

**Marek Kunasz**  
**Department of Microeconomics**  
**University of Szczecin**  
**kunasz@wneiz.pl, <http://lama.edu.pl/kunasz/>**

## **THE MODEL OF MEASURING THE EFFECTIVENESS OF INVESTMENTS IN THE DEVELOPMENT OF HUMAN AND INTELLECTUAL CAPITAL OF EMPLOYEES**

### **Abstract**

As conditions, on which environment functions, are a subject to change, there is a necessity for a precise measuring all the elements of the total capital of an enterprise resulting from the necessity for settling with interest groups. However, modern system of reporting does not take an important sphere of value creation – intellectual capital of an enterprise – into consideration. There is a need for a redefinition of systems measuring the enterprises, measuring which takes the 21<sup>st</sup> century challenges as well as new achievements in theory and practice into account.

The main aim of the research was to build the model of measuring the effectiveness of investments in the development of intellectual capital of the employed, and then making quantitative analysis of the process of professional training and development treated as an investment in the development of intellectual capital of an enterprise and employees themselves. The research also aimed at making an attempt to analyze the effectiveness of these actions through the influence on: the effectiveness of personnel function, the effectiveness of value added creation by means of material and non-material assets and the effectiveness of value added creation for shareholders.

The article is theoretical-empirical in nature. The main source of empirical data (source materials collected via questionnaire survey) is the research carried out by the author in the middle of 2004 on the group of enterprises quoted on Warsaw's Stock Exchange in Warsaw involving the years from 1998 to 2003. Many secondary materials (financial reporting, annual reports, prospectuses, websites of partnerships, Notoria system, Poland's B Monitor, prescriptive acts, reports on the research, national and foreign literature), and the interdisciplinary academic achievements were also used.

Aiming at the main objective, the following issues were presented (fulfilling the partial aims):

- the influence of personal function on shaping intellectual capital and enterprise value,
- the classification of methods and tolls for measuring intellectual capital and non-material assets,
- chosen models of measuring non-material assets and intellectual capital,
- the model of measuring the effectiveness of investments in the development of intellectual capital of employees,
- the use of the measuring model – an example.

### **The influence of personal function on shaping the intellectual capital and enterprise value.**

The results of numerous research (Quinn, 1992); (Handy, 1995); (Booth, 1998); (Bontis, Dragonetti, Jacobsen, Ross, 1999, pp. 391-402); (Singer, Calton, 2001); (Głuszek, 2001, p. 155); (Jabłoński, 2002, p. 13) show that a disproportion between the market and book value of subjects is increasing which indicates that this category grows in importance. Edvinsson assumes that the market value of a subject is a good estimate of its real value, and thus the allocation of this value to particular assets is done. With respect to this perspective, intellectual capital accumulated in an enterprise is the difference between the market value of firm's assets and financial capital, net value obtained from the sale of tangible assets (Edvinsson, Malone, 2001, p. 18). The collation of these two categories also allows for construing one of commonly accepted external measures of increasing the value by an enterprise – market value added (MVA)<sup>1</sup>. Positive measure values show that value added for shareholders has been generated, while negative ones – that the pool of benefits due to owners has been reduced.

Striving after grasping the relations between the intellectual and market value of an enterprise leads to broadening of one's knowledge of the nature of a business activity that is conducted as a result of a broader view on the bases for enterprise value that can be found both in performed actions and intangible side of an activity. In the face of more fierce competition from enterprises in the scope of accumulating the capital, their reorientation toward institutions oriented to consequent increasing their market value becomes an unavoidable necessity.

