Human Capital - A Quality Factor For The Competitiveness Of IT Companies

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Abstract: *This paper treats quality, human capital and competitiveness concepts in order to determine in which measure the Human Capital quality influences the competitiveness of a firm. The human capital theory is a relatively new approach, the first valuable approach being that of Garry Becker which, subsequent of the modern management theoretical views, puts human capital into scientific frame. This present paper relates deeply on this theoretical frame as it is considered that, besides financial or tangible resources that allows and generate long term benefits for an enterprise, there is also another source that consists in an intangible form: the human capital. This resource is based on education and health, indirectly generating additional benefits for the individual as for the organization and is calculated as instruction, education and health insurances costs. That implies that this capital is an asset for the worker itself and that the worker cannot be distinguished from the knowledges, capacities, his health or his values. From this perspective, the worker is actively present in any activity a firm operates: from defining and executing pro-*

cess, operational planning, monitoring and control, research and development, human resources, etc. The hypothesis of this present paper will be explored with the examples of Jeff Bezos (Amazon) or Steve Jobs (Apple) as human capital is considered to be the most important component for the competitive advantage of IT enterprises. The quality level of the human capital represents the main source for long term sustainability of this competitive advantage and, given the best case practices, it's impact on firm's effect indicators is obvious. The paper will also emphasize the role of values and health as they are also the main issues on an IT enterprise. The article is structured in two parts. One is the theoretical frame that encompass the influence of the human capital on the competitiveness of the firm. The second part treats where the following aspects: IT enterprise competitiveness, the relationship between human capital and competitiveness as well as techniques, instruments for highlighting the influence of the human capital quality over the competitiveness of an IT enterprise.

Key words: human capital; IT; enterprise; competitiveness.

I.THE CONCEPT OF HUMAN CAPITAL. FEATURES AT COMPANY LEVEL

At the conceptual level, human capital was first introduced by Adam Smith and recently developed by Gary Becker scientific and Jacob Mincer. Human capital can be defined as the totality of knowledge, skills, competencies and other attributes embodied in an individual, relevant economic activities.

According to C. Russu human capital is an additional factor of production, represented both the amount of stock of knowledge, skills and experience of both formal education and post-school learning in the work process ("learning by doing "). Also, E. Pelinescu argues that the education and the amount of courses offered by a country of its population are important measures of investment in human capital. Kagochi and Curtis believes that the share of secondary education in the total population or labor pate as a proxy indicator for highlighting the human capital stock of a country in international comparisons, given that graduating secondary schools is an essential factor in ensuring quality of human capital, especially in agriculture.

In recent years, a growing group of specialists, politicians and government entities recognize the importance of human capital for economic growth and national success. The Human Capital significant property is that it exceeds several times the amount of physical capital. For example, in the United States, the level of human capital is over $ 750 billion, much higher than the cumulative physical and financial capital, which is about $ 70 billion.

Another important property of human capital is its degree of versatility, as demonstrated by various theoretical approaches:

A. Firm-specific human capital that creates competitive advantages in business relationship with other companies, with a relative effect of reducing the level of innovation,

B. Specific Human Capital industry, which plays an important role in innovation within the industry, and

C. Individual Human Capital, which refers to the knowledge applicable to the progress of society in general.

From these above hypothesys, we can define the quality of human capital as the expected level of performance of human capital relative to objectives. These objectives can be distinguished:

- Strategic objectives: profitability, growth, sustainability, market, object of activity, market positioning, customer competitiveness;

- Objectives resource: tangible capital (money, land, buildings, machinery production), intangible (brand, patents, goodwill);

- Cultural objectives (people, success stories, rules and regulations, symbols).

Next we illustrate these types of objectives, to identify in detail the possible impact of the quality of human capital on the company.

First, what is the strategy? This question was put it in a fundamental way by Michael E. Porter in his famous work "What is strategy?[1]. He replies that strategy is a process of analysis designed to achieve a sustainable competitive advantage of a firm to other firms.

