Intellectual Capital: The Invisible Resource of Strategy

Yulianita Rahayu  
Universitas Islam Nusantara, Bandung, Indonesia

The objective of this research to situate intellectual capital as resource of strategy, which began with the statement that “knowledge” has become the key to economic viability and vitality in our present circumstances. It motivated that many people do believe “knowledge” has become so important, displacing other forms of capital as the focus for strategic analysis. It seems clear that the amount of intellectual capital, or rather the proportion of most firm’s total capital that is intangible, has increased markedly in recent decades. This phenomenon makes many aspects of strategy formulation, planning, and decision making have been transformed from an art to a science. This transformation is evolving the ability of many open-minded organizations to create breakthrough strategies and solutions. It is providing them with a means to overcome their most important business challenges. The approach in this research will refer to management theory and previous research. Basic analysis is knowledge which has been recognized as a valuable resource by researchers. Intellectual capital simply means the knowledge resources of an organization. Success of organizations depends on creating, discovering, capturing, disseminating, and measuring knowledge.

Keywords: intellectual capital, strategy, knowledge, human capital

Introduction

Information and knowledge are competitive thermonuclear weapons in this era. Knowledge is holding more value compared to natural resources, huge factory, or high bank balance. In every industry success rate is gained by corporation that has the best information and knows how to use it effectively, brain beats brawl. For example, Wal-Mart, Microsoft, and Toyota, they aren’t great corporations because of their wealth; however on the other hand Sears, IBM, and General Motors are. Because they own something more valuable than physical asset or finance and all but intellectual capital.

We’re growing up during industrial era, but fundamentally economic world nowadays is different from the past. Now information is the game. The economic world we leave behind is the world where the main source of wealth is physical asset but in this new era wealth is referred as the product of knowledge. Knowledge is not only in scientific term but also news, critiques, entertainment, communication, and services becoming the most important and the main player in economic world nowadays.

The term of capital intellectual isn’t literally translated as group of Ph.D.’s holder working chained on locked laboratory, and obviously not the ownership intellectual right—as in patent and copyright—even if it can be part of intellectual capital. The intellectual capital is the sum of knowledge given by everyone in the

Yulianita Rahayu, SE., MBA, Universitas Islam Nusantara, Bandung, Indonesia.  
Correspondence concerning this article should be addressed to Yulianita Rahayu, Komplek IPDN No. D. 31 Jatinangor, Sumedang, West Java-Indonesia.
company that gives them the upper hand. Unlike the asset that—widely known—by businessman and accountant as land, factory, tools, and cash money, the nature of intellectual capital is intangible. Its labor knowledge: intuition on trial and error from chemist team develops new and expensive material or the skill of the worker that results in thousand alternatives to make the factory efficient. As also a microwave network that transports information as fast as possible, so the company can faster respond toward the market compared to their rival. Its collaboration, which in the learning process happened between company and customer and bond created between them bring customers back.

The Disclosure of Intellectual Capital

As intellectual asset is important but never be as important as now. The labor union—one main form of corporation—in the past, represented one of many ways managing the knowledge asset—when the knowledge is scarce, you hoard it, give it a magical aura and mystery, and limit its access only to some special people. It is a form of knowledge management that has survived to date in contemporary labor union. In 1978, a Swede named J. Westerman asked why shipyard and ceramic factory only reached half of productivity compared to the same factory in England and Netherland. His investigation called “Om de svenske närigarnes undervight genemmot de utländske dyomedel en trögare arbetsdrift” which means, “About the Swedish inferiority compared with the Foreign Manufacturers because of Slower Work Organization”—show that the Swede and their competitor essentially use the same machines. It’s not fixed asset that gives England and Netherland the upper hand but the knowledge to use the machines. In this century, pyramid-structured company and the creation of business unit emerge to manage the knowledge—to gather and translate finance data and scan for new technologies.