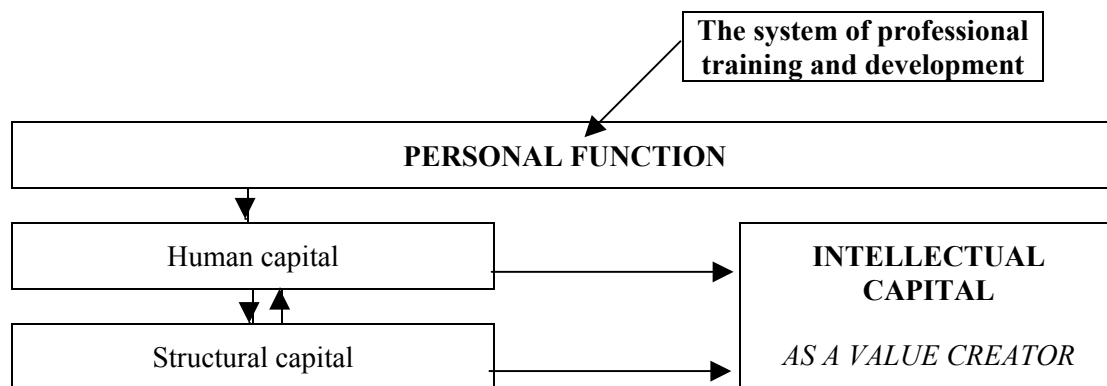
Despite the compound character<sup>2</sup> of intellectual capital category, it should be stated that its main carriers are, beyond any doubt, human resources of an organization, while its strength is based on constant interaction between human beings and organizational architecture, which allows for achieving the unique synergy of resources. In this context, two directions in which personal function influences intellectual capital and market value of a subject may be mentioned: the formation of human capital as well as transforming human capital into structural capital (as an effect of resources driving force). As for this view, personal function ought to be perceived as a kind of service center to the benefit of the clients of an enterprise (external and internal). These services are oriented to increasing its value by means of intellectual capital creation whereas actions taken within its scope should be understood in terms of investment and not labor costs. This state of affairs entails a need for tools for the evaluation of the effectiveness of these investments as well as carrying out analyses taking the above premises into account.

---

<sup>1</sup> the indicator connects EVA (Economic Value Added) measuring system with capital market. EVA is an internal measure, i.e., torn away from factors that can be found on capital market, reflecting the effectiveness of management of a particular subject's resources in the creation of value added, whereas MVA (market value added) is an interconnected external measure. In its construction and cognitive value, MVA is similar to market-to-book ratio or PE-ratio indicators that collate the market value of an enterprise and its book value, with the difference that, in contrast with the said, it is an absolute value (Cwynar, Cwynar, 2000); (Kwiecień, Mucha, 2004).

<sup>2</sup> More about the ways in which the elements of intellectual capital are arranged see (Brooking, 1997, p. 364); (Bontis, 1998, pp. 65-67); (Brooking, 1999, pp. 16-21); (Bratnicki, 1999, pp. 35-38); (Klaila, 2000, p.17); (Jaki, 2000, p. 20); (Mikuła, 2002, pp. 8-9); (Strużyna, Dyduch, 2002, p. 14).

Figure 1. The contribution of personal function as well as professional training and development system to value creation



Source: own compilation based on (Pocztowski, 2000, p. 60).

It should be stated that any investments and organizational efforts connected with carrying out the training programmes, improving one's qualifications, supporting self-education of particular employees (**the development of intellectual capital of the employed**), if made and carried out in a wise way, may have a profound influence on the growth in intellectual capital of an enterprise (Sokołowski, 2002, pp. 32-35). Enterprises have to treat actions in this scope as an investment, thus they have to seek tools which will enable them to determine the growth rate of this investment, for only what can be measured exists. Adopting the orientation of the return on committed costs is a new way of "investment thinking" – described as investment in knowledge, or increasing the intellectual capital. This state of affairs entails a need for proper non-financial measures. What is connected with this is a necessity for creating the system of economic evaluation of investment effectiveness with respect to an increase in intellectual capital of an enterprise and its employees.

There is no commonly accepted way of measuring the non-material values in an enterprise. What is more, none of the hitherto existing models seems to be perfect, but at least provide one with the opportunity, though only to some extent, to encompass the values which greatly influences enterprise value.

### **The classification of methods and tools for measuring the intellectual capital and non-material assets**

Sveby (2004) has classified methods and tools for measuring the intellectual capital and non-material assets, on the basis of the research conducted previously by Luthy (1998) and Williams (2000), and distinguished four groups of methods (Strojny, 2003, 105):

- Direct Intellectual Capital methods (DIC),
- Market Capitalization Methods (MCM),
- methods based on Return On Assets (ROA),
- Scorecards methods (SC).

