

Bogusław Ślusarczyk¹, Bernadetta Dziura²

THE INFLUENCE OF INTELLECTUAL CAPITAL ON COMPETITIVENESS OF ENTERPRISES IN LIGHT OF RESEARCH – AN OUTLINE OF THE ISSUE

A good financial situation of the companies involved in the survey is closely connected with intellectual capital, especially human capital and innovative capital. Thanks to new technologies, products, certificates and patents which are vital elements of innovative capital, companies can compete and stand out in the world of business. However, those components can be created only thanks to experienced, creative and well-educated staff. Podkarpackie Province has become more and more attractive in terms of economy. It is possible thanks to the entrepreneurs' involvement, economic zones which attract new companies as well as clusters operating in the area – for instance „Dolina Lotnicza” Cluster or Computer Cluster. The research carried out among 400 respondents from various companies, selected intellectual capital indicators and the analysis of economic and financial indicators – mainly profitability – confirm that the companies in the area consequently raise their value by means of a continuous development and by reinforcing their intellectual and creative potential. As a result their competitiveness and market share increase. The results of the research mentioned in the article provide information concerning the extent of intellectual capital in selected enterprises and its influence on competitiveness of companies. The attempt to evaluate the extent of intellectual capital and its influence on competitiveness, explains the issue of non-tangible assets which closely connected with businesses. The analyses of the data presented in the article touched only some of the issues concerning the influence of intellectual capital on companies' competitiveness. However, it is already clear that in the future the value of the companies and their development will be largely influenced by properly exploited intellectual capital which every company has.

JEL Classification Codes: 034.

Keywords: intellectual capital, human capital, knowledge, competitiveness.

¹ Associate Professor, PhD, University of Rzeszów, Faculty of Economics.

² PhD.

Introduction

The processes of globalisation have aroused lots of interest and focused practitioners and scientists' attention on the role of intellectual capital in creating and achieving the competitive position in the market. In light of expanding competitiveness, chances for further development and survive have only those enterprises, which are open to the notion of a constant increase of their contention by means of a proper administering of intellectual capital, especially human capital. Employees, their skills, knowledge and competence are considered to be the basic source of achieving competitive advantage in the market.

Nowadays, one of the greatest challenges which research and development teams involved in problems of intellectual capital face is finding the answer to a question about intellectual capital's influence on creating the value of an enterprise. Moreover, their aim is to discover in what way and to what extent intellectual capital influences the enterprises' competitiveness.

The issues concerning economy based on knowledge and processes of creating an informative society have become the main focus in recent years. Regardless of the definitions used, and despite the differences in meaning concerning these terms, there exists a common factor for all of them, mainly the notion of shifting accents from tangible to non-tangible resources which are often considered as intellectual ones. The size and productivity of these resources are extremely difficult to assess, however, knowing them facilitates the process of estimating their impact on companies' competitiveness and makes the future brighter. Moreover, these two factors enable to predict the sources of companies' future achievements and use them more effectively.

Economy based on knowledge is closely connected with the occurrence of new sources of competitive advantage such as: technologies, effective way of serving customers, company's reputation, new brands, the ability of taking over new markets, et cetera. Non-tangible factors complete and often, to great extent, substitute financial capital as a basic source of creating the value of an enterprise. Human capital decides about companies' competitiveness – knowledge, skills competence, employees' innovative way of thinking as well as company's ability to create and exploit these sources.

The main reason of confining attention to the intellectual capital is connected with its meaningful impact on competitive advantage of a company. In order to build and expand it more effectively, the elements of intellectual capital should be connected and managed properly. Interactions between these elements are meaningful, for example the effective work of human capital is enhanced by organisational capital, thus they are worth noticing.

However, market capital without the support of human and organisational capitals cannot shape the value of a company's intellectual capital.

Particular components of the intellectual capital can influence the level of competitiveness achieved by a company. For instance, a well-managed human capital by means of a proper motivation of employed workers facilitates the process of creating and exploiting the specialist knowledge, competence and creativity. As a result, the increase of a competitive advantage of an enterprise takes place. A necessary condition which contemporary enterprises aspiring to develop and compete effectively in the market should fulfil, is the adequate shaping of intellectual capital's components.

The aim of this article is to assess the extent to which the intellectual capital influences the competitiveness of businesses.

