

**The Models of Management and Development of Intellectual Capital  
(Study of Interpretive to Improve The Performance of Business and Compete  
Excellence of Pharmaceutical Industry)<sup>1 2</sup>**

**Wiwit Hariyanto, Sigit Hermawan, Herman Ernandi**  
Economic Faculty of Muhammadiyah University of Sidoarjo  
[Wiwit.hariyanto @ yahoo.com](mailto:Wiwit.hariyanto@yahoo.com)

**Sri Iswati, Zaenal Fanani**  
Economic and Business Faculty of Airlangga University

**ABSTRACT**

The aims of this research are to formulate the management and development of intellectual capital and to know the models of intellectual capital that is ideal for improving the performance of business and excellence Compete in the global level of pharmaceutical industry. This is a qualitative research by using the interpretive approach. The techniques of data collection of this research are completed with in depth interviews, documentation, and focus group discussion (FGD). The validity of the data is done by a test of credibility and transferability test. The technique of data analysis used in this research is the data reduction analysis. The results of this research show that the formulation of management and development of intellectual capital is *create value* by doing *knowledge management knowledge* and *brain power* over; *extract value* by doing *innovation management* over *prototypes of new products or service* and *maximize the value of intellectual property management* with over *competitive tools*. Based on the formula of management and development of intellectual capital, it is known that the ideal models of management and development of intellectual capital is by using *the Comprehensive Intellectual Capital Management (CICM)*.

***Keyword: The Model of Management and development, Intellectual capital, Study of Interpretive***

**PRELIMINARY**

Changes have occurred with the shifting dominance of physical resources to intangible resources in the form of knowledge (Andriessen, 2002). The world economy today is characterized by the rapid rate of change, globalization and knowledge-based products. The emergence of knowledge as a resource that has high competitiveness due to knowledge meets the criteria to be developed into a valuable resource for the company, rare, difficult or impossible to replicate by competitors and cannot be replaced by other resources (Barney, 1991)

Based on a survey conducted by *the Canadian Institute of Chartered Accountants (CICA)*, the top executives of 300 Canadian firms and 500 American corporate finances stated that the knowledge resource is a crucial factor for the success of the company (IFAC, 1998). The study further states that "*know-how*" that is owned by the employees

---

<sup>1</sup> Published on Proceeding of Brawijaya International Conference on Accounting and Business (BICAB), Brawijaya University of Malang, Agust 30<sup>th</sup> – Agust 31<sup>th</sup>, 2013

<sup>2</sup> This article is the part of HIBAH PEKERTI Research DP2M Ditjen DIKTI Kemendiknas RI, 2011 - 2012

will be the most important factor for a company gain a competitive advantage. As well as *know-how* of employees, innovation capabilities, expertise, and the power of thought organization will play an important role in defining the company's earning power. Blair Margaret, a *Brookings Institution economist*, who demonstrated that the value of knowledge and intangible assets increased significantly since 1982 ( IFAC, 1998). *Hard assets* presented by 62% as the market value of the company in 1982, but then dropped to 38% in 1992. In 1995, firms engaged in the health sector gets the value of the book market biggest in the world with approximately 75% market value caused by the company's intangible assets.

A large portion of intangible assets on the assets of the organization is supported by a major contribution to value creation by firms. Seeing so much *intellectual capital* contribution to *value creation of the firm*, the company must pay more attention to and properly manage its IC that can improve business performance and gain a competitive advantage, especially in a global environment. Efforts to improve the performance of the company's business in the global era and the knowledgeable should be done by all companies including those in pharmaceutical industries. Due to the pharmaceutical industry is the manufacturing industry will be a very solid knowledge to the highest level of research and innovative compared to other manufacturing industries ( Sharabati *et al*, 2010; Hariyanto, 2010, and Chen *et al*, 2004). Several studies confirm that companies with the allocation of research funding and development (R & D) are large and consistent will be the leader in its industry.

The globalization of the pharmaceutical industry provides a challenge for the pharmaceutical industry in Indonesia. Moreover, with the passage of the ASEAN harmonization of pharmaceutical regulations creating a single pharmaceutical market in ASEAN, providing a competitive landscape of the pharmaceutical industry is more complex and more stringent. Pharmaceutical companies in Indonesia are required to increase their competitive advantage, at least through the following three things which sustain the domestic market, export market development, and build the right strategic alliances. Although drug consumption per capita in Indonesia is still the lowest among ASEAN countries, but the Indonesian pharmaceutical industry growth rate is in the range of 13% -15% per year and is the largest pharmaceutical market potential in ASEAN. In 2004 the government began to promote the public health insurance programs, which have an impact on the amount of health products spending by community continues to increase. In 2009 the Indonesian pharmaceutical market reached around IDR 30 trillion, with the structure about 30% of foreign pharmaceutical products and domestic pharmaceutical products 70%. (Hariyanto, 2010).