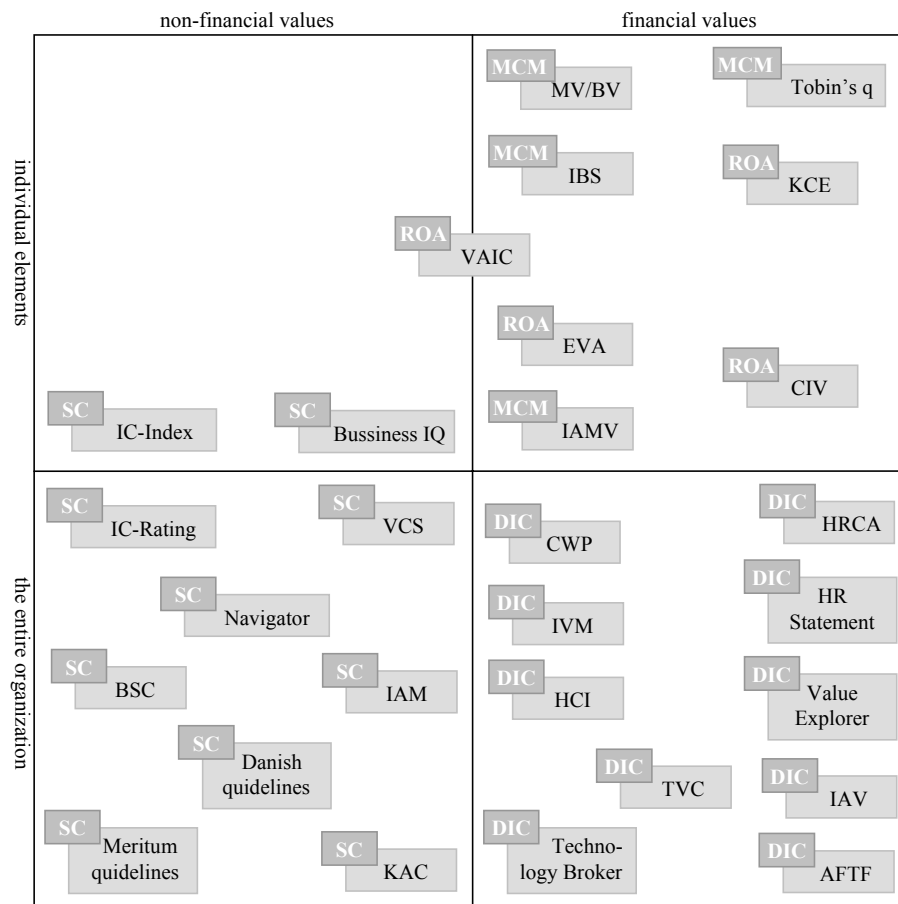
All the methods and tools for measuring the intellectual capital and non-material assets may be organized in a two-dimensional matrix, according to the following criteria of division:

- the 1<sup>st</sup> dimension: means of expressing the values: non-financial and financial values.
- the 2<sup>nd</sup> dimension: means of estimating the values: at the level of the entire organization (treated as an indivisible whole) or particular elements of intellectual capital.

Figure 2 shows a matrix of methods and tools for measuring the intellectual capital

and non-material assets.

Figure 2. The matrix of methods and tools for measuring the intellectual capital and non-material assets



- ↙ - Market Capitalization Methods (MCM)
- ↖ - Direct Intellectual Capital methods (DIC)
- ↗ - Return On Assets methods (ROA)
- ↘ - Scorecards methods (SC)

Source: own compilation based on Sveiby (2004)

The most common measuring models belong to so called group of scorecards. These methods allow for the identification and measurement of distinguished elements of non-material assets or intellectual capital by means of several indicators shown on special scorecards. However, each of these makes use of a different set of indicators. Thus, there is a need for selecting the indicators among the ones offered by many measuring models.