Key factors influencing the success of contemporary enterprises

Nowadays the key factors of a success which take active part in competitive confrontation between enterprises are closely connected with components of an intellectual capital. The major component of intellectual capital which secures company's competitiveness is human capital. Thanks to the employees' knowledge, their skills, experience or creativity the company achieves considerable competitive advantage, for instance by introducing brand new and unique products/services, acquiring certificates, implementing the newest technologies etc. Human capital is the source of innovations in an enterprise, the outcome of which are scientific and developmental researches. The intellectual property (patents, copyright laws) is the effect of these researches and a component of an organisational capital. In addition to that investing in human capital, as well as adequate motivation of employees, which in consequence contributes to their creativity, is also a priority. The usage of a structural capital combined with these investments contribute to creating new solutions thanks to which an enterprise becomes more competitive. The socio-economic development is positively influenced by human capital. The main benefits are (Gagacka, 2007):

1. Increased innovation and competitiveness of economies and societies, their abilities to implement world achievements in fields of science, technology and culture.
2. Positive influence on institutional changes and modernisation of social and economic structures.
3. Stimulating the development of a modern technical, organisational, informative and social infrastructure.

4. Creating favourable conditions for spreading modern patterns of consumerism, increasing the quality of life, promoting work ethics and effectiveness.

Analysing the components of intellectual capital in research on competitiveness, it is worth stressing out that more and more important part is attributed to social capital, since it is defined as a net of mutual connections and trust. These components become a foundation for an enterprise and its rules. Social interactions mainly provide opportunities to mobilise and multiply non-tangible resources of an enterprise thanks to which companies increase their competitive advantage. The meaning of non-tangible values in managing enterprises constantly increases. This leads to the necessity of searching for factors which determine companies' progress. Non-tangible values deeply rooted in social capital stimulate competitiveness and resourcefulness.

In order to function properly in the markets modern enterprises have to cooperate with the outside world. In economy based on knowledge, the essential meaning is attributed to a constant cooperation with other identities as well as to a mutual loyalty and trust – that is relational capital. Thanks to this cooperation companies are more innovative as the mutual work with the outside partners become the main source of new ideas. Customers who contribute largely to the improvement of products or services are especially important, as this kind of cooperation gives a possibility to use new technologies, other identities' skills or markets. Moreover, it affects positively the exchange of knowledge among other business partners. Apart from that engaging users in the process of creating new goods/services facilitates greater consideration of customers' needs and at the same time can contribute to a decrease in the number of failures while introducing novelties to the market.

Creating patterns of activity thanks to which competitiveness can be built by means of innovations is a long-term challenge for enterprises. This requires better use of intellectual capital's resources and developing it. The main objective should be focused on further activity concerning human capital necessary for creating innovations.

Competitive advantage based on intellectual capital, facilitates the process of achieving a success in a long-term, though it requires a more effective management policy. Enterprises willing to become more successful and to increase their competitiveness should create and implement a unique strategy which will indicate basic directions and tools useful in managing intellectual resources.

Results of the research

In order to estimate how the intellectual capital influences the competitiveness of enterprises in Podkarpackie Province, a survey research was conducted in 2014. During this research more than 400 respondents linked to different enterprises were evaluated and the choice of those polled was deliberate. The collected data was interpreted by means of a statistical method – Pearson's test χ^2 (chi square) – concerning impartiality of qualities.

In 2015 the complementary research was conducted, defined as the second part of the research, in order to expand the knowledge about the state of human capital as well as economic situation in evaluated enterprises. It was made by means of economic indicators and closely defined financial data received from companies³.

The index analysis was conducted among 100 enterprises (out of 400 selected in the first place for the survey). The choice was conditioned by the availability of data on the basis of which the value of particular indicators could be estimated. The aim of the analysis was to capture and indicate the characteristics of the evaluated enterprises and differentiate the level of further indicators. In order to achieve this, a univariate analysis of variance was applied as a method of verification. The null hypothesis of the equality of the general population was verified by means of Fisher-Snedecor method. Application of this test was possible because – based on the results of equations made by Kołomogorow-Smirnow test – calculated indicators can be treated as continuous variables with distributions similar to normal (level of significance $\alpha = 0.05$).

The optimal solution was to choose a few of the – human capital key indicators (in this case 9) which refer to the measurements of a human capital in terms of an enterprise, and which cover the essential aspects of a company's business.

Table 1 contains a description of persons taking part in a survey. Segments indicated in respondent's particulars questions of a survey are highlighted.

