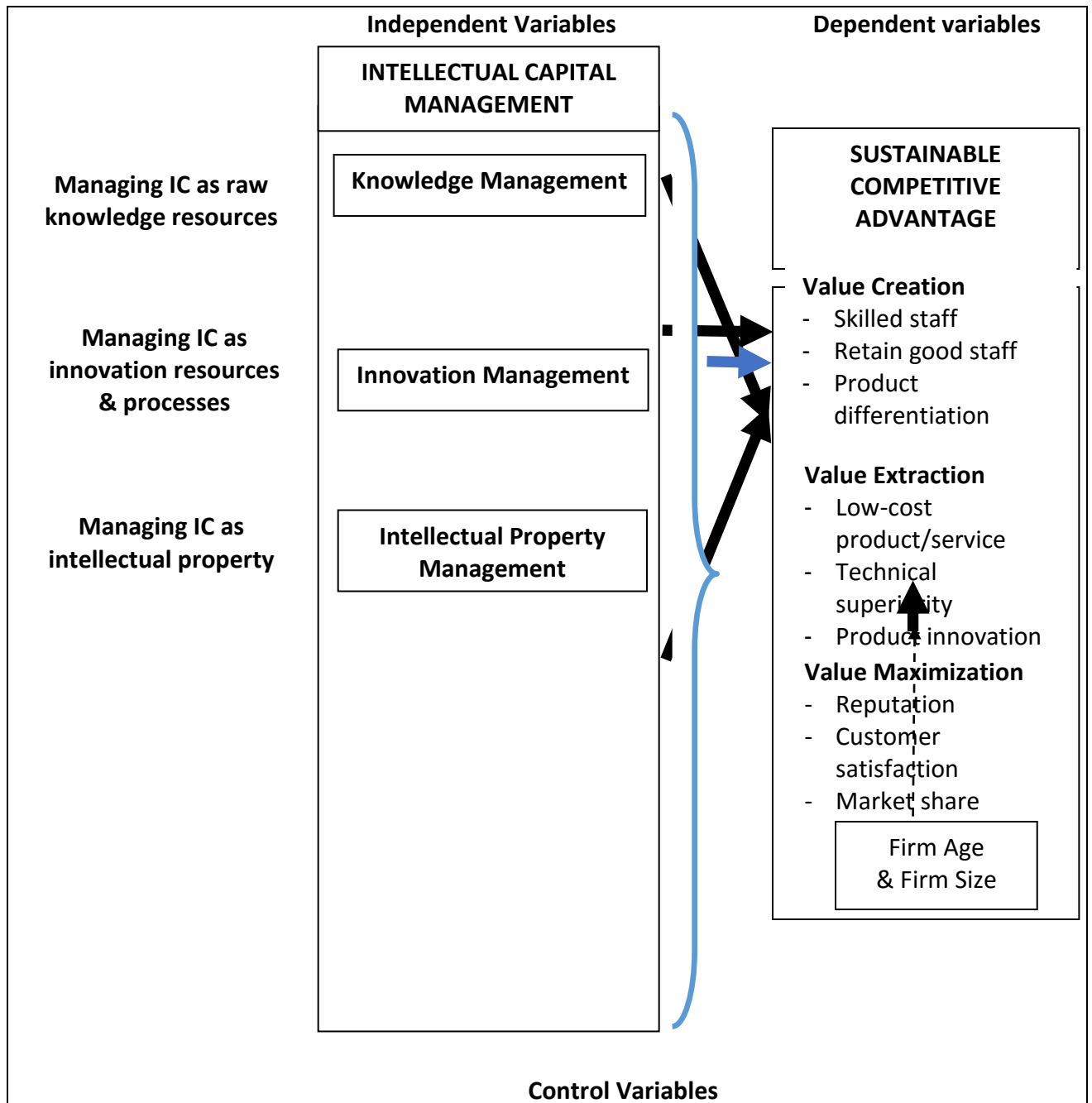


Figure 1: The Model of ICM

Table 2: The Types and Stages of IC under the CICM Approach (adapted)

