“Intellectual capital in organizations”

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ARTICLE INFO	Funda Bahar Kaya, Gonca Guzel Sahın and Poyraz Gurson (2010). Intellectual capital in organizations. *Problems and Perspectives in Management*, *8*(1-1)
RELEASED ON	Thursday, 01 April 2010
JOURNAL	"Problems and Perspectives in Management"
FOUNDER	LLC “Consulting Publishing Company “Business Perspectives”

NUMBER OF REFERENCES	NUMBER OF FIGURES	NUMBER OF TABLES
0	0	0

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SECTION 2. Management in firms and organizations

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Intellectual capital in organizations

Abstract

Information and knowledge can be defined as today's thermonuclear weapons. Knowledge is stronger and more valuable than the natural sources, huge factories or swollen bank accounts. Organizations perform by using three types of capital: Physical Capital, Financial Capital and Intellectual Capital. When we examine the successful firms, we see that they tend to use a stronger way of Intellectual Capital that is formed by Human Capital, Organizational Capital, and Customer Capital. Intellectual Capital is an organization's registered knowledge value and it functions as a composition of knowledge, skills, experience, and information that influence the present and future success of the business and establish its rank in comparison with the other firms. A complementary research study has been added to this study to examine the importance of the Intellectual Capital at the implementation level. This case study has been designed and fulfilled to measure the level of Intellectual Capital performance of the personnel of Turkish Airlines Ground Handling Unit. According to the findings of the study, senior executive personnel have perceived a lower degree of Intellectual Capital performance.

To achieve a more efficient and effective organizational structure and management, personnel of the organizations should be trained and supported to increase their use of Intellectual Capital.

Keywords: intellectual capital, organizations.
JEL Classification: M1, M2, M3, M4.

Introduction

In the knowledge era, material and financial assets have lost their effect over the success of businesses in the long run. Therefore, knowledge has become an important and critical asset for the organizations in this era. Consequently, knowledge era directs organizations to have non-material assets based on knowledge rather than physical assets.

Over the period 1959-1997 a diverse set of academic researchers and economists developed a new view on business strategy that emphasized resource efficiency rather than the generally accepted competitive forces. The resource-based perspective notes that firms have differentiated unique resources, capabilities, and endowments. Further, these resource endowments are "sticky" (they are not easily added nor are they easily discarded), at least in the short run, so that firms must operate with what they have. The resources-based perspective focuses on strategies for exploiting existing firm specific assets. Since some of the firm's assets are intellectual, it follows that issues such as skills acquisition, the management of knowledge and know-how, and learning become fundamental strategic issues (Sullivan, 2000, p. 238).

In this sense, it has been seen that firms that can use new technologies and products rapidly, spread the knowledge throughout the organization and create new knowledge steadily are successful. For instance, as Thomas A. Stewart said in 1997, "already that Toyota outperforms General Motors", and he pointed out that "WalMart and Microsoft are greater companies than IBM".

What must be emphasized here is that it is not anymore just material and financial assets which create impetus towards success and future but also employees' emotional and mental energy which accelerates change and development.

Financial performance measures derived from information in financial statements or other financial sources have been used by publicly listed companies for many years. They highlight specific aspects of a company's profitability, solvency, liquidity, productivity or market strength. Such performance measures are, however, based on historical and transaction based information that does not take into account changes in values or internally generated intangibles. There is the growing view that financial performance measures by themselves are inadequate for strategic decision making. They need to be supplemented or even to some extent, replaced by non-financial measures that cover such matters as, for example, customer satisfaction and operating efficiency (Waterhouse and Svendsen, 1998).

Knowledge, defined as an asset which has always existed and been felt but has not been able to be seen and sensed due to not having a physical quality since the concept of production emerged, can not be expressed with its real value with traditional organization assessment methods after the development of knowledge-technology-based industries and with the increase of products and services produced in such industries. The fact that the gap between the nominal value and market value of organizations increases has caused this asset to be recognized.

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However, knowledge is initially in people's mind. It has no value as long as it is covered there and not shared. If it is shared and especially coded so that everybody can use it, which means it is converted from covert knowledge into explicit knowledge, it becomes an asset.