³The second part of the research concerned selected enterprises in which respondents from the first part of the study expressed their opinions on the state of intellectual capital and competitiveness.

Table 1. Respondents' description

Segmentation criteria	Segment	N	%
Position held	Production, manager / director	31	7.7
	Sales, manager / director	38	9.5
	Administration, manager / director	38	9.5
	Production, low-ranking employee	49	12.2
	Sales, low-ranking employee	40	10.0
	Administration, low-ranking employee	69	17.2
	Human Resource manager	7	1.7
	Customer service position	62	15.5
	Managerial position	5	1.2
	Financial position	22	5.5
	Designer	13	3.2
	Technologist	10	2.5
	Other	16	4.0
Work experience in a company	Up to 3 years	179	44.7
	4–8 years	94	23.5
	9–13 years	37	9.2
	13–18 years	37	9.2
	19 years or more	53	13.2
Age	under 25	99	24.8
	25–35 ys	155	38.7
	36–45 ys	95	23.7
	46–55 ys	39	9.8
	56 years or more	12	3.0
Sex	Female	227	56.8
	Male	173	43.2

Source: self-study based on research.

Table 2 presents a description of the enterprises which is based on four questions asked in a survey: size of a company (based on the number of employees), main line of business (basic type of business), area of business (range), foreign capital share and assessment of company's financial condition made by a respondent.

Table 3. illustrates the examples of evaluated relations between components of intellectual capital and measurements of competitiveness.

Table 2. Description of surveyed companies

Segmentation criteria	Segment	N	%
Size	Micro: 0–9 persons	82	20.5
	Small: 10–49 persons	130	32.5
	Medium: 50–249 persons	126	31.5
	Big: 250 or more persons	62	15.5
Main line of business	Industrial production	93	23.2
	Services	161	40.2
	Trade	53	13.2
	Sale	28	7.0
	Trade and services	10	2.5
	Finance and insurance	28	7.0
	Services and sale Or Services and finance and insurance	6	1.5
	Other	21	5.2
Area of business activity	International	142	35.5
	National	137	34.2
	Regional	121	30.2
Foreign capital share	0%	265	66.2
	1–25%	37	9.2
	26–50%	29	7.2
	51–75%	21	5.2
	76–100%	48	12.0
Assessment of financial status	Very good	102	25.5
	Good	178	44.5
	Average	88	22.0
	Poor	32	8.0

Source: self-study based on research.

Table 3. Relations between the evaluation of components of corporate culture and the evaluation of enterprise's competitive position

Details	Competitive position						χ^2	p
	Very good		Good		Sufficient			
	N	%	N	%	N	%		
Awarding activities connected with employees' development	36	28.6	50	21.8	3	6.7	9.25	0.010
Understanding the range of duties	9	7.1	48	21.0	25	55.6	47.76	0.000
Developing employees' abilities by means of education	30	23.8	104	45.4	39	86.7	54.40	0.000
Lack of sense of discrimination	23	18.2	65	28.4	17	37.8	7.79	0.020
Lack of rules and procedures hindering the work progress	21	16.7	71	31.0	22	48.9	19.38	0.001
Sense of support and openness offered by an employer	18	14.3	71	31.0	30	66.7	43.93	0.000

Source: self-study based on research.

Table 4. Values of Pearson's correlation indicators between human capital indicators

Indicators	Indicator of full-time employees	Indicator of seniority	Indicator of newly-employed people within a year	Indicator of fluctuation	Indicator of employed women	Indicator of number of employees engaged in projects	Indicator of innovation	Indicator of annual investment in trainings	Indicator of trainings costs in sales value
Indicator of full-time employees	1.00	-0.11	-0.08	-0.38*	+0.02	+0.62*	+0.67*	+0.12	-0.03
Indicator of seniority		1.00	-0.23	-0.15	-0.06	+0.56*	+0.48*	-0.18	-0.08
Indicator of newly-employed people within a year			1.00	+0.11	+0.08	-0.16	+0.37*	+0.42*	+0.09
Indicator of fluctuation				1.00	+0.44*	-0.41*	-0.35*	+0.21	+0.11
Indicator of employed women					1.00	+0.07	-0.06	-0.01	+0.02
Indicator of number of employees engaged in projects						1.00	+0.22	+0.38*	+0.08
Indicator of innovation							1.00	+0.20	+0.13
Indicator of annual investment in trainings								1.00	+0.57*
Indicator of trainings costs in sales value									1.00

Source: self-study based on financial data obtained from 100 companies.