So, what’s new? The answer is simple, because knowledge becomes the one and only most important production factor, and managing intellectual assets is the only most important task in business. Physical power, machines even electricity slowly are replaced by dynamic of mind. Like when machines changed human-manual labor, Peter Drucker (taken from Thomas A. Stewart, a book titled Modal Intelektual: Kekayaan Baru Organisasi in 1998) said that the number of labor worker needed for producing additional output production decreased by 1% per year since 1900. And also after World War II the resources of raw material needed in every GDP production started to decrease by 1%. A few years later—starting around 1950—the amount of energy used by every producer also decreased, around 1% in every additional unit output. The game changer in fixed asset and energy usage is intelligence. Starting in this century the quantity of educated employee increased and also based on Drucker by 1%.

It’s difficult to track how knowledge became the game changer in economic growth because of its much design. Knowledge became the major matter of our behavior toward product, what to do, to buy and sell. As a result, to regulate—to find, grow and then keep, sell and divide the capital intellectual—becoming the most important task for individual as well as business owner and the government. It might be difficult to fathom but it’s not uncommon. Don’t you notice that power of mind had proven its prowess?

To understand what happen in business world then follow the money flow. It’s trail going to lead you directly to information. Corporation makes two enormous spendings. First, capital spending—money invested in properties, machines, and other asset that could be used in certain amount of time and hold main profit, namely Return on Investment divided in certain amount of time. Research and Development, and training are the example that company makes long term investment as addition in capital equipment but it is viewed as
regular company expenditure—as cost—in accounting book. Expense is one of many reasons why company makes a reduction in salary, because of daily expense for salary, raw material, equipment, advertisement, expedition, rent etc. The difference between cost and capital expenditure is not always clear, so it can be explained why accountants get paid high, but it is clear that the information age has changed drastically both types of costs.

Even for a short term, what the money had purchased couldn’t predict the consequences. In the business world, the first thing changed is perfecting what exists—make something better, faster, cheaper or more. Lee Sproull and Sara Kiesler (ibid.) in Connection, their book about the impact of networking toward organization said that, “technically it anticipated—the gain of efficiency had predicted or gained productivity showing that there are infestations in new technology” and difficult to make estimation about it.

Information technology has two basic dualism characteristics. First, tech is applied by optimizing its automatically operation that is logically very different from 19th’s century machinery, changing human labor with technology that makes it able to perform their job better and at the same time to supervise and on the other hand the very same technology continuously produces information about production process and basic administration that would bridge for organization to finish its job. It makes activity previously caught in grey area, crystal clear. As is said tech changes old logic about automatically.

Expenses for equipment producing, gathering, creating, and channeling information are more productive investment in equipment producing and moving goods. For the note, the result of investment on intellectual capital is equal to the return of investment on R&D, another capital investment of knowledge: Frank Lichtenber (ibid.) calculated the return of investment of expense for factory, machinery, and new equipment—in the form of physical capital—compared to return of investment from R&D expense. He found that every one dollar spent on R&D has a return of eight times greater than one dollar spent on a new machine. New machines are helping to do old job better and that means the addition in machinery perfects the old procrastinated job. R&D brings innovation—brand new goods and services that have higher value than previous product they replaced.

Facts that explain about organization in this century: tech and knowledge have different shape, they are incomparable with flow of goods and services. In this difference there’re two consequences resulted: first, the science (knowledge) and assets that produce it can be, for example physical asset and monetary. But intellectual asset and physical-monetary asset can be separated, simultaneously, or interconnected. Second, if two kinds of knowledge are the main sources of wealth, then investment must be done by individual, company, and government that produces and processes knowledge.

**Capital Intellectual Based on Market**

Market has no mercy. Market rewards people who have value and condemns people who don’t. Market doesn’t care and never care; it keeps evolving time to time, without knowing whether they’re giving love tap or severe blow, knowledge work is a whole different world, it has professional touch. Professionals here are measured by result they achieved but not by the task they’re doing. The nature of knowledge outburst is technical and scientific, rapid diffusion and rapid development of technologies and information are part of the increasing knowledge in added value in corporation and the increasing of knowledge worker—everyone work together in order to create organization, methods, and new essence of management. Based on Stephen Barley (ibid.), a Standford professor:
in parallel with increasing skilled worker in corporation, in advanced specific task and new technologies that need special knowledge, corporation starts creating worker union than supervision pyramid because the need of expertise...because top position no longer knows what task the underlings do, that’s why command chain needs to be stopped in the name of coordination.