Other definitions of the strategy are:

- "The determination of the basic long-term goals and Objectives of year enterprise, and the Adoption of courses of action and the allocation of resources Necessary for Those and goals" [2]

- "Every business organization, Every sub-unit of organization, making and even Every individual (ought to) have a clearly defined set of purposes or goals which keeps it moving in a deliberately chosen direction and prevents it drifting in undesired directions" [3]

- Two Further definitions implied May be attributed to Porter and to Henderson:

- „to enable an organisation to identify, build and deploy resources most effectively towards the attainment of its objectives" [4]

From the author's perspective and in the study of various theoretical approaches, a company-wide strategic process could be:

- Decisions on the company's mission and vision;

- Analysis of the external general environment of the company;

- Analysis of the external closed environment to the company, or the markets in which it operates;

- Definition of the company personnel policies;

- Analysis of available capital firm and of its resources in general;

- Determination of the critical success factors in the industry;

- Analysis of the organizational culture;

- Finding of the long-term goals of the company.

It is important to note that although the strategy is a long-term process, it depends essentially on the time factor. For example, a strategic analysis conducted at a time can be invalidated by the market at any time, following significant or subtle changes in market (evolutions of consumers' needs, introducing new technologies) or disruptive (joining different markets, wars). So, the strategy is an ongoing process and the results of this process, albeit long-term stability can be significantly altered at any time change the entries in the strategic process. A good example of this is 1997 in the market for mobile devices. At that time, the world market was authoritarian dominated by Nokia, with over 87% market share. Although Nokia had the needed technology, it decided that a mobile phone without keys will not be accepted by consumers. This decision has left enough room in the market for Apple to bring the iPhone or cell phone that has fundamentally changed the balance in the market for mobile devices. Today Apple company is the market leader and one of the companies with the largest market capitalization and Nokia has consistently lost market share and eventually sold its mobile phone to Microsoft company. Clearly, quite exceptional human capital resources that represented Apple - Steve Jobs - and no such visionary among Nokia led eventually to radically change the balance of power in the mobile devices market.

To define the personnel policies of the company, we retain the opinion of Professor C. Russu [5], "Human Resource Management is a specialized aspect of the general management of the organization in which staff issue is addressed in an integrative vision, globalist, interdisciplinary and professional in order to achieve organizational objectives by recruiting, selectioning, developing and by the appropriate use of its human resources to fully implement the potential and creativity of it's personnel." So company personnel policies must not only provide the necessary manpower, but also to develop staff and to highlight the creative potential of the members. The role of Human Capital is to create and maintain an internal culture of the organization to enable individuals to develop and use their creative potential to contribute further to the development of the organization.

From this perspective we must remember that in strategic processes, human capital has an important role on existential issues for companies: the determination of the directions in which they will carry out economic activity, changes in economic policies and even fundamental changes to the scope of business, the survival of the company in the market and not least the company's profitability.

II.THE RELATIONSHIP: HUMAN CAPITAL – HUMAN CAPITAL QUALITY - COMPETITIVENESS

By definition, human capital represents all the knowledge, skills, health and human values. For some unique and personal perspective of each individual, so in the context of the firm are a contributor of competitive advantage, which further leads to business competitiveness in the market and in relation to direct competition. In simple words, quality human capital is a source of competitiveness for companies.

In terms of level of knowledge of man, we can refer to two types of knowledge [6]:

- Explicit knowledge, that is obtained from formal education, in that the firm or the individual invests. These are easy to identify and to measure. We can easily tell if a certain individual know some programming language such as through simple questions and references to the concepts of those programming languages. Also, we can easily decide whether a manager explicitly know the theory and practice of management even by consulting experience, studies and various tests we can explicitly involve him. All these knowledge or skills are within the scope of Human Capital for the individual to obtain the necessary investment of time and capital. However this type of explicit knowledge are not part of the scope of competitive advantages. For certain knowledge or skills can become competitive advantages, thus influencing the competitiveness of the company, they should be rare, inimitable and difficult to transfer to other companies or others. Explicit knowledge is easily imitated today. Education costs are not prohibitive, and quality information is accessible without special efforts. Lisbon Strategy itself open knowledge barriers, promoting access to university and post-graduate in a manner easily accessible to those interested. The practice of outsourcing to companies who need a specific set of knowledge and expertise, short-term spread apace in the information technology and communication has evolved in recent years.