### Chosen models of measuring non-material assets and intellectual capital

Five chosen models of measuring non-material assets and intellectual capital have been discussed below<sup>3</sup>:

1. **Saratoga Institute matrix of human capital results** – for c.a. 20 years, Saratoga

<sup>3</sup> Apart from VAIC model, all represent scorecards methods

Institute has been using a special matrix of results for carrying out an inner evaluation of results as well as for the evaluation of market influences. Using this matrix, there is possibility to build, for every subject under examination, a system (which takes the specificity of a subject into account) of monitoring, measuring the results, and reporting. The analysis is made in two dimensions. In the first dimension, the matrix presents four basic areas of actions taken in the scope of personal policy: recruiting, remuneration, developing, maintaining. In the second dimension, for each of the chosen areas of personal policy system of an enterprise, the following five measures are used: cost, time, quantity, quality, reaction. J. Fitz-Enz from Saratoga Institute had published a model matrix of human capital results which included 22 non-financial indicators, and also presented 65 indicators in 7 groups that were points of reference in the Institute's report published annually (Fitz-Enz, 2001, 99-115, 174-180); (Kopijer, 2001, 21).

2. **The balanced scorecard** is a conception, which came into being at the beginning of the 90's of the 20<sup>th</sup> century, of balancing the classical financial measures of evaluation by means of other significant non-financial parameters (controlling variables) in such spheres as: client's perspective, internal processes perspective as well as growth and development perspective. The latter perspective includes measures concerning employees and systems that support learning and knowledge spreading. Combining aims and measures from particular perspectives with cause and effect relations enables to determine, in an indirect way, the value of human capital and other non-material resources through presenting the net of connections which leads to the creation of financial results. In this current, one should include a scorecard of managing the human resources (Becker, Huselid, Ulrich, 2002). The tool includes 28 result indicators and 23 leading indicators (p. 86); (Kaplan, Norton, 1992), (Kaplan, Norton, 1993); (Dobija, 2000, 68); (Pietrzak, 2003, 21).
3. **The monitor of non-material assets**<sup>4</sup> is a board divided into three areas in compliance with the structure of intellectual capital: our clients (external structure), our organization (internal structure), our employees (competence, human capital). Each of these factors is analyzed (in the second dimension), by means of several indicators, paying special attention to: growth (development), efficiency, stability. K. E. Sveiby, the author of the method, suggests that the monitor of non-material assets should not be longer than one page, as the excess of information may cause difficulty and a lack of clarity as far as noticing the most important data is concerned. The monitoring of non-material assets has been implemented for the first time in Celemi, a Swedish enterprise manufacturing and selling training tools. This enterprise has been enclosing a special document to its annual report since 1995. This consists of 24 non-financial indicators (Sveiby, 1997, 195); (Zbiegień-Maciąg, 2002, 30); (Zbiegień-Maciąg, Lipowiecka, 2000, 30).
4. **Skandia Navigator** – a firm ought to focus its attention on five main spheres of an enterprise's activity: finances, clients, processes, development, employees. The value of intellectual capital of an enterprise in a competitive environment derives from these elements. Navigator keeps the shape of a house, thus it is supposed to symbolize elements on which modern changing organization was, is, and will be built. The roof of "intellectual capital house" is a financial element describing the past of a firm. Here, traditional financial measures are used. Going downwards, to the walls of a house, we move to the presence and concentrate on current actions of a company. There is a client sphere and a sphere of processes which are a part of structural capital.

---

<sup>4</sup> K. E. Sveiby is the author of this conception.

The foundation of a house is a sphere of development, another part of structural capital, which represents the future of an organization. Human sphere is a center of a house. This sphere “is where it should be, since it is a heart and soul of an organization, and also as the only active power within an organization, touches all other spheres”. This tool has been used for the first time by Skandia, a Swedish enterprise functioning in insurance trade, which has become a pioneer in the scope of the visualization, measuring, and management of intellectual capital. Intellectual capital is examined by means of 164 indicators (including 73 traditional and 91 “modern” ones) (Edvinsson, Malone, 2001, 57); (Leszczyńska, 2001, 61).