Trend to leave mass production for same goods to skill-specific work made ruling management not really needed—good thing because of unqualified.

**Intellectual Capital Management**

One of the reasons why organization doesn’t rule knowledge is that it is wrapped in manifest—on paper in a book, “magnetic roll audio cassette”, in a speaker mind, or in monumental stone. We’re more managing the exterior than the core.

Squad of employee and computer can track physical and monetary asset, but accounting system can’t measure brain power. *Summa de arithmetica, geometrica, proportioni: et proportionalitais* the first published accounting text book in 1494 by a mathematician from Venezia named Luca Pacioli (ibid.), this book is very popular—among accountants—to show how double entry book is kept. For accounting this entry book is as important as Arabic invention of “zero” as number in math. Modern corporation is unmanageable, without debit and credit system that bring coherent correlation from various flow of goods and money in a corporation. Balance was created in 1868, and loss and profit report appeared before World War II. That’s the most suitable framework with industrial corporation but not with knowledge-based corporation. As Robert K. Elliot points out, on an important article entitled “The Third Wave Break on Shore of Accounting”:

Focusing on real asset is industrial evolution tradition. Including supply and fixed asset: for example coal, steel, and steam engine. And this asset stated based on cost. On the result, we focused on cost too much on production side and moreover on artificial added value from customer side.

During industrial era, an idea held no value unless bunch of physical asset was measured and used. Nowadays, unlike machineries or money, “ideas have their own power. They accumulate without intuition and then burst” said Michael Brown (ibid.), CEO of Microsoft.

One of many reasons why people give diminutive attention to intellectual capital is because they can’t see the benefit of mind power in their investment remuneration. In documented studies about manager and investor managing resources Michael Porter (ibid.) from Harvard Business School found that:

Capital had tendency to dedicate toward physical asset instead of intangible asset that had immeasurable remuneration. Mostly corporations choose investing on land and equipment with easier to measure cash flow and more prestige and more justified instead of infestation in R&D, trainee, or other form that the remuneration un-quantified.

Gordon Petrash (ibid.) (Global Director of Intellectual Capital Asset and Capital Management, Dow Chemical Company) built six simple but effective processes to manage capital ownership:

1. Start from the strategy: mention of knowledge rule in every business or business unit. New product maybe has a priority in a division and for other maybe bricks and mortar that are deployed to get economical scale factory or money to open new office;
2. Measure competitor strategy and portfolio patent;
3. Clarify your portfolio: what you hold, what you use, and who is responsible for that business;
4. Evaluate cost and price of your intellectual ownership, and determine which to keep, sell, or leave. Dow
kept filtered list of value every patent and on-hold patent based on whether it’s in use (by Dow or underling patent) from potential business usage, or profit-less to corporation. Number always changed but in Fall 1995, they showed the corporation during that time, they using 36 percent from their patent and 50 percent in potential use and 14 percent in no on-hold profit;

5. Infestation: based on what you study about your knowledge asset, identify distance that you have to fill in order to utilize the knowledge or hole to fill to keep competitor and/or direct to R&D or check the technologies you can get;

6. Collect all your portfolio knowledge and repeat infinitum process.

Nothing special, but Petrash said “we never found anyone doing whole package”, he added, “business people understand how to do this with their asset. We helped them do the same thing with intellectual asset.”

Phrase we used before—amount of organization patent, process and worker skill, technology, information about customer and supplier and experiences—is illustration not definition. A few other people already offered blurry definition to manager and employee to translate into agenda and action: “the accumulation of knowledge and personal skill becomes the sources of innovation and regeneration”, “skill, craftsmanship, expertise…rooted in human brain”. Closer definition offered by Hugh MacDonald (ibid.), a futurology from ICL, huge British computer maker owned by Fujitsu: “knowledge in organization that is usable to create differential excellence”—in another words, the sum of knowledge in a corporation creates competitive superiority.