Thus to be able to compete in the ASEAN region as well as in the global environment then the pharmaceutical industry must manage its *intellectual capital* appropriately. Due to based on studies results suggest that *intellectual capital* has significant and positive effects on business performance (Bontis *et al*, 2000; Bontis, 1998; Cabrita, *et al*, 2008; Sharabati *et al*, 2010; Chen *et al*, 2004; Belkaoui, 2003), and enhance the company's *competitive advantage* (Chen, 2008).

Based on the explanation above, the formulation of the problems in this study are 1. How to manage *intellectual capital* in order to improve business performance and competitive advantage of pharmaceutical companies in Global level, 2. How the development of *intellectual capital* in order to improve business performance and competitive advantage of pharmaceutical companies in Global level, 3. How to model management and development of *intellectual capital* development in order to improve

business performance and competitive advantage of pharmaceutical companies globally. Whereas the purposes of this study are 1. To determine the management of *intellectual capital* in order to improve business performance and competitive advantage of pharmaceutical companies in Global level, 2. To determine the development of *intellectual capital* in order to improve business performance and competitive advantage of pharmaceutical companies in Global level, 3. To find the model management and development of *intellectual capital* development in order to improve business performance and competitive advantage of pharmaceutical companies globally.

## **THEORETICAL OVERVIEW**

### ***Intellectual Capital***

Companies create value from what has been done during the process of knowledge creation. Accumulatively, "stock" of knowledge and capability of something "unique" for organization learning and experience. Choo and Bontis (2002:16) defines "stock" as the company's *intellectual capital*. *Intellectual capital* contains different capital rooted in employees, organizational routines, intellectual property rights, and relationships with customers, suppliers, distributors, and co-workers (Choo and Bontis, 2002).

Brooking (1997), operationally defines *intellectual capital* as intellectual materials are formalized, acquired, and managed to produce a high-value asset. Not much different from that definition, Bontis (1996) revealed that *intellectual capital* is elusive, but once discovered and exploited, it will provide the organization a new resource to compete and win. Creation of value and wealth of *intellectual capital* management stated by Stewart (1997) that *intellectual capital* is intellectual material - knowledge, information, intellectual property, experience - that can be used to create wealth. Collaboration of brainpower and packaging of useful knowledge.

According to *the Society of Management Accountants of Canada (SMAC) in SMAC*, 1998, that the balance of the term, intellectual assets is the knowledge-based items, the company that will produce a stream of future benefits for the company. These include technology, management, and consultation processes, as well as expand the intellectual property patents.

### **Components of *Intellectual Capital***

Based on the definition that has been proposed by the researchers and authors of *intellectual capital*, has actually led to the components that exist in *intellectual capital*. Leif Edvinsson for example, states that the value of a company's *intellectual capital* is the amount of *human capital* and *structural capital* of those companies (Edvinsson and Malone, 1997). Brooking (1996) who states that *intellectual capital* is a function of four types of assets, namely: 1) *market assets*; 2) *intellectual property assets*; 3) *human-centered assets*; 4) *infrastructure assets*. Meanwhile, according to IFAC (1998), *intellectual capital* consists of *human capital*, *customer (relational capital)*, and *structural (organizational) capital* is divided into two groups, namely *intellectual property* and *infrastructure assets*.

Meanwhile Marr (2008:2) explains that *intellectual capital* together *physical capital* and *financial capital* can be an important resource companies. *Intellectual capitals* included in it are all intangible resources provided to the company and contribute to the success of the company's strategy. Intangible resources can be divided into three namely *human capital*, *structural capital* and *human capital*.

**a. Human Capital (HC)**

*Human Capital* specifically presents *stock of* knowledge embedded in individual company capabilities collectively to provide the best solutions from the employees (Bontis, 1999, and 2001). Or it could also be expressed as the capabilities of all employees in their duties and support in achieving corporate goals. This can be interpreted as the number of workers skills, experience, capability, and "*tacit knowledge*" (Edvinsson and Malone, 1997, p 34-5). An example is the capacity of innovation, creativity, know how, previous experience, teamwork capacity, employee flexibility, tolerance of differences, motivation, employee satisfaction, learning capacity, loyalty, education and formal training (CIMA, 2005:2 ). Moon and Kym (2006) provide examples that are included in the *human capital* is part of employee capability, employee satisfaction and employee sustainability. Sustainability is important because employees associated with employee turnover. Companies with high employee sustainability will be easier to achieve corporate objectives thus no longer confused with employee turnover. Whereas Chen *et al* (2004) and Sharabati *et al* (2010) add that employee creativity is also an important part of *human capital*.