5. **Value Added Intellectual Coefficient (VAIC)**<sup>5</sup> – this method allows for carrying out the analysis of the effectiveness of creating the value (in enterprises) from material and non-material assets, and is based on the assumption that every economic action is evaluated by a market which translates into value added. The method allows for monitoring the efficiency of current actions taken by employees in such a way so that an enterprise would know whether human capital has contributed to the process of value creation or not, and to what extent.

Value Added (VA) is determined just as a difference between the results (OUTPUT), i.e., between the incomes of an enterprise and outlays (INPUT), so between all the expenses apart from the ones borne by employees. Three elements determine value added creation (Pulic, 2000): physical capital (CE), human capital (HC), structural capital (SC), so for each of these categories the indicator of effectiveness, which collates a particular form of capital as well as Value Added (VA), involved in value added creation is determined (Strojny, 2003, 112-113):

- Efficiency of Physical Capital (VACA) = VA / CE,
- Efficiency of Human Capital (VAHU) = VA / HC,
- Efficiency of Structural Capital (STVA) = SC / VA.

The indicator of the total effectiveness of value added creation (on the basis of material and non-material assets (VAIC)) is a sum of previously calculated partial coefficients VACA, VAHU, STVA. In contrast with other ones, this method is based on a small number of measures (4) and coefficients (4). Using the universal coefficient without a necessity for adjusting it to the specificity of the way subjects function provides one with a possibility of comparing the results.

### **The model of measuring the effectiveness of investments in the development of intellectual capital of employees**

Table 1 shows indicators selected for the model of measuring the effectiveness of investments in the development of intellectual capital of employees which was a starting point for taking scientific measures aiming at fulfilling the research objective that has been adopted.

This model is an effect of transforming the hitherto existing achievements in the scope of creating the indicators that measure the effectiveness of investments made in the sphere of the management of human capital of an enterprise. The basis were mainly the aforementioned methods.

The choice of measures and coefficients was made by means of the following criteria:

- relevance to the aim of the paper and the scope of the research that was conducted,
- the fact it is commonly used and accepted in the literature of the subject as well as in practice,
- considering the specificity of subjects under examination,

<sup>5</sup> Value Added Intellectual Coefficient method was devised by A. Pulic in 1997

- the possibility of obtaining consistent and comparable data.

Table 1. The model of measuring the effectiveness of investments in the development of intellectual capital of employees

	indicator/measure	formula
<b>I. Personal costs</b>		
1.	the share of salaries or wages and benefits in incomes	salaries or wages+benefits/incomes from sale
2.	the share of salaries or wages and benefits in costs	salaries or wages+benefits/operating costs (in kind costs)
3.	personal costs (labor costs) per an employed	salaries or wages+benefits/the number of employees
4.	the indicator of salaries or wages and benefits	salaries of wages/benefits
<b>II. The development of human capital</b>		
1.	professional training and development expenses	
2.	the number of trained employees	
3.	the indicator of training investments	total cost of trainings/the number of employees
4.	the percentage of trained employees	the number of trained employees/the number of employees
5.	the indicator of training costs	total cost of trainings/the number of trained employees
6.	the share of trainings in costs altogether	total cost of trainings/operating costs (in kind costs)
7.	the share of trainings in salaries or wages	total cost of trainings/salaries or wages
8.	the share of trainings in benefits	total cost of trainings/benefits
9.	the share of trainings in labor costs	total cost of trainings/labor costs
10.	average education level	each level of education was ascribed a particular number: e.g., primary education – 1, secondary – 2, higher – 3.
11.	the percentage of employees developing their professional skills	the number of employees developing their professional skills/the number of employees
<b>III. The effectiveness of personnel function</b>		
1.	the profitability of investments in human capital	incomes-(operating costs – labor costs)/the number of employees
2.	Human Capital Value Added	incomes-(operating costs – labor costs)/labor costs
3.	income from human capital	income/the number of employees
4.	gross profit from human capital	gross profit/the number of employees
<b>IV. The effectiveness of value added creation by assets</b>		
1.	Value Added (VA)	output - input
2.	Human Capital (HC)	
3.	Structural Capital (SC)	
4.	Physical Capital (CE)	
5.	Total Capital (TC)	HC+SC+CE
6.	Efficiency of Human Capital (VAHU)	Value Added (VA)/Human Capital (HC)
7.	Efficiency of Structural Capital (STVA)	Structural Capital (SC)/Value Added (VA)
8.	Efficiency of Physical Capital (VACA)	Value Added (VA)/Physical Capital (CE)
9.	Value Added Intellectual Coefficient (VAIC)	VAHU+STVA+VACA