**Literature Review**

The term of IC is caused by rapid growth of information and technologies that change every aspect of life, especially how corporation works. Below are a few researches conducted about intellectual capital role and influence in business world:

<table>
<thead>
<tr>
<th>No</th>
<th>Writer</th>
<th>Research Title</th>
<th>Result</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Ivanilde Scussiatto Eyn, Dálcio Roberto dos Reis, Hélio Gomes de Carvalho</td>
<td>Intellectual Capital as a Strategic Resource: An Use Diagnosis</td>
<td>Intellectual capital is intangible, because it’s difficult to identify or evaluate, but when capital intellectual discovered could be a competitive excellence. Joining people, structure, customer capital, changed of technology, media, and communication showed intangible profit for company.</td>
</tr>
<tr>
<td>2</td>
<td>Noradiva Hamzah, Mohd Nazari Ismail</td>
<td>The Importance of Intellectual Capital Management in the Knowledge-based Economy</td>
<td>It is revealed that the practice of capital intellectual management with differentiation strategy showed that corporation focuses on external knowledge, focuses on people knowledge development, data usage (keeping), application of interactive knowledge (intangible), innovation by internalizing socializing process and application of knowledge to increase the product and services quality.</td>
</tr>
<tr>
<td>3</td>
<td>Agnes Utari Widyaningdyah</td>
<td>Intellectual Capital: Sebuah Konsep Kontemporer Dan Arah Perkembangan Riset Empirisnya, Intellectual Capital: A Contemporary Concept and the Direction of Development Empirical Research</td>
<td>The rapid development of information and technology changed the mind of industrial world about resources/production input; by prioritizing intangible asset management (IC) instead of physically asset (machines, factory, and any other industrial apparatus). Concern of industry toward the importance of IC is followed by rampant research in same major study, mainly in accounting and management field.</td>
</tr>
<tr>
<td>4</td>
<td>Meng-Yuh Cheng, Jer-Yan Lin, Tzy-Yih Hsiao, Thomas W. Lin</td>
<td>Invested Resource, Competitive Intellectual Capital, and Corporate Performance</td>
<td>Find the significant relation between intellectual capital and corporation performance. The result suggests innovation capacity and reformation process would be the first consideration and through added human value—human</td>
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</table>
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<tr>
<td>5</td>
<td>Esther Hormiga &amp; Rosa M. Batista-Canino &amp; Agustín Sánchez-Medina</td>
<td>The Role of Intellectual Capital in the Success of New Ventures</td>
<td>Based on 130 research samples on new corporation, aim to analyze the influence of intangible asset toward success rate of new organization, admission key role from human capital and relation in first year from business life. The result showed that there is relation between intangible asset and new corporation.</td>
</tr>
<tr>
<td>6</td>
<td>Charles P. Leo, Ph.D., dan Sid Adelman</td>
<td>Intellectual Capital: A Human Resources Perspective</td>
<td>Intellectual capitals are “knowledge” and “experience” contributing directly toward organization continuity. Intellectual capital included knowledge and competency on corporation’s employee.</td>
</tr>
</tbody>
</table>

Effort to define and taxonomy search for IC had been done since IC was widely introduced. Often time IC changed intangible asset, mainly on U.S research. Below are a few definitions of IC.

Below is the chart of Intellectual Capital Definition:

<table>
<thead>
<tr>
<th>Sources</th>
<th>Definition</th>
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</thead>
<tbody>
<tr>
<td>Mc Master World Congress on IC</td>
<td>IC is form of innovation, knowledge management, new technology, intangible asset, intellectual property, human capital, organizational learning, and work-knowledge.</td>
</tr>
<tr>
<td>Bontis (1996)</td>
<td>From catch, code, spreading information, gained new competition through training and development and recycling business process.</td>
</tr>
<tr>
<td>Stewart (1997)</td>
<td>The amount of knowledge owned by corporation contributes to superiority competitiveness.</td>
</tr>
<tr>
<td>Roos dkk. (1997)</td>
<td>The amount of corporation hidden asset, hidden from balance, including all ideas in every member of organization and what left in corporation if the member left the organization.</td>
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<tr>
<td>Sullivan (1998)</td>
<td>Knowledge is convertible to company profit.</td>
</tr>
<tr>
<td>MERITUM (2002)</td>
<td>Including all intangible assets, legally owned or used, or informally implemented or mobilized: this term is more than human, structural and relational resources, but also related with how the resources used to create company value.</td>
</tr>
<tr>
<td>Mølbjerg-Jørgensen (2006)</td>
<td>Define IC from philosophical knowledge, start from creation to leverage knowledge to social or economic value.</td>
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</tbody>
</table>