**b. Structural Capital (SC)**

*Structural capital* is all non human knowledge in companies such as hardware, software, databases, organizational structure, patents, trademarks, and everything about the organizational capabilities that support employee productivity. Or "everything will be left at the office when employees go home" (Bontis, 2001:45). Meanwhile (CIMA, 2005:2), defines the *structural capital* as knowledge inside the company. It consists of organizational routines, procedures, systems, cultures and *databases*. For example, organizational flexibility, documentation services, the existence of center knowledge, the existence of center knowledge, common use of information technology, and organizational learning capacity.

*Structural capital* can also be said or same interpreted with *Organizational Capital (OC)*. IFAC is one of the parties to equalize between *structural capital* and *organizational capital*. According to IFAC (1998:9), *organizational capital (OC)* including organizational capabilities are developed to meet the market needs as well as patents. Thus any patent, trademark, management tools, improvisation techniques, information technology systems, or research and development efforts that are implemented or will be implemented to develop the effectiveness and profitability of the company can be categorized in *organizational (structural) capital*.

**c. Relational Capital (RC)**

*Relational capital (RC)* or *customer capital (CC)*, which includes the organization's relationship with external parties such as customer loyalty, *goodwill*, supplier relationships (IFAC, 1998:9), and relations with the public (Moon and Kym, 2006). Meanwhile CIMA (2005:2) defines *relational capital* as the resources associated with the company's external relationships - with customers, suppliers, or partners in research and development. It is part of the *human capital* and *structural capital* relating to the company's relationships with *stakeholders* (investors, creditors, customers, suppliers), as well as their perceptions about the company. For example are *image*, customer loyalty, customer satisfaction, relationship with suppliers, commercial strength, capacity negotiation with financial entities, and environmental activities.

According to Bontis (1998:67), the main theme of *relational capital* or *customer capital* is the knowledge of marketing *channel* and customer relationships. *Customer capital* also present the potential of the organization of *intangible assets* acquired that have passed. *Intangible assets* include knowledge embedded on related customers, suppliers, government, or industry associations. So the essence of *customer capital* is associated with the embedded knowledge of the company's external relations.

### **Development of Intellectual Capital and Business Performance Against Competitive Advantage**

Model of the development of *intellectual capital* is necessary for companies to understand and be able to manage it so that it can bring improved performance and the company is able to achieve competitive advantage on a global level. This is important because the *intellectual capitals* there are three components that influence each other and affect the performance of the *human capital*, *structural capital* and *relational capital*. For example, *human capital* will affect the *structural capital* and *relational capital* (Chen *et al*, 2004; Bontis *et al* 2000; Bontis, 1998). Thus, if known like that then there should be special attention and management of the human capital because of the dimensions is what affects the other two dimensions. So the company should know and understand what the indicators that are part of the human capital are and how to manage them. Similarly, *structural capital* that affect *relational capital* (Cabrita, *et al*, 2008), then the company must understand the system, the culture, how the organizational structure that can improve the performance of *relational capital* in which there is a section that deals with *customer*. Similarly, the management of *relational capital* is directly related to the *customer* and the community. How to create the conditions for customers who are satisfied with the product or services company, creating customer loyalty, how to make a good image in the community, at will it become part of the *relational capital* dimension.

In addition to relate to performance then it should also be noted that each of the dimensions of *intellectual capital* also affect the company's competitive advantage (Chen, 2008). Thus it must be identified ideal dimensions and indicators of *intellectual capital* that can improve performance and global competitive advantage. And after it is done modeling the development of *intellectual capital* that will make it easier for companies to manage each component of *intellectual capital* that will ultimately be able to improve performance and achieve competitive advantage globally.

## **RESEARCH METHODS**

### **Research Approach**

The second study used a qualitative approach. Qualitative approach in the study of *intellectual capital* is more widely used to formulate and develop policies or development of *intellectual capital* theory itself. As Vandal's research (2003) that makes up the framework for *intellectual capital and business community college partnership*. Similarly, Kok (2007) examines the *intellectual capital* management for higher education institutions. The same thing with a qualitative approach in this study will be used to create a model for the management and development of *intellectual capital* that is useful to the pharmaceutical industry improve business performance and competitive advantage globally.

## **Research Object**

Of 240 plants of pharmaceutical industries in Indonesia, which are located in East Java province amounted to 47 mills. But of the 47 factories of pharmaceutical industry are not all their pharmaceutical headquarters located in the province of East Java. Of the 47 existing pharmaceutical plants in East Java province, only 44 factories which have a head office based in East Java province.

## **Methods and Data Collection Procedures**

Data collected by *in depth interview*, documentation and observation.