- Tacit knowledge that is obtained from personal experiences, our individual ability to understand and interpret things and phenomena around us. In a company, this kind of knowledge specific to that company and is developed in time, as employees become part of the team, understand the internal culture, processes and learn how the company operates as a whole. The accumulation of tacit knowledge includes a significant effort [7], especially in terms of time and effort, attention and motivation necessary to understand how the hidden levers of the company works. In addition, competitors can not benefit from these tacit knowledge, even recruiting staff from the company because this knowledge belong to the company as a whole and works only in teamwork. Thus, tacit knowledge (not explicit), are difficult to identify and virtually impossible transferred or copied by other companies. In conclusion, tacit knowledge can be sources of competitive advantage for firms.

Therefore, only a part of the company's human capital can be a source of benefits for companies that tacit knowledge and skills, combined with health, desire and ability to use this knowledge and skills for the benefit of the company. However, for the company to be competitive, these benefits must be competitive, so the results of the use of that knowledge and skills to be better than direct competitors in the market.

For example, software development industry research, a programmer's ability to produce higher quality code compiler, with a small number of defects, which compiles easy and not unduly loaded processor or computer memory can be a source of competitive advantage. This ability is part of tacit knowledge, it is only acquired by long experience. However, this ability is not necessarily a firm's competitive advantage, as both competitors through similar processes can develop this skill.

Quite different is the case, however, Apple company led by late Steve Jobs. Although university educated equally with other students, Steve Jobs understood something unique among the other students. To pursue their dreams no matter how crazy they are. This, combined with a number of technical and managerial skills, ultimately led Apple to position the company's largest information technology company in the world, surpassing Microsoft company, its traditional competitor. The difference that did Steve Jobs is the level of performance at which he worked and that was the maximum possible among its competitors.

Here, then, education is an important factor in generating human capital companies, but not a sufficient factor, personal investment of time, attention and interest in the studied material leading to the development of tacit knowledge. Also, human capital itself is not necessarily a company's overall competitiveness. It may however contribute to the competitiveness of the company if the characteristics of tacit knowledge, if applicable in industry and firm explicitly if higher quality of existing competitors.

Techniques, tools that highlight the quality of human capital influence on firm competitiveness.

In a recent study [8], Dr. Elena Pelinescu highlights the influence of human capital in the knowledge economy. The study is based on statistical data from Eurostat database for all member countries of the European Union in the period 2000 - 2012. Based on the assumption that "the higher the level of human capital in a country is, the higher the level of innovation of the country "and using a panel data structure, the study demonstrates the following relationship:

P = F (Exp_RD, Pat_Aplic, Graduate (-4) Exp_Edu (-2)), where:

- P is the number of patents;
- Exp_RD is expenditure on research - development expressed as a percentage of GDP;
- Pat_Aplic is the number of patents applied;
- Graduate (-4) is the number of graduates with a lag of 4 years;
- Exp_Edu (-2) is the education expenditure as a percentage of GDP, with a lag of two years.

The results of this study are remarkable in several important respects for this paper, even if limited to the macroeconomic framework:

- It requires sustained investment in education for at least two years to transfer a sufficient level of explicit knowledge;
- It takes effort to research and development and innovation attempts to internalize and transform tacit knowledge into explicit knowledge;
- It takes a basis on which graduates to apply these efforts mentioned above, to generate a level of competitive intellectual capital in the European Union;
- The study confirms a correlation between the number of macroeconomic patents in that country - as an expression of the human capital quality - and indicators measuring investment in human capital in the same macroeconomic level.