<b>V. The effectiveness of value creation for shareholders</b>	
1.	market value
2.	market value/book value
3.	market value of human capital
	market value – book value/the number of employees

Source: own compilation

On the basis of the tools prepared, quantitative analysis of the process of professional training and development of employees was carried out. This process was treated as an investment in the development of intellectual capital of an enterprise and employees themselves. The attempt was also made to analyze the effectiveness of these actions considering the influence on:

1. the effectiveness of personnel function,
2. the effectiveness of value added creation by material and non-material assets,
3. the effectiveness of value added creation for shareholders.

### **The example of using the measuring model – the results of analyses that have been carried out**

As far as the group of enterprises under examination was concerned, a tendency toward reducing the share of personal costs in the structure of costs according to kind had been observed. However, this phenomenon should not be evaluated negatively as restructuring phenomena, which occurred during the period under analysis, brought about employment rationalization and contributed to a rise in labor productivity. As an effect, there was a proportional real increase in unit labor costs which occurred along with the rise in labor productivity.

A difficult market situation brought about a necessity for reducing the training budgets. Yet, these changes did not take place proportionally to employment restructuring processes that took place parallel (what is proven by the fact that there has been an increase in training expenses per an employed and the percentage of trained employees), although a phenomenon of “saving” on the expenses from this sphere had been observed when the rate of economic development was slowing down. Enterprises, seeking the sources of production costs reduction, used training budgets in the first place and to a great extent (what is proven by the fact that the share of training expenses in the structure of personal and in kind costs is reducing).

The number of employees trained after a dynamic growth in 1999 significantly decreased during next two years along with a fall in employment, whereas during subsequent two years, regardless of further fall in employment, this number increased, thus professional development and training expenses were reduced in the last phase of the research period, yet not to the expense of the number of trained employees. Only the cost of training an employee was reduced which was an effect of a tendency toward price cut (that could be observed on a training market) accompanying not very good feelings in Polish and world economy.

Enterprises developed qualification potential of their personnel and improved the quality of human capital generated from the employed (what is proven by the fact that there was an increase in the education level indicator, and at the same time the decrease in the share of employees with primary and secondary education as well as an increase in the share of people with higher education in the qualification structure of personnel), and at the same time supported the processes of completing the education by employees (departing from the forms of completing the education at the level of secondary education has been observed, to the



advantage of the level of higher education and postgraduate studies).

On the basis of the research that has been conducted, it may be stated that investments in intellectual capital of employees made (on a large scale) in enterprises under examination favored the accumulation of intellectual capital in an enterprise and employees themselves as well as value creation.

Using the methods of multidimensional comparative analysis, a linear arrangement of subjects under examination was done according to the intensity of investments in the development of intellectual capital of employees and also according to the way they were assigned to four heterogeneous groups – enterprises:

- very good,
- good,
- poor,
- very poor

according to the degree to which the phenomenon under examination occurred.

In “very good” and “good” enterprises, a considerably greater effectiveness of expenditures on human resources has been observed. The direction of changes in indicators analyzed in this scope in relation to the dynamics of changes in the community and groups of reference should be evaluated positively. These enterprises used their material and non-material assets for value creation in a more effective way, and a decrease in the value of effectiveness indicators (including the general tendency) was smaller than in the groups of reference. Occurring processes have contributed to the increase in the share of structural capital in the generated positive value as a result of transforming the human capital into structural which favored the accumulation of intellectual capital. As a result, there was an enormous increase in the market value of these subjects. In this way, investors took the existence of intellectual capital into account (what is proven by the surplus of market value over the book value in these groups to a greater extent), whereas positive changes in this scope were characterized by a great dynamics (also in relation to previously identified trends within the community). Thus, enterprises created value added for shareholders.