### *a. In Depth Interview*

*In-depth interviews* were conducted as part of an approach to qualitative research. *In depth interviews* performed by means of structured interviews and unstructured interviews to *key informant* set before (Moleong, 2000). *In depth interviews* were conducted to understand the business in the pharmaceutical industry, the ins and outs and competition of the business in the pharmaceutical industry, and the ideal indicators that can improve the performance of the pharmaceutical companies achieve competitive advantage and global level.

### *b. Documentation*

Documentation used to collect related data to the performance of the pharmaceutical companies for this and other related data. Data can be derived from the primary data such as financial reports, prospectus of pharmaceutical companies, as well as profiles of Pharmacy GP Indonesia in East Java region. Data can also be derived from secondary data such as the level of competition at the level of pharmaceutical firms regionally, nationally and internationally, and also the level of productivity of the pharmaceutical industry there. This data can be obtained from *searching* on the internet, or from other media.

### *c. Observation*

Observation was done by direct observation to study the object. Observations carried out in order to understand the object of research and activity in it. For example, marketing activities related to *relational capital*, as well as activities that exist in the personnel department (HRD) is also associated with *human capital*. Similarly, the observations related to systems work, work culture, information technology is part of the *structural capital*. With These observations will complement the data *in depth interviews* and data documentation.

## **Data Analysis Techniques**

Techniques of data analysis in this research were the domain and taxonomic analysis. Domain and taxonomic analyses were used to formulate a model of *intellectual capital* that can improve business performance and achieve competitive advantage globally. At this stage will be used either whole data obtained from the results of studies conducted with the influence of the quantitative approach of the data or in-depth interviews, literature studies, and focus group discussions. Domain analysis will be made by the researcher to create a worksheet domain. Next will be made taxonomic analysis focused on the exploration stage. Analysis domain and taxonomic analyzes carried out simultaneously while data collection in the field.

## **ANALYSIS AND DISCUSSION**

### **Management of *Intellectual Capital* to Improve Business Performance of the Pharmaceutical Industry and Holds Competitive Advantage in Global Level**

#### **a. *Human capital* management**

The management of *human capital* in the context of the pharmaceutical companies is more emphasis on the knowledge of employees, employee capabilities, and competence of employees. The emphasis of the three is expected that *human capital* management can run well, the beginning of the recruitment, selection processes have special specification up to the creation of a special competences possessed by an employee. In addition to the specifications in the recruitment of *human capital* management in pharmaceutical companies also consider the staffing system and the mandatory training provided to employees (MR initial training, training for new employees for production, training of K3(OHS)).

#### **b. *Structural Capital* Management**

A *structural capital* management appropriate to the context of the pharmaceutical companies is more emphasis on systems, procedures, working mechanisms, organizational processes, and organizational culture are good. With the variety of mechanisms had been expected that the condition of the organization or company can run well and are always improving the product quality is better than the competitors, the better the company's growth, and has a profit or benefit better than rivals or competitors. In addition to more emphasis on the circumstances and culture of a company's *structural capital* management in pharmaceutical companies is also more emphasis on how a company in this case is the pharmaceutical industry in producing products produced in accordance with CPOB.

#### **c. *Relational capital* management**

A *relational capital* management in accordance with the context of the pharmaceutical companies is more emphasis on improving the image of the product, consumer or customer satisfaction and increase customer loyalty. Likewise, public relations should be improved in order to avoid problems in an enterprise environment. With the existence of several mechanisms mentioned above, the expected management of *relational capital* a company can run well, and in conjunction with outside parties or marketing associated with the management of *relational capital* is one of the elements of the *intellectual capital* that must be considered good and must be managed well too. Last but not least specific, relational capital management in industrial pharmacists also has to maintain a good relationship with a health worker or doctor.

### ***Intellectual Capital* Development Can Improve Business Performance of Pharmaceutical Industry and Achieve Competitive Advantage in Global Level**

*Intellectual Capital* Development Can Improve Business Performance of Pharmaceutical Industry and Achieve Competitive Advantage in Global Level, by *Comprehensive Intellectual Capital Management (CICM)*. (Al-Ali, 2003). Efforts to manage and develop the *IC* components can be through the *Comprehensive Intellectual Capital Management (CICM)*. *CICM* concept consists of three stages, namely *knowledge management*, *innovation management*, and *intellectual property management*. Each stage has a different purpose. Stages of *knowledge management* aims to create value (*value creation*), *innovation management* stage aims issuing value

(*value extraction*), and the phases of *intellectual property management* aims to maximize the value (*value maximization*).

**a. Development stage IC in Knowledge Management**

1. *HC* development can be done with improvements in employee recruitment process or system of recruitment to be done in the correct manner in accordance with the standards of training that should be provided to the employee. *HC* development can also be done with the existing *knowledge transfer* within the company. *Knowledge sharing* between experienced employees with new employees, or between employees senior to junior employees.
2. Development of *SC* can do a lean organizational structure optimization in strategic decision to be more efficient and effective. Optimizing the development of infrastructure, machinery, equipment, and information technology should be able to meet the requirements of CPOB.
3. *RC* development can be done by always maintaining physician relationships that must be continuously improved and are always trying to find new users of other health workers.