Organizations generally carry on their business by three types of capital:

- physical capital (factory, equipment, stocks etc.);
- financial capital (cash, investments, credits etc.); and
- intellectual capital (knowledge, experience, skill etc.).

The importance given to concrete material assets (buildings, machines, equipment etc.) as a general feature of industrial societies and economies has to a large extent given its way to abstract assets such as knowledge, skill and communication within the transformation into knowledge society and in this sense knowledge economy.

While the concepts of non-material assets, knowledge capital, intangible assets, covert values are used to express the knowledge assets which firms have, Intellectual Capital is the concept which is established in the literature (Altinok, 2005, p. 263).

Although it has been around forever, intellectual capital was not identified as a key asset until a few years ago. In 1994, Fortune carried several stories about intellectual capital (brainpower) based on pioneering efforts going on then in both the United States and Scandinavia. These articles helped generate awareness of intellectual capital in the mainstream of U.S. business. In May 1995, Skandia (the largest insurance and financial services company in Scandinavia) released the first intellectual capital annual report, using its unique "Navigator" reporting model. The Skandia model has since been adopted and refined by other companies, some of which have created their own approaches to (and uses of) intellectual capital. The knowledge economy is characterized by huge investments in both human capital and information technology. Under the existing reporting system, a typical investor does not receive an accurate picture of a company's true value. Its "root system" and its long-term prognosis are invisible. Indeed, the more a company invests in its future, the less its book value is. As a result, "too many deserving companies are underoptimized and undercapitalized — and, thus, sometimes unable to complete their destiny. Other troubled firms, meanwhile, are artificially propped up until they collapse, pulling down shareholders and investors with them." In this sense, intellectual capital is more about undervalued and overvalued assets (www.cpavision.org).

1. The definition and explanation of intellectual capital

The term of Intellectual Capital, which was firstly declared by John Kenneth Galbraith in 1969, became popular with theoretical and industrial practical publications (Bassi, and Van Buren, 1999; Bontis and Choo, 2001; Edvinsson and Malone, 1997; Stewart, 1997; Sveiby, 2001; Wiig, 1997), magazines, conferences, and seminars. Galbraith has concentrated on the Intellectual Capital concept while he mentions the individual intellectual possessive. Developing knowledge economy trend in parallel, it is accepted that the Intellectual Capital in Organizational meaning was firstly come up with Thomas Stewart's "Brainpower" article in June 1991. Intellectual Capital in this article was described as the providing source of competitive edge to management and the sum of what the employees know (Stewart, 1997). Besides, Stewart defines Intellectual Capital as intellectual material which can be put into use in order to create richness, that is knowledge, intellectual possession and experience.

While Hugh McDonald defines Intellectual Capital as knowledge that can be used to create extra advantages in an institution, in other words, the sum of knowledge of people in a firm giving a competitive superiority, Klein and Prusak see it as intellectual material which is formalized, acquired and activated in order to produce a more valuable asset.

In view of these explanations, Intellectual Capital can be defined as the factors whose essence is composed of knowledge, skills, experience, and information, which influence the present and future success of the business, and establish its rank in comparison with the other firms; as the total of intangible assets such as knowledge, knowledge systems, patent, copyright and license agreements.

Knowledge is the determining factor of production in the information era. Knowledge has become the main component of all goods and services produced, sold, and purchased. Therefore, finding, developing, keeping and managing knowledge have become the most important economic duty of individuals, businesses and nations. This emphasizes the importance of intellectual capital. The increasing investment of businesses in intellectual products (education, patent, copyright, know-how, trade secrets, knowledge, knowledge processing etc.), and creativity rather than in machinery, buildings, unqualified labor force, etc. supports this point.

Intellectual Capital, in the simplest form, can be expressed as "an organization's knowledge value" or, according to another definition, it can be expressed as registered knowledge in a business that has intangible assets and employee's knowledge, skills and experience in the business.

There are strong relations between intellectual capital and knowledge within the organization. Intellectual capital needs a rapid knowledge sharing to develop its structure at a better level, since knowledge creates a relation between organizations common culture and its intellectual capital. Knowledge is arised, experienced and used in a natural way by organization's members without any prior system or structure to build it. On the other hand, directing and organizing properly this naturally established common culture and knowledge within the organizations and knowledge management systems are discussed and implemented in larger firms. These are all important contributions to intellectual capital and performance of an organization.