Applying these findings at the firm level, we can define a list of indicators of the quality of human capital:

- Number of patents may be the number of innovations in processes, personnel proposed and approved by management;
- R & D expenditure may be the same indicator, but compared to the turnover of the company;
- Graduate may represent the number of skilled graduates (higher or technical) employees in the company;
- Exp_Edu may represent the company's training budget, based on the turnover of the company.

In practice, Light Green IT company monitors a number of indicators to assess the level of training and professional development of its consultants:

- Training budget is set at a rate of at least 5% of the turnover of the company;
- R & D budget is not explicitly defined, it resulting from projects delivered to the client. Assigning a clear budget for research and development can be improved firm performance IT Green Light in Romania;
- a number of specialized courses completed or in connection with projects undertaken;

a number of courses to improve communication skills and negotiation generally soft-skills;

- Internationally recognized certification that each consultant gets;
- Attendance at professional conferences for each consultant;
- Improvements that consultants bring work processes of IT Green Light;

- The personal contribution that each IT consultant has in Green Light firm (presentations of solutions or innovations, practical approach to personal projects);

- And last but not least, the results of the action, SERVQUAL methodology outlined above.

III. CONCLUSIONS

From the theoretical perspective, human capital is the man himself along with several attributes: skills, knowledge and health, attributes that can not be separated.

From the perspective of the firm, the concept of human capital is complex, with numerous interferences in the respective company's competitiveness in the market.

The company's competitiveness is based on its ability to obtain and exploit competitive advantages and its ability to retain them. From the same perspective, human capital is seen as a plus of existing human capital stock in the company brings that its competitive advantage by itself.

However, the need for competitiveness in the market is constantly pushing firms to various innovations that alter the balance of the market and newly developed human capital becomes unusable or of low value. All this need for competitiveness pushes companies to recognize the value of human capital investment and constantly focus towards its development.

The added value that this work brings to the previous understanding is the fact that any investment in human capital is automatically contributing to the development or strengthening of the competitive advantage. Knowledge or newly developed skills need work experience and applicability for them to be thoroughly understood by the individual. Transforming new explicit knowledge into tacit knowledge in time is the manner in which human capital can become a source of competitive advantage in the market and can help increase the competitiveness of the company. In other words, applied knowledge and achieving outstanding results are the strengths of human capital, perhaps more than its potential growth.

In terms of measuring the impact of human capital on the company, besides its clear dependence of education and research and development at the macroeconomic level, a possible direction for future research is the hypothesis: "the higher human capital stock in a company, the greater competitiveness in the market in which they operate ".

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REFERENCES:

1. **Porter, M.**, 1996. *What is Strategy?*, Harvard Business Review, Nov 01. Page 25-34
2. **Chandler, A.D. Jr.**, 1962. *Strategy and Structure: Chapters in the History of the American Industrial Enterprise*. Cambridge, MA, MIT Press. Pages 480
3. **Andrews, K. R.**, 1987. *The concept of corporate strategy*, Third edition, Homewood. Pages 180

4. **Henderson, B.**, 1984. *The logic of business strategy,* Cambridge, Ballinger Pub. Co. Pages 114
5. **Russu, C., Gheorghe, I.,** 2004. *Managementul resurselor umane*. *Note de curs, Aplicații, Studii de caz*, Editura Tribuna economică, București. Pages 219
6. **Polanyi, M.,** 1966. *The Tacit Dimension*, University of Chicago Press, Chicago. Pages 128
7. **Luthans, F., Youssef C.,** 2004. *Human, Social, and Now Positive Psychological Capital Management: Investing in People for Competitive Advantage*, Organizational Dynamics, Vol. 33, No. 2. pages 146
8. **Pelinescu, E. et all,** 2014. *The human capital in the knowledge society. Theoretical and empirical approach, International Conference Global Economy &Governance*, 10-12 September 2014, Bucharest.