**b. Stages of development in the Innovation Management IC**

1. *HC* development to do is training to grow and develop ideas, creativity, and innovation that emerge in new ways, more innovative new work systems, and other creative aspects. Therefore, training should be focused on aspects of *skill, attitude, and knowledge*. *Knowledge* development can be done with the *knowledge sharing* among seniors with junior employees, and between experienced employees with new employees. Increase the number and competence of pharmacists also be part of the development of *HC*.
2. Development of *SC* that can be done is to develop technologies to optimize it owned. Technology or machinery can also be empowered to accept orders from other companies, known as *maklun* products. In addition, the development of organizational culture towards an innovative and creative culture, the development of *research and development department* is also important to do.
3. *RC* development to do is to use the mass media for optimum imaging products and companies. Strengthening *marketing* team to capture innovation in the market for then brought into the company. Development of *customer feedback* for product improvement or innovation. Development through CSR that is sustainable for the long term.

**c. Development stage IC in Intellectual Property Management**

1. *HC* development must be done on *competency-based human resource management* and *career planning system* so *HC* can really give you the best work for pharmaceutical companies.
2. *Brainware* employee development, especially on the marketing needs to be done in order to spearhead sales and marketing is the marketing of pharmaceutical companies as well as *med rep*. Likewise, the development of improved pharmacist can in terms of quantity and quality.
3. *SC* development can be done by optimizing the role of *branded* products, product leader, and famous *off patent* products owned by the company. Development can be done with the *IP portfolio*. Another development in the *SC* can be done on information technology, machinery, equipment, and systems that have been integrated data base or EDP is also owned by the company. Development should also be done on the corporate culture towards a

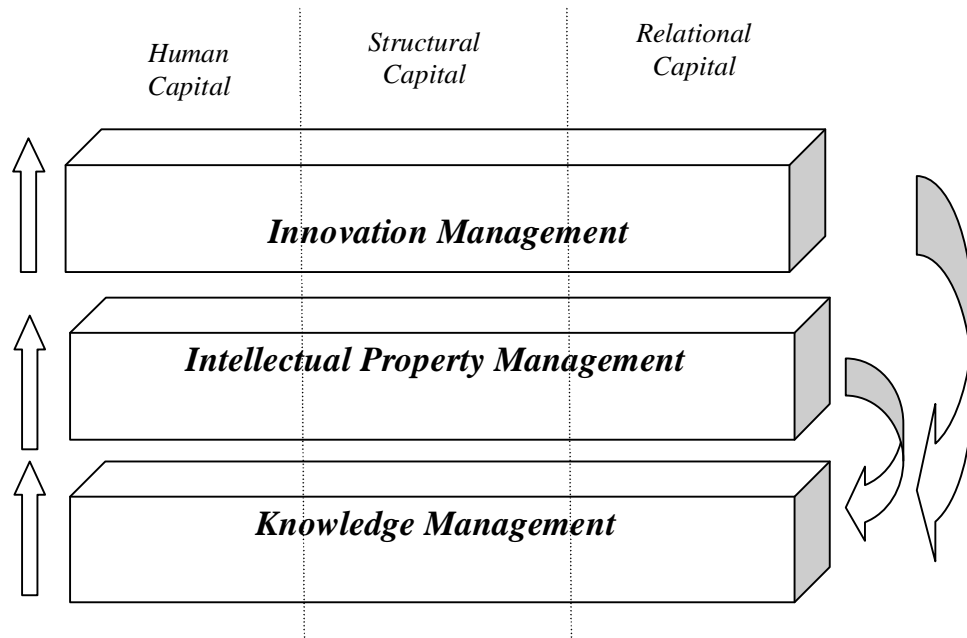


professional culture. Likewise, the vision, mission and strategy development through various means of evaluation, such as the *balanced scorecard*.

4. RC development can be done to maximize the company's reputation to convince doctors to ethical products. *OTC* product development can be done by optimizing the role of the mass media, CSR activities. Various co operations can be empowered for various corporate interests.