It is useful to realize the differences in the definitions between intellectual asset, intellectual possession, and intellectual capital. These are (Altinok, 2005: 265):

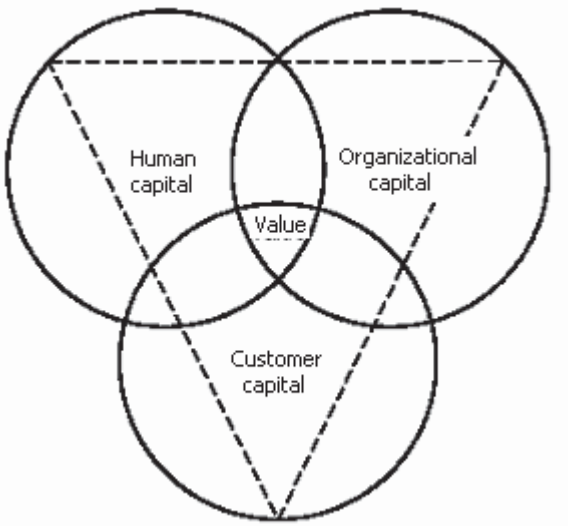
- **Intellectual asset:** It is the knowledge which creates value (licensed patents, applied know-how).
- **Intellectual possession:** It is the knowledge which has legal ownership (patents, trade marks, copyright, trade secrets).
- **Intellectual capital:** It is the knowledge which has the potential to create value (the knowledge formed by employees, processes and customers).

2. The elements of ıntellectual capıtal

Assets forming Intellectual Capital are classified in various ways in different sources. If common points are taken into consideration, classification can be generally made in the following manner: human capital, organizational capital and customer capital. The elements of Intellectual Capital can be expressed in mathematical terms as follows:

Intellectual Capital = Human Capital + Organizational Capital + Customer Capital

In Figure 1 below, the value which is formed in the intersection of these three components contributes at the same time to greatness of the market value of the business.



Source: Altıok (2005, p. 265).

Fig. 1. The components of ıntellectual capital

Alternatively, according to Skandia, which has published an Intellectual Capital report for the first time in the world, it is stated that intellectual capital consists of two components: human and structural (organization). According to the report, while structural (organization) capital is divided into two subsections, namely customer and organizational capital, organizational capital has two subsections such as innovation and process capital (Altinok, 2005, p. 265).

Leif Edvinsson, the chief architect behind Skandia's initiatives developed a dynamic and holistic IC reporting model called the *Navigator* with five areas of focus: financial, customer, process, renewal and development, and human capital. This new accounting taxonomy sought to identify the roots of a company's value by measuring hidden dynamic factors that underlie "the visible company of buildings and products". According to Skandia's model, the hidden factors of human and structural capital when added together comprise intellectual capital (Edvinsson and Malone, 1997).

Intellectual capital (Skandia)		
Structural capital		**Human capital**
Customer capital	**Organizational capital**	
	Innovation capital | Process capital	

Source: Altinok (2005, p. 266).

Fig. 2. Skandia's taxonomy of intellectual capital

2.1. Human capıtal. Human Capital emerged as an important economic concept in the late 1950s and 1960s. Economists like Theodore Schultz started to use capital metaphor to mention the role of education and expertize providing prosperity and economic growth. These economists claimed that they formed a long run skill and ağabeylity stock profit while investing in people's general and occupational education and this investment can utilize the national economies helping to empower the economic growth.

Therefore, in essence, human capital in wide meaning is described as a synthesis that individuals' skills and studies provide thanks to general and occupational way with their own spontaneous skills and abilities.

Human capital is the lifeblood of intellectual capital. It is the source of innovation and improvement, but it is also the hardest component to measure. Moreover, human capital cannot be owned by a company, it can only be "rented" (i.e., in the form of employees). When companies invest in human capital, value increases. There are two basic kinds of knowledge in a corporation: tacit knowledge and explicit knowledge. Tacit knowledge is extremely difficult to explain or write down; it is often knowledge that people do not even realize they have. Explicit knowledge, on the other hand, is what can be captured, explained in words, traded, or sold. This knowledge remains with the company after an employee leaves. Companies have to make tacit knowledge explicit if it is to be formalized, examined, improved or shared and thus turned into an asset with added value. Human capital grows when a corporation uses more of employees' knowledge or when more employees gain more useful knowledge. Therefore, a company's ability to capitalize on its employees' ideas and know-how, and its commitment to training and education, can enhance productivity and add value (www.cpavision.org).