Using financial data and an inquiring method, the economic indicators of human capital as well as the correlation between the measures were established. This contributed largely to a more precise depiction of a human capital in evaluated companies. The economic indicators presented in this part of a research are only some of the possible ones that can be applied. Thanks to them it is possible to analyse the influence of a human capital on competitiveness between enterprises. The final results of a human capital assessment should be treated as an attempt to evaluate its value rather than as a real value itself.

The value of Pearson's indicators and the results of testing enable to come to the following conclusions which result from correlations of human capital indicators in enterprises located in Podkarpackie Province:

1. Indicator of full-time employees increases, which results in: a decrease of fluctuation indicator, an increase of the number of employees engaged in projects and an increase of innovation indicator.

2. Along with the increase of indicator of seniority, there is an increase in innovation indicator and the number of employees engaged in projects.
3. Increase of indicator of newly-employed people within a year results in an increase of annual costs of trainings indicator.
4. Fluctuation indicator increases, along with indicator of women employment, however, number of employees engaged in projects indicator and innovation indicator decrease.
5. Number of employees engaged in projects indicator increases along with indicator of annual costs of trainings and this results in an increase of indicator of training costs in the value of sales.

The pace of increase in profit margin indicators⁴ proves that the economic situation and competitiveness of enterprises in Podkarpackie Province are good.

Table 5. Values of economic indicators in enterprises in years 2011–2015

Lp.	Indicators (%)	Years				
		2011	2012	2013	2014	2015
1.	Assets profit margin	5.0	4.2	6.0	4.7	5.0
2.	Fixed assets profit margin	8.1	6.6	9.3	7.7	8.2
3.	Current assets profit margin	12.7	11.2	16.5	12.1	12.5
4.	Equity capital profit margin	8.2	6.9	9.8	8.6	9.1
5.	Gross profit margin (gross profit sale)	4.4	3.9	5.6	4.5	4.7
6.	Net profit margin (net profit sale)	3.8	3.4	5.1	3.9	4.2
7.	Total costs profit margin	95.6	96.1	94.4	95.5	95.3
8.	III degree of liquidity profit margin III (current liquidity margin)	1.54	1.59	1.53	1.56	1.57

Source: self-study based on financial data obtained from medium-sized and big companies.

The analysis of profitability indicators and financial liquidity conducted in the period of five years confirmed the increase of enterprises' value. This could be possible thanks to the increasing sale of products, foods and materials. The values of economic and financial indicators presented above, especially the net profit margin for sale, whose value hesitates between 3.8% – 5.1% indicate the increasing participation of companies based in Podkar-

⁴ Economic and financial indicators have been calculated for 188 businesses (medium-sized and big ones) which participate in a survey concerning: „The impact of intellectual capital on the competitiveness of Podkarpackie Province”.

packie Province in the market. Stable financial situation along with an active innovation business which is reflected in the increase of the income from the sale of new products or improved ones, especially in companies linked to the business of industry and service sector prove to what extent the enterprises are competitive. These companies have the greatest impact on the evaluated market.

In the area of Podkarpckie Province new technologically advanced or upgraded products are sold thanks to which the province is highly rated in the country (third position on the ranking list). Dolnośląskie Province and Śląskie Province achieve better results in terms of sale (first and second position). Moreover, the export of goods is very meaningful here – in 2013 it was equal to 24.37%, in 2014 – 25.22%, and in 2015 – 23.44% of the whole income from trade (GUS, 2014).

Competitiveness of companies located in Podkarpackie Province is also influenced by innovative business activity and intramural expenditures on R + D companies. Industrial companies which introduced innovations were on the sixth ranking position among all Polish provinces (value of the indicator 19.7%). At the same period of time service enterprises were on the seventh ranking position (result – 11.9%). Expenditures invested in innovative business activity in industrial companies in 2014 were equal to 1881.9 million PLN which gave them the sixth classification in the national ranking. Expenditures invested in innovative business activity in service enterprises in 2014 were equal to 9 million PLN and this gave them the eighth position among other Polish provinces.

In 2014 in the area of Podkarpckie Province, the expenditures connected with innovative business activity in a single enterprise were equal to 8078.0 thousand PLN among industrial companies (III position in the province ranking). Service enterprises were classified as the second with the expenditures of 5045.5 thousand PLN.