**Model of Management and *Intellectual Capital* Development Can Improve Business Performance of Pharmaceutical Industry and Achieve Competitive Advantage in Global Level**

Management model and the development of *intellectual capital* is necessary for companies to understand and be able to manage it so that it can bring improved performance and the company is able to achieve competitive advantage in the global level. This is important because the *intellectual capitals* there are three components that influence each other and affect the performance namely the *human capital*, *structural capital* and *relational capital*. For example, *human capital* will affect the *structural capital* and *relational capital* (Chen *et al*, 2004; Bontis *et al* 2000; Bontis, 1998). Thus, models of management and development of *intellectual capital* in accordance with the principles of CICM is like in the picture below



**Figure 1**  
**Image of Management Model and *Intellectual Capital* Development Using the CICM Model**

Based on the image above to note that the *CICM* model is used to manage the *IC* at every level in every stage of business development and will support the next stage. The first phase, which *creates value* by doing the *knowledge management on knowledge* and *brainpower*. The first step will support the second step, the *extract value* with *innovation management* do the *prototypes of new products or services*. The last or the

third step is *maximizing the value of intellectual property management on competitive tools*. Through these three phases is clearly visible division of each stage so hopefully there will be no overlapping steps in the management of *IC*.

Of the three stages in the *CICM* if we apply the model to the pharmaceutical companies, the first stage, ie, *knowledge management* is synonymous with the pharmaceutical companies of middle level, because when viewed in terms of *human capital* well its resources are still limited human resources, finance and capital, in terms of *structural capital* is still limited to the management of the company is not able to perform a variety of innovations and creations in terms of *relational capital* while also still a relationship with your doctor is the suburban doctor or health worker of lower level as a midwife. The use of advertising media as a promotional tool is also not widely practiced.

For the second stage of the *Innovation Management* is synonymous with the pharmaceutical companies that is middle-class level, because when viewed in terms of *human capital* has been training really support creativity and innovation. The result of *knowledge, skill, and attitude* of employees increased so as to develop all existing *resource* companies., In terms of *structural capital* is do some innovations on the development of machinery, equipment, and technology may be caused by the presence of *CPOB* regulations and also from within the company itself. Innovation of the company can be done on the basis of a *top down* approach and *bottom up*, while in terms of *relational capital* already uses media or marketing campaign that has begun to be developed by improving relationships with doctors, change of *mindset* from *sales oriented* to *marketing oriented* already have begun to do for the long-term interests.

Whereas the last or third stage or is *the Intellectual Property Management*. At this stage pharmaceutical company belonging to the latest category is a mid or large scale pharmaceutical company, because if we look at in terms of *human capital* in the company has been providing planning of *competency based human resource management* and *career planning system*, in terms of *structural capital* is doing things related to *branded* products, patent products, and also the products sold in the market or required by the terms of the *relational capital* while there is a good relationship with grade A doctor or physician *leader* has been established. This is certainly very beneficial for *ethical* products of the company because it will be easier to market the products of pharmaceutical company has *marketing* team and team of highly qualified *sales force*. This is related to the way the marketing team to develop relationships with physicians and *KPDM* in hospitals.

## CONCLUSION AND SUGGESTIONS

### Conclusion

1. *Intellectual Capital* Development Can Improve Business Performance of Pharmaceutical Industry and Achieve Competitive Advantage in Global Level, by *Comprehensive Intellectual Capital Management (CICM)*. (Al-Ali, 2003). Efforts to manage and develop the *IC* components can be through the *Comprehensive Intellectual Capital Management (CICM)* . *CICM* concept consists of three stages, namely *knowledge management, innovation management, and intellectual property management*. Each stage has a different purpose. Stages of *knowledge management* aims to create value (*value creation*), *innovation management* stage aims issuing value (*value extraction*), and the phases of *intellectual property management* aims to maximize the value (*value maximization*).

2. Management model and the development of *intellectual capital* is necessary for companies to understand and be able to manage it so that it can bring improved performance and the company is able to achieve competitive advantage in the global level. This is important because the *intellectual capitals* there are three components that influence each other and affect the performance namely the *human capital*, *structural capital* and *relational capital*. For example, *human capital* will affect the *structural capital* and *relational capital*.
3. *CICM* model is used to manage the *IC* at every level in every stage of business development and will support the next stage. The first phase, which *creates value* by doing the *knowledge management* on *knowledge* and *brainpower*. The first step will support the second step, the *extract value* by doing *innovation management* on the *prototypes of new products or services*. The last or the third step, is *maximizing the value of intellectual property management* on *competitive tools*. Through these three phases is clearly visible division of each stage so hopefully there will be no overlapping steps in the management of *IC*.

### **Suggestion**

- a. In relation to the formulation and development of *Intellectual Capital* management can improve business performance and achieve excellence of pharmaceutical industry to compete globally then the pharmaceutical companies should pay attention to ideal indicators for each component of *Intellectual Capital*.
- b. For subsequent researchers in relation to research and development to formulate *Intellectual Capital* management can improve business performance and achieve excellence of pharmaceutical industry to compete globally should seek alternative models other than those actually able to adopt or improve business performance and competitive advantage.
- c. Pharmaceutical companies in East Java with respect to research can be a reference in the development of the pharmaceutical companies that are members so that pharmaceutical companies can improve business performance and achieve competitive advantage globally.