In recent years, a range of factors have got together causing attentions focused on the economic role of human capital. One of the important factors, rising of knowledge economy has been based on knowledge production and management. This tendency is clearly seen in the firms like Google. Besides, globalization changes the business principles of the firms (OECD, 2007).

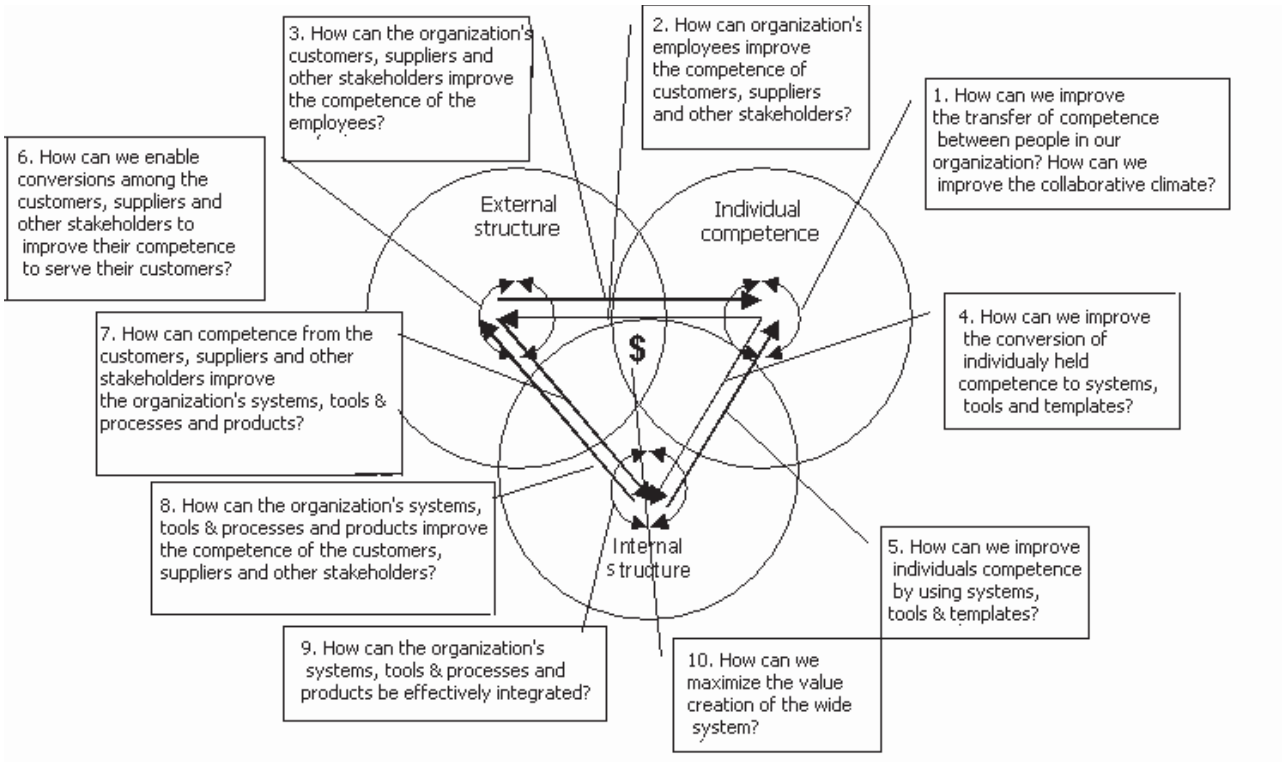
Today, we focus on three circles or aspects of a business: External partners as customers, internal expertise and internal structures who should support the relationship within the other two aspects.

Sveiby identifies three measurement indicators: *growth and renewal*, i.e. change, *efficiency*, and *stability* for each of the three intangible assets. He recommends managers select one or two variables indicative of each indicator similar to those developed in the example of his Intangible Assets Monitor. In essence, the Intangible Assets Monitor is "a presentation format that displays a number of relevant indicators in a simple fashion". The choice of indicators depends on the company's strategy but should include only a few of the measurement indicators for each intangible asset with the most important areas needed to be covered: growth and renewal, efficiency, and stability (Sveiby, 1997).