On the contrary, in the groups of enterprises described as “poor” and “very poor”, a considerably smaller effectiveness of expenditures on human resources has been observed. The direction of changes in indicators analyzed during this period in relation to the dynamics of changes in the community and groups of reference should be evaluated negatively. These enterprises made a relatively (also with reference to trends that have been identified in the community) less effective use of their material and non-material assets for value creation, and the decrease in the value of effectiveness indicators was greater than in the groups of reference and the community. Occurring processes did not favor the accumulation of intellectual capital. As an effect, these subjects, in the majority of cases, ended the period under examination with negative rates of return. With respect to their market valuation, the existence of intellectual capital was taken into account to a lesser extent (intellectual capital treated as market value surplus over the book value), and changes occurred less dynamically in comparison with market trends during the period under examination. Therefore, enterprises reduced the pool of benefits due to the owners.

## **Conclusion**

On the basis of the hitherto existing achievements in the scope of creating the measurement indicators of the effectiveness of investments in the management of human capital of an enterprise, the model of measuring the effectiveness of investments in the development of human and intellectual capital of the employed was proposed. Then the research allowing for the fulfillment of formulated research objectives was conducted

(empirical exemplification).

Yet, the overall evaluation of any possible influence is not plausible because of limitations connected with the lack of access to information, the situation that can be found in enterprises under consideration. Such relations were to a great extent determined by measures used in the analysis, while selecting them depended on the willingness of enterprises to cooperate in the scope of the research that had been conducted.

It might be stated, on the basis of the research that has been carried out, that investments in the development of employees intellectual capital that were made in enterprises under examination, favored the accumulation of intellectual capital of an enterprise and employees themselves as well as value creation.

Polish enterprises, in order not to be described as backward, have to meet challenges of the 21<sup>st</sup> century. In this context, one of important tasks they have to face is a professional shaping of intellectual capital of an organization. What may play a vital role here is an efficiently and effectively functioning system of professional training and development.

## REFERENCES:

1. Becker B.E., Huselid M.A., Ulrich D., (2002), Karta wyników zarządzania zasobami ludzkimi, Oficyna Ekonomiczna, Kraków.
2. Bontis N., Dragonetti N.C., Jacobsen K., Ross G., (1999), The knowledge toolbox: a review of the tools available to measure and manage intangible resources, *European Management Journal*, Vol. 17, no. 4.
3. Bontis N., (1998), Intellectual Capital: An Exploratory Study That Develops Measures and Models, *Management Decisions*, nr 2.
4. Booth R., (1998), The Measurement of Intellectual Capital, *Management Accounting, CIMA*, vol. 76, no 10.
5. Bratnicki M., (1999), Spojrzenie na kapitał intelektualny z punktu widzenia wartości przedsiębiorstwa, w: *Przedsiębiorstwo na rynku kapitałowym*, (red.) J. Duraj, Uniwersytet Łódzki, Łódź.
6. Brooking A., (1999), *Corporate Memory. Strategies for Knowledge Memory*, International Thomson Business Press, London.
7. Brooking A., (1997), The management of intellectual capital, *Long Range Planning*, nr 3.
8. Cwynar W., Cwynar A., (2000), Słabości polskiego rynku kapitałowego w kontekście możliwości wdrażania przez spółki parametrów EVA<sup>TM</sup> i MVA<sup>TM</sup>, *Rynek kapitałowy. Skuteczne inwestowanie*, (red.) W. Tarczyński, WNUS, Szczecin.
9. Dobija D., (2000), Możliwości pomiaru kapitału intelektualnego organizacji i jego prezentacji w sprawozdaniach finansowych, *Zeszyty Naukowe Akademii Ekonomicznej w Krakowie*, nr 553, Kraków.
10. Edvinsson L., Malone M.S., (2001), *Kapitał intelektualny*, PWN, Warszawa.
11. Fitz-Enz J., (2001), Rentowność inwestycji w kapitał ludzki, Oficyna Ekonomiczna, Kraków.
12. Głuszek E., (2001), Problemy oceny kapitału intelektualnego przedsiębiorstwa, w: *Prace Naukowe Akademii Ekonomicznej we Wrocławiu* nr 916, Wrocław.
13. Handy C., (1995), *Beyond Certainty*, Hutchinson, London.
14. Jabłoński M., (2002), Rola, struktura i pomiar kapitał intelektualnego organizacji, *Ekonomika i Organizacja Przedsiębiorstwa*, nr 11.
15. Jaki A., (2000), Wycena przedsiębiorstwa, pomiar i ocena wartości, Zakamycze, Kraków.
16. Kaplan R., Norton D.P., (1993), Putting the Balanced Scorecard to Work, *Harvard Business Review*, 09/10.