### **BIBLIOGRAPHY**

- Andreou, Andreas N. 2006. An Exploratory Study To Identify Operational Knowledge Assets from Intangible Value Drivers in High Tech Sector. *Dissertation*. The George Washington University.
- Andriessen, Daniel. 2002. *Making Sense of INTELLECTUAL CAPITAL. Designing a Method for the Valuation of Intangibles*. USA : Elsevier, Inc
- Asni, Nur. 2008. Pengaruh Intellectual Capital Terhadap Nilai Pasar Pada Perusahaan Jasa Keuangan di Bursa Efek Jakarta. Program Pasca Sarjana. Magister Akuntansi. *Tesis*. Tidak Dipublikasikan.
- Barney, J. 1991. Firm Resources and Sustained Competitive Advantage. *Journal of Management*. Vol 17, pp 99 – 120

- Bollen, L., Vergauwen, P. and Schnieders, S. 2005. Linking Intellectual Capital and Intellectual Property to company performance. *Management Decision*, Vol. 43 No. 9, pp. 1161-85.
- Bontis, Nick. 1999. Managing An Organizational Learning System By Aligning Stocks and Flows of Knowledge : An Empirical Examination of Intellectual Capital, Knowledge Management, and Business Performance. *Dissertation*. Richard Ivey School of Business. The University of Western Ontario. Canada.
- Bontis, Nick. 1998. Intellectual Capital : An Exploratory Study That Develops Measures and Models. *Management Decision*. Vol 36 No 2, pp 63-76
- Bontis, Nick., Keow, William Chua Chong., and Richardson, Stanly. 2000. Intellectual Capital and Business Performance in Malaysian Industries. *Journal of Intellectual Capital*. Vol 1 No 1, pp 85-100
- Bontis, Nick. 2001. Assessing Knowledge Assets : A Review of The Model Used To Measure Intellectual Capital. *International Journal of Management Reviews*. Volume 3, Issue 1, pp 41 – 60.
- Bontis, Nick and Enz, Jac Fitz. 2002. Intellectual Capital ROI : A Casual Map of Human Capital Antecedents and Consequents. *Journal of Intellectual Capital*. Vol 3 No 3, pp 223 – 247
- Brooking, Annie. 1997. *Intellectual Capital*. London : International Thompson Business Press
- Bungin, Burhan. 2003. *Analisis Data penelitian Kualitatif, Pemahaman Filosofis dan Metodologis Ke Arah Penguasaan Model Aplikasi*. PT. RajaGrafindo Persada. Jakarta.
- Cabrita, Maria do Rosario, and Bontis, Nick. 2008 ‘Intellectual Capital and Business Performance in The Portuguese Banking Industry’, *Int. J. Technology Management*, Vol. 43, Nos. 1-3, pp.212–237.
- Cabrita, Maria do Rosario., de Vas, Jorge Landeiro., and Bontis, Nick. 2007 Modelling The Creation of Value From Intellectual Capital : A Portuguese Banking Perspective, *Int. J. Knowledge and Learning*. Vol. 3, Nos. 2/3, pp. 266 – 280.
- Chen, Yu-Shan. 2008. The Positive Effect of Green Intellectual Capital on Competitive Advantages of Firms. *Journal of Business Ethics*. Vol 77, pp 271–286.
- Chen, Ming-Cin. 2004. Intellectual Capital and Competitive Advantages: The Case of TTY. *Journal of Business Chemistry*, Vol. 1 No. 1, pp. 14-20.
- Coo, Chun Wei., and Bontis, Nick. 2002. Knowledge, Intellectual Capital, and Strategy: Themes and Tensions. In C.W. Choo, N. Bontis (Eds). *The Strategy*

*Management of The Intellectual and Organizational Knowledge*. New York : Oxford University Press.