Thinking strategically in the new context starts by seeing your organization as nothing but knowledge and knowledge flows. The financial flows result from the knowledge flows, the knowledge flows precede the profits.

Experts learn from experts of their field, customers learn from customers, managers and support departments learn from each other as well. These are the inner circle learning loops, but there is also learning from one circle to the other. For example, the experts get most of their learning in a good functioning project with the customer, as he offers the challenge. Best learning is when the experts can get a first do. Then there is no experience to rely on and they need to create new learning by working together with customer and experts. Both get a learning out of it which no seminar could have ever provided and no business school could teach. All this new learning starts in the need of the customer where he is willing to pay for.

There are nine different flows − three within the logic and six within cross-border learning. You need to ask the right questions to find out how you handle the transfer in your organization (Schimitz, 2005, p. 239).



Source: Sveibly (2001).

Fig. 3. The ten knowledge strategy ıssues

It is useful to explain the influences of human capital over a firm profile.

The example firm is pump and valve producer Taco which is located in Cranston city of Rhode Island state of the USA.

Most of 450 employees of Taco work at this facility and several of them work at Fall River. When you enter the building, you see the sign on the door between reception and stairs: Education Center. This center, which has classrooms, a computer lab and a conference hall, suprisingly provides rich education opportunities with more than 70 courses. Several of them are formed by short-run and standard programs like fire and security trainings, advertising of Taco productions, lose weight with diet and quitting smoking.

Moreover, a range of courses, each of them has academy credits, are directly interested in working: Reading projects, usage of CNC stalls, ISO 9000 control, statistical process control, total quality management, production methods, customer services, phoning skills and business law.

In 1990, due to the recession, building sector and consequently Taco was shocked. The firm could not increase the sales until 1991 and the sales suddenly decreased. There were three choices to apply: First was to reduce the costs heading to the South for cheap labor force, second was to attack towards recession buying new machines and to venture the deficits. Taco selected the third choice which was a more humble but difficult plan. This plan was based on human capital. The first step was to control the costs. This means decreasing the capital expenditures and unfortunately dismissing 20% of labor force. The second step was to attack to inventory which damages to the firm and thus to release the cash sources; to transform these cash sources into new investment; after the recession effect, to use the new sales to receive fund, and thus, to increase the capacity without retaking employee.

During the period from 1991 to 1995, the firm doubled the sales and the number of employees never changed. Costs were slightly moved. The result that existed in labor productivity was an approximately 20% of annual increment momentum; this is a striking gain by means of humans in total.

2.2. Organızatıonal capıtal. Organizational Capital can be defined as the infrastructure which regulates, authorizes and supports human capital. According to another definition, it is the knowledge that does not go home and stay at the organization.

Organizational Capital expresses the mixture of all elements which are institutionalized as the methods and policies which the business has as an organization, from information technologies-databases to records and various documentation, from management philosophy to organization culture, from financial affairs to patents (Altinok, 2005, p. 267).

Note: Taco obtains these substantial results less than 700$ expenditure per laborer in a year; this amount is usually approximate to a vacation prize that Taco grants (Stewart, 1997, p. 126).

2.2.1. Knowledge management. Business organizations evaluate knowledge as their most valuable and strategic resource. They realize that to remain competitive they must explicitly manage their intellectual resources and capabilities. To this end, many organizations have initiated a range of knowledge management projects and programs. The primary focus of these efforts has been on developing new applications of IT (Information Technology) to support the digital capture, storage, retrieval, and distribution of an organization's explicitly documented knowledge. Much of the current interest in knowledge management has been fired by the potential that exists for advanced ICTs (Information and Communication Technologies) to support the collection and exchange of information in large, dispersed organizations.