IC/ Stage	Human Capital	Structural Capital	Innovation Capital	Customer Capital	Purpose
Knowledge managemen t stage	Management of Employees	Organisation al structure, System & processes, Corporate culture	Innovation mechanism, Innovation achievement , Innovation culture	Customer Relationship Management , Customer loyalty	Value creation
Innovation managemen t stage					Value extraction
Intellectual property managemen t stage					Value maximizatio n

### Sustainable Competitive Advantage in Relation to ICM

The idea of a sustainable competitive advantage surfaced in 1984, when Day suggested types of strategies that may help to 'sustain the competitive advantage' (p. 32). The actual term 'sustainable competitive advantage' emerged in 1985, when Porter discussed the basic types of competitive strategies that a firm can possess (low-cost or differentiation) in order to achieve a long-run sustainable competitive advantage. Interestingly, no formal conceptual definition was presented by Porter in his discourse. Barney (1991) has probably come the closest to a formal definition by offering the following: 'A firm is said to have a sustained competitive advantage when it is implementing a value creating strategy not simultaneously being implemented by any current or potential competitors and when these other firms are unable to duplicate the benefits of this strategy' (p. 102). Although lacking a formal definition, Anderson (1994) posit that sustainable competitive advantage is the ability to offer superior customer value on an enduring or consistent basis, a situation in which competitors are unable to easily imitate the firm's capacity for value creation. In relation to this, competitive advantage is achieved by those firms that succeed in mobilising their intangible assets in the form of knowledge, technological skills, experience, and strategic capabilities toward creating new processes and product or service offerings (Tovstiga & Tulugurova, 2007, p. 697).

The impetus for organisations to build and sustain competitive advantage is well recognized in the strategic management literature (Kong & Prior, 2008). The utilisation of knowledge has been a topic of interest in the strategic management literature, with some scholars suggesting that it is linked with the creation and maintenance of competitive advantage (Nonaka, 1994). Thus, one form of conceptualizing knowledge is through the study of IC (Kong & Prior, 2008; Bontis, 1998). Previous studies claimed that physical assets and financial capital are no longer the primary resources that facilitate competitive advantage in a knowledge-based industry, knowledge becomes the only means to competitive advantage (Kong & Prior, 2008; Kaplan & Norton, 2001). According to Koçoğlu et al. (2009), knowledge is a result of people's and groups' interaction which in the end provides the emerging of new organisational knowledge in the network. Therefore, the appropriate deployment of IC can provide access to multiple market opportunities in all the organisations (Kong & Prior, 2008).

## Conclusion

The importance of the management of intellectual capital has been widely accepted. In fact, the sustainability has become growingly significant among sizeable economic entities. It is critical for organisations to manage their intangible resources such as knowledge, innovation and intellectual property resources to attain a sustainable competitive advantage. Therefore, it should be emphasised that each company should develop its own model of ICM due to the importance of ICM as an enabler of future performance (Gogan & Duran, 2014). However, the practice of this comprehensive conceptual framework of CICM approach in the private sector may be a way forward to examine ICM in other organisations such as government agency or non-profit organisation to gain competitive advantage.

Furthermore, the study should reveal how knowledge resources of an organisation are used to create future value in achieving competitive advantage and sustainability in business practice. The study also expected to provide some empirical evidences for the top and senior management of Public Listed Companies in Malaysia on the importance of ICM in managing IC components for sustainable competitive advantage of their business performance. It should highlight which key IC resources to be emphasised and further developed as well as which IC stage to be focused in generating long term value. A further contribution of the research is to test and validate the model of ICM. Then, by employing this model, it is expected that there is a relationship between ICM and sustainable competitive advantage of Malaysian firms.

## Acknowledgement

We thank the anonymous referee for their useful suggestions in conducting this study.

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