After defined, the next step is searching for taxonomy. Taxonomy is identification process, grouping, and naming. If related to IC, then the arrangement of IC-taxonomy is intended to identify IC forming components, then transfer it into group with same name and forming component. Taxonomy in IC is important because of being related with multidisciplinary concept so certain criteria have to meet to grouping IC.

Below are a few examples of IC grouping/taxonomy from researcher and practitioners.

<table>
<thead>
<tr>
<th>Researcher</th>
<th>Country</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saint-Onge (1996)</td>
<td>Canada</td>
<td>Human capital, Structural capital, Relational capital</td>
</tr>
<tr>
<td>Edvinsson and Malone (1997)</td>
<td>Swedia</td>
<td>Human capital, Structural capital</td>
</tr>
<tr>
<td>Stewart (1997)</td>
<td>United States</td>
<td>Human capital, Structural capital, Customer capital</td>
</tr>
</tbody>
</table>
Principal on Managing Capital Intellectual

A few key principals to manage intellectual capital are based on human capital, structure, and customer:

1. Corporation didn’t own human capital and customer; corporation shared asset ownership, in human capital, their employee; and in capital customer, with supplier and customer. Only with recognizing this sharing ownership, corporation could manage and gain profit from this asset. Relation that is unprofitable with employee like with supplier and customer in short term could save or earn a few dollars but ruin wealth.

2. In order to create human capital employable, corporation needs to nourish teamwork, community practice, and any other social learning. Individual talent is good but easy gone: corporate stars are managed proportionally like huge-risk. Interdisciplinary teams apprehend, formalize, and capitalize talent which is divided proportionally not depending on individual. Even when member of the group leaves, the knowledge stays. If corporation provides learning center—if novice or expertise in every area—then it would benefit from learning process in the field whether it will be “leaked” to competitor or not.

3. To manage and develop human capital, corporation must know that employee no matter how talented they’re not an actually asset; organization welfare is created by skill and talent, namely: (1) proprietary, means that there is no one better than them; and (2) strategy, in work creating value that customer paid. People with that talent are asset that must be invested on. And the others are cost reduction; skill might be asset for others.

4. Structural capital is intangible asset owned by corporation that turns into something controlled easily by manager. In paradox, no matter how it’s called customers—where money comes from—don’t mind them. Like the government, a few rules are the best form, as well as structures that are not too normative and rigid. Ruling your corporation to make the customers cooperate with your people as easy as possible.

5. There are two capitals structural, first, collecting knowledge that helps work be valued by customer, and accelerating information flow in a company. Producer learns that just-in-time system is more efficient than a warehouse full of hoard in need later. What you need must be available; what you might need is within arm’s reach.

6. Information and knowledge are able to replace physical and expensive monetary asset; every corporation has to check capital spending and ask: can intangible goods that are cheap replace money consuming physical asset?

7. Knowledge workers are physical work. Solution of mass production won’t give huge profit. Even in mass production business there would be time to create special bond—sometimes providing management
services—result in value and profit for you and your customer.

(8) Every corporation must re-analyze value chain that is involved in industry—from raw material to last user—to see the most important information. Usually, knowledge based on work will find downstream to customer.

(9) Keep focus on information flow not goods flow. What you are looking for in human capital, structure, customer, or their interaction, doesn’t confuse you between real economy and intangible. Before, information helped real business; now information is a real business.

(10) Human capital, structure, and customer work together. It’s not enough only investing on people, system, or customer in separate. They could complement or lessen each other. Various co-operations need to be mentioned are:

- Human capital and structure strengthen each other when a company has the same goal plus entrepreneur spirit; when management puts intelligence as high value. Human capital and customer are developed when individual is responsible for their part in company, directly interact with customer, and understand which knowledge and skill are needed and customer values.
- Customer capital and structure are developed when corporation and customer learn about each other, when they struggle to create interaction between them into more informal—to easy business.