IT approaches to knowledge management are based on a very limited understanding of what knowledge means and how it might relate to the creation of wealth. In brief, IT approaches to the subject assume that knowledge is objective and unchanging; it is a statement of truth that exists irrespective of the uncertain world in which it is applied. But, in recent years, this view of knowledge has been challenged. Rather than treating knowledge as an abstract, objective truth, some writers have approached knowledge as a cultural, or community, phenomenon. A term that is commonly associated with such second-generation approaches to knowledge management is the notion of communities of practice − professional or functional groups of people working together. Rather than focusing on abstract, explicit knowledge, the communities of practice approach to knowledge management is therefore concerned with what people do, how they do it, and for whom they do it. In other words, it considers knowledge to be essentially pragmatic, partial, tentative and always open to revision − it is no more, and no less, than a collective interpretation.

For management, the full implications of this view have yet to be worked out. The approach indicates that knowledge management ought not to be equated with data management. More positively, it suggests that any policy for knowledge management worthy of the name has to consider the conditions under which particular experts groups can learn collectively and relate more productively with other groups. Seen in this way, knowledge management is as much a process of managing culture, boundaries and networks as it is of managing information. A smaller number of organizations believe that the most valuable knowledge is the tacit knowledge existing within peoples' heads, augmented or shared via interpersonal interaction and social relationships. To build their Intellectual Capital, those organizations are utilizing the social capital that develops from people interacting repeatedly over time. Many are experimenting with new organizational cultures, forms, and reward systems to enhance those social relationships.

Knowledge management is getting a lot of play, both in the media and in strategic planning at companies worldwide. The simpliest way to address the issue is by explaining what knowledge management is not. It is not document management, data warehousing, or information management. It is not something you will find in a shrink-wrapped box or in a software application. IBM defines knowledge management as "the ways and means by which company leverages its knowledge resources to generate business value". Or, as one observer put it, "it is getting the right knowledge to the right people at the right time".

Another way of addressing the issue is to consider how effectively your company manages its collective knowledge. If your answer is "yes" to two or more of the following questions, there are chances you could benefit from a new system for leveraging your information:

- Do your employees repeat mistakes?
- Do they duplicate work?
- Are your customer relations strained by inefficiencies?
- Do your employees fail to share their good ideas?
- Does your company have to compete on price?
- Do you lag the market leaders?
- Is your company slow to make innovations?

Followings are the places where you start to look for the collective knowledge of your company and how you gather it into a workable, accessible database (Akinci, 2002, p. 280):

1. Online: Both the internet and your company's intranets offer great opportunities to distribute information company wide. If you are not building your internet and intranet databases, you are missing the boat. The key is to move away from static web pages and sites (which require constant maintenance) toward in-depth databases (which offer constant accesibility). Converting static Web pages into a more dynamic database can be a hidden cost but it should save your money in the long run. New software applications and active server pages can link your web page with its active database of documents, notebooks, and files. Fire-walls, passwords, Access codes, and other security measures help protect your company's privacy and customer confidentiality.

2. Knowledge bases: Before knowledge can be shared, your company needs to find out where it exists. Survey your employees to find out what resources they may be hoarding. Conduct a sweep of network computer files and collect all the available documents.

To reach your employees' tacit knowledge − their experience and expertise − you will have to interview each one. "How do you work?, What do you know?, What are your sources?" Although this is time-consuming and costly, it is the only way to harvest your Intellectual Capital.

3. Model documents: To save time and let employees know what kind of information you want for the knowledge management databases, develop a profile of model documents.

Sweep computer directories regularly; send the documents back to employees asking them to review them and make any exclusions within 30 days. Ask them about the spesific impediments to collecting and distributing the information, and then offer a solution.

4. Best practices: Take a hard look at the particular knowledge of individual departments. Collect model checklists, internal training memos, expert systems, and processes.

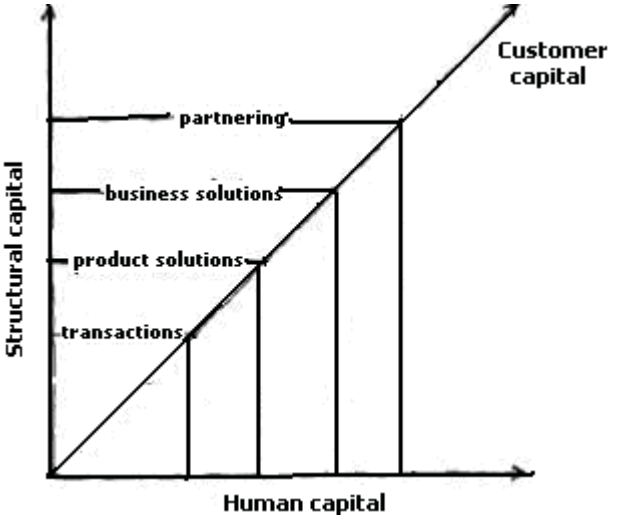
2.3. Customer capıtal. Customer capital can be defined as the value of relations with the individuals and institutions that the business sells something to. Customer capital states the value of organization's relation with customers, suppliers and the rest of the society and expresses the loyalty of people mentioned to the organization.