17. Kaplan R., Norton D.P., (1992), The balanced scorecard. Measures that drive performance, Harvard Business Review, 01.
18. Klaila D., (2000), Using Intellectual Assets as a Success Strategy, Journal of Intellectual Capital, vol. 1, nr 1.
19. Kopijer P., (2001), Miernikiem w pracownika, Personel nr 10.
20. Kwiecień A., Mucha B., (2004), Nowoczesne mierniki wartości kreowanej przez przedsiębiorstwo, materiały z konferencji Efektywność źródłem bogactwa narodów, Wrocław-Karpacz.
21. Leszczyńska A., (2001), Wycena kapitału intelektualnego w przedsiębiorstwie, Ekonomika i Organizacja Przedsiębiorstwa, nr 11.
22. Luthy D.H., (1998), Intellectual capital and its measurement, zasoby internetu: <http://www3.bus.osaka-cu.ac.jp/apira98/archives/htmls/25htm>
23. Mięka B., (2002), Kapitał intelektualny jako przedmiot zarządzania, Problemy Jakości, nr 4.
24. Pietrzak M., (2003), Najlepiej wyceniać z kartą, Personel i Zarządzanie, nr 10.
25. Poczowski A., (2000), Wpływ funkcji personalnej na kształtowanie kapitału intelektualnego organizacji, w: Prace Naukowe Akademii Ekonomicznej we Wrocławiu nr 871, Wrocław.
26. Pulic A., (2000), VAIC™ - An Accounting Tool for IC Management, Austrian Intellectual Capital Research Center, January.
27. Quinn J.B., (1992), Intelligent Enterprise, The Free Press, New York.
28. Singer A.E., J.Calton, (2001), Dissolving the digital dilemma: meta-theory and intellectual property, Human System Management, vol. 20 issue 1.
29. Sokołowski J., (2002), Rola pakietowych systemów wynagrodzeń w kształtowaniu kapitału intelektualnego organizacji, Przegląd Organizacji, nr 1.
30. Strojny M., (2003), Metody i narzędzia pomiaru kapitału intelektualnego w organizacji, w: Pomiar i rozwój kapitału ludzkiego przedsiębiorstwa, (red.) D.Dobija, Warszawa.
31. Strużyna J., Dyduch W., (2002), Zarys metody budowania kapitału całkowitego firmy, Zarządzanie Zasobami Ludzkimi, nr 5.
32. Sveiby K.E., (2004), Methods for measuring Intangible Assets, <http://www.sveiby.com/articles/intangiblemethods.htm>.
33. Sveiby K.E., (1997), The new organization wealth, Berrett-Koehler Publishers Inc., San Francisco.
34. Williams M., (2000), Is a company's intellectual capital performance and intellectual capital disclosure practices related? Evidence from publicly listed companies from the FTSE 100, University of Calgary.
35. Zbiegień-Maciąg L., Lipowiecka A., (2000), Monitorowanie aktywów niematerialnych czyli rachunkowość zasobów ludzkich, Przegląd Organizacji nr 2.
36. Zbiegień-Maciąg L., (2002), Pracownicy jako kapitał, Personel, nr 1.