- Coyne, K. P. 1986. Sustainable Competitive Advantage-What It Is,What It Isn't. *Business Horizons*, Vol 29, No 1, pp 54–61.
- Daum, J.H. 2005. Intangible Assets-Based Enterprise Management : A Practical Approach, *Proceedings of 2005 PMA IC Symposium*, Stern School of Business, New York University, Manhattan, 15 December 2005.
- DeVol, R.C., Wong, P., Bedroussian, A., Wallace, L., Ki, J., Murphy, D. and Koepp, R. 2004. *Bio-Pharmaceutical Industry Contributions to State and US Economics*, Milken Institute, San Diego, CA.
- Edvinsson, L., and M. Malone. 1997. *Intellectual Capital : Realizing Your Company's True Value by Finding Its Hidden Brainpower*. New York : Harper Collins Publishers Inc.
- Fanani, Zaenal. 2007. Kompensasi Karyawan: Bukti Dari *Intellectual Capital* Dan *Social Capital* Terhadap Kinerja Perusahaan. *Penelitian DIPA*. Lembaga Pengabdian Kepada Masyarakat Universitas Airlangga Surabaya
- Fisher, J.E. 1998. Contingency Theory, Management Control Systems and Firm Outcomes : Past Result and Future Directions. *Behavioral Research in Accounting*. Vol 10, pp 48 – 63
- Ghozali, I. 2006. *Structural Equation Modeling: Metode Alternatif dengan Partial Least Square*. Badan Penerbit Universitas Diponegoro.
- Hariyanto, Guntur Tri. 2010. KLBF : Kinerja Yang Kurang Didukung Penguatan Riset. Capital Price Analysis. Artikel 23 Februari. <http://analysis.capitalprice.com>. Diakses 21 Maret 2010. Jam 05.00 WIB.
- Hermans, R. 2004. International Mega-Trends and Growth Prospects of the Finnish Biotechnology Industry, *ETLA – The Research Institute of the Finnish Economy*, Helsinki.
- Hsu, Hsiu-Yueh (Sonya). 2006. Knowledge Management and Intellectual Capital. *Dissertation*. Carbondale, USA : Southern Illinois University
- Iswati, Sri., and Anshori, Muslich. 2007. The Influence of Intellectual Capital to Financial Performance at Insurance Companies in Jakarta Stock Exchange (JSE). Melbourne, Australia : *Proceedings of the 13th Asia Pacific Management Conference*. pp. 1393-1399
- Kok, Andrew. 2007. Intellectual Capital Management as Part of Knowledge Management Initiatives at Institutions of Higher Learning. *The Electronic*

- Journal of Knowledge Management*. Volume 5 Issue 2, pp 181 - 192 , available online at [www.ejkm.com](http://www.ejkm.com). Diakses 13 Mei 2010. Jam 20.20 WIB
- Marr, Bernard. 2008. Make The Invisible Visible: Identify Intellectual Capital. <http://www.cimaglobal.com>. Diakses 23 Maret 2010. Jam 01.58 WIB
- Moleong, Lexy J. 2000. *Metodologi Penelitian Kualitatif*. PT. Remaja Rosda Karya. Bandung
- Moon, Yun Ji, and Kym, Hyo Gun. 2006. A Model for The Value of Intellectual Capital. *Canadian Journal of Administrative Sciences*; Sep 2006; 23, 3; ABI/INFORM Global. pg. 253
- Mulyadi dan Setyawan, Johny. 2001. Sistem Perencanaan dan Pengendalian Manajemen. Edisi 2. Jakarta : Penerbit Salemba Empat.
- Porter, Michael. E. 1980. *Competitive Advantage* . The Free Press. New York.
- Sedyaningsih, Endang Rahayu. 2010. Pembangunan Kesehatan Berbasis Preventif dan Promotif. Pusat Komunikasi Publik. Sekretariat Jendral Kementrian Kesehatan.
- Sekaran, Uma. 2003. *Research Methods for Business: A Skill Building Approach*, Fourth Edition, New York: John Willey&Sons, Inc.
- Sugiono, 2002. *Metode Penelitian Administrasi*. Cet. Kedelapan. Alfabeta. Bandung
- Sharabati, Abdel-Aziz Ahmad., Jawad, Shawqi Naji., and Bontis, Nick. 2010. Intellectual Capital and Business Performance in The Pharmaceutical Sector of Jordan. *Management Decision*. Vol 48. No. 1. pp. 105 – 131
- Sveiby, Karl-Erik. 1997. *The New Organizational Wealth: Managing and Measuring Knowledge- Based Assets*. San Fransisco: Berrett-Koehler Publishers Inc, p. 11
- The Chartered Institute of Management Accountants (CIMA). 2005. Understanding Corporate Value : Managing dan Reporting Intellectual Capital. [www.cimaglobal.com](http://www.cimaglobal.com). Diakses 8 Januari 2010. Jam 21.30 WIB.
- The International Federation of Accountants (IFAC). 1998. *The Measurement And Management Of Intellectual Capital : An Introduction*. New York. USA.
- Vandal, Bruce Alan. 2003. An Intellectual Capital Framework For Community College and Business Partnership. *Dissertation*. The University of Minnesota.
- [www.gpfarmasi.org](http://www.gpfarmasi.org). Anggota Industri Farmasi Propinsi Jawa Timur. Diakses 10 Mei 2010. Jam 20.45 WIB
- Zucker, L.G., Darby, M.R. and Brewer, M.B. 1994. Intellectual Capital and The Birth of US Biotechnology Enterprise. *Working Paper Series 4653*, NBER, Cambridge.