After information and its economic power have been transformed to way of goods and service flow, management of firms with a new concept has come into prominence vitally. The firms must invest in their customers like they invest in their employees and structures as well. Customer capital seems like human capital in many respects: You can not own the customers like you can not own humans, but a firm and its customers can also develop the Intellectual Capital which is in their common and individual possessions. These are the real investments that are made for a profit expectation. If you invest wisely, you will obtain a profit like in the right investments over human capital. Besides, we live in a world full of opportunities.

If the intangible assets are not valuable genuinely in customer relationships, they were not going to recompense, because market does not let a firm increase undeserved costs. Economists use "consumer surplus" phrase when consumers have a big part of a firm's productivity gains. Computer sector, in which the costs decreased as a result of rapidly growing productivity, is an example of this; whereas, a lot of consumers overly spend more reinforced machines rather than pocketing.

Customer capital is an accured fortune when the producers and consumers obviously decide to gain the overly (for example, cost possession) together rather than fighting for it. The overly becomes bigger, if the partnership between a customer and a supplier is powerful.

Hubert Saint-Onge from CIBC explains stages of customer-supplier relationship – and the growth that is obtained in human capital, organizational (structural) capital and customer capital which accompany transitions between the stages – with such a diagram:



Source: Stewart (1997, p. 126).

Fig. 4. Stages of customer-supplier relationship

It is possible to list the elements of customer capital as below:

- Brands
- Organization's image
- Customer loyalty
- Business name
- Distribution channels
- Cooperation regarding the business
- License agreements
- Contracts with required qualities
- Franchise agreements
- Customer satisfaction

Complement ı

2.3.1. Case study: Turkish airlines ground handling unit, intellectual capital management project. A study has been conducted for the Turkish Airlines ground handling unit to describe the Intellectual Capital concept aiming at measurement of performance of this capital. For the Intellectual Capital process, a survey study has been carried out among senior executives and some of the personnel of the ground handling unit. The Intellectual Capital management process steps have been applied towards information which was obtained by the surveys. In this episode, this study and its results are being summarized briefly.

The Intellectual Capital's assessment and performance measurement are conducted with regard to participants' answers. In this case, participants' honest, sincere, and clear answers will increase the study's reliability. The participants have lent support to the study thereby behaving consciously. According to the assessment's results, it has been appeared that the senior executives have perceived the Intellectual Capital performance at a lower degree than other personnel. It will be quite useful if the executives, who realize decision-making and strategic thinking actions, notice their deficiencies and remove them.

2.3.2. Determination of action plans of Turkish airlines ground handling unit. According to the results of the Intellectual Capital's assessment and performance measurement study, it is expedient to regard three subjects to increase the Intellectual Capital performance of Turkish Airlines Ground Handling Unit. These are:

- human resources,
- knowledge management, and
- organizational capital.

Proposed approach has been applied to the Turkish Airlines Ground Handling Unit qua pilot study and validity of methodology has been examined (Stewart, 1997, p. 217).

3. Conclusive assessment

In today's dynamic industrial environment which is characterized by intense competition, managements must renew themselves consistently and concentrate on performance increasing which are the key success factors. Currently, the thing that makes the managements successful is not only to use the monetary assets and to manage them, but also to use the Intellectual Capital, so, brain power factors efficiently.

The complementary study has been done to find a solution to the problem of using Intellectual Capital. Accordingly, it is assesed that especially senior executive personnel have perceived the Intellectual Capital performance at a lower degree than the rest of the personnel.

As we see in this study, Intellectual Capital plays a vital and inevitably significant role in the functioning of the organizations and giving more importance to this sort of capital in the organizations will contribute to the achievement of success by the firms in many different ways.

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