A few corporations had the tendency that all of their businesses possibly are dependent on different basic knowledge. For majority corporations, extraordinary assets are quite challenge—not really difficult but not entirely less important are discovering and enhancing the asset ability. Not all have same skill. Task, process, or any business is depending on these three skills:

(1) Commodity skill: unspecific skills for certain businesses, directly gained, more or less it values the same for every business. Typing and calling etiquette are commodity skills, as well as high technical ability like AC maintenance or collateral work administration.

(2) Leverage skills: unspecific knowledge for certain corporations, more valuable for themselves instead of other companies’ gain. Corporations in majority need programmer, but Andersen Consulting, IBM Consulting, and EDS utilize skill because they sell it to different clienteles. For example Bank of America or General Motors, programmer renders additional value only for task provider. Besides, a law firm gains additional value from the lawyer instead of a company getting from lawyer, which is the reason why the partner in a legal entity hired by a company may earn a higher salary, rather than legal counsel within the company that has been hired. Leverage skills tend to become specific in certain industries but not specific enough toward corporation.

(3) Proprietary skills: specific talent for company where organization builds business. In depth knowledge about this skill worth selling: McKinsey is famous consultant strategy company, Chicago University has established economic department, Ritz-Carlton is expertise in hotel-managing. Part of this skill is modified into patent, copyright, and others form of intellectual property.

Commonly, worker union in a corporation or in a department is divided into four quadrants:

<table>
<thead>
<tr>
<th>Irreplaceable, low additional value</th>
<th>Irreplaceable, high additional value</th>
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<tr>
<td>Replaceable, high additional value</td>
<td>Replaceable, high additional value</td>
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Unskilled employee and half-skilled employee belonged to bottom left quadrant: company might need people like this—maybe a lot—but company’s success doesn’t depend on those individual.
Above them, on upper left side, are people that learned from various activity, but not main factor, like skilled factory worker, experienced secretary, or staff people, like quality check, auditing or corporate communication. They might be irreplaceable and do important task, but that’s not the area customer cares.

Employees in right bottom quadrant do what customer appreciates, but as individual they’re meaningless. Most of them who have leverage skills are in this quadrant: for example, book needs attractive cover design, but there are many designers.

Lastly, on the upper right quadrant are the stars: peoples with irreplaceable role in organization and almost irreplaceable as individual. A few of them occupy higher role in a corporation organization. They could be a research expert, excellent dealer, or project manager.

Corporation human capital is belonging to the upper right quadrant, including people with ability and experience to create goods and services that become the reasons for whether or not the customer comes to their competitors. It’s an asset. The rest, other three quadrants—only cost labor. The greater the human capital intensity of business is—the advanced high-valued-task produced by irreplaceable people—the higher their salary demands the tougher way a corporation to fight their competitor, because it’s harder for competitor to fight down the origin corporation. Smart organization, would spend as less as possible on meaningless job for customer and irreplaceable skill worker, autonomies what they can get.

**Conclusion**

Intellectual asset is always important, but never as important as now. Physical power, machines even electricity slowly are replaced by mind power. Human capital is the starting point: innovation source, the sources of knowledge. If capital intellectual is a tree (one of Leif Edvinsson metaphor), then human is the sap—in a few corporations, sap-made growth of a corporation. Money can talk, but never think, sometimes machines function better than human but can’t create.

Intellectual capital is source of property for any individual and organization, and in between. Not only on the core but also on structure, skilled work confirms evidence that clearly where value comes from, and that the reason why appreciation grows on skills and knowledge. Competency and skill apparatus are a complete set of intellectual asset ammunition, including on organization that covered relationship between customer and human capital.

Human capital, structural capital, and customer capital are intangible and represent knowledge asset of a corporation, also describing the invisible hand in business. Capital intellectual is main contribution in this research to offer framework toward businessman so they could develop useful strategy for their business sustainability and increase their corporate value.

**References**