Conclusion

The analysis of the survey results, relations between components of intellectual capital and competitiveness allow to indicate the components of intellectual capital which to a great extent influence the competitiveness of enterprises located in Podkarpackie Province. Estimated economic indicators of intellectual capital and average values of economic and financial indicators confirmed the results of the survey. They also prove that the financial situa-

tion of companies is stable and the level of competitiveness is high. Despite the fact that the evaluated companies have already an established position in the market, they still aspire to increase their value, mainly by means of growing sale which results in expanding share in the market.

Correlations between particular components of intellectual capital and selected elements of competitiveness as well as strategic elements have been analyzed.

The most advanced and widely used aspect of an intellectual capital is **human capital**, that is why the managers should treat it as the main source of a success for companies operating in Podkarpackie Province. Human capital – employees, their knowledge, skills, experience – are the most valuable assets of a company which influence the development, economic results and competitiveness of enterprises on the market.

Human capital is the essential link in company's development – the employed workers create and invent new technologies, behaviour, rules and values. **Competencies** of the employees who have taken part in the survey are extremely important here.

Company workers have to respond to different challenges on a daily basis regardless of the position they held.

Nowadays employers have to head-hunt the best specialists in the market and do everything within their power to make them stay in a company. One of the effective ways is to invest in people's personal development. **Investing in human resources** is an essential element of intellectual capital development. It is possible thanks to various trainings and workshops which expand employees' knowledge, skills and support planning individual career paths, different courses, conferences. These forms of development contribute to building up a positive image of a company and an attractive and innovative employer. This opinion attracts responsible, competent employees since well-educated workers want to be employed by companies which offer them great career prospects.

The employees' knowledge is one of the components of intellectual capital used to a great extent by companies. Knowledge is one of the most important sources of competitive advantage, because it conditions the progress of a company. The research indicates that managers and people employed in the area of Podkarpackie Province have great knowledge which influences the increase of intellectual capital. Many innovative enterprises mentioned in the survey are still expanding – they create new posts, introduce modern products, technologies, patents, obtain certificates and conquer new markets all over the world.

According to the survey, **organisational culture** has an important meaning in business activity of enterprises. It exerts a significant influence on general functioning and an increase of effectiveness of companies. Moreover, it contributes to a financial success, stability (reinforces the sense of identity in a workplace – giving values which can be easily applied) and flexibility that is an ability to adapt (understanding the need for new challenges – clear distinction of key competences and strategic aims which companies want to achieve).

One of the most valuable factors in economy of knowledge are **innovations** – the part they play in functioning of companies in the 21st century becomes greater and greater with time. Moreover, it is believed that apart from human capital, innovations are one of the key elements of intellectual capital. The majority of companies' representatives who have decided to take part in the survey supported innovative business activity, for instance by introducing new technological solutions to the production process, equipment or information technologies in their businesses. Continuous desire to implement innovative products, services or organisational innovations in structures of a company is always emphasized and appreciated.

One of the components of non-tangible assets typical of enterprises evaluated in the survey is **reputation** – an essential trade instrument used for passing on the information concerning a given company, its products or services. Over the years, companies located in Podkarpackie Province have earned a very good reputation in the market, which in turn has a positive influence on their business position – a good quality of their products and services is comparable with other brands available in the market, hence they compete with world leaders and build up their market position. A capital of reputation is believed to be a company's hidden capital, thanks to which enterprises can have a market advantage over others and convince both consumers and investors to accept their offers.

References

- Brożek K. (2014), *Financial standing of polish enterprises*. Central European Review of Economics & Finance 2001, No. 3, Vol. 6.
- Dyr T., Ziółkowska K. (2007). *The intellectual capital as the regions' competitiveness factor*. Central European Review of Economics & Finance 2001, No. 1, Vol. 17.

- Dyr T., Ziółkowska K. (2014). *Economic infrastructure as factor of the region's competitiveness*. „Central European Review of Economics & Finance”, Vol. 6, No. 3.
- Gagacka M. (2007), *Kapitał ludzki i społeczny a innowacyjność mikroprzedsiębiorstw*, Wydział Ekonomiczny, Uniwersytet Technologiczno-Humanistyczny w Radomiu.
- GUS (2014). *Działalność innowacyjna przedsiębiorstw w latach 2011–2013*, Warszawa.
- GUS (2015). *Działalność innowacyjna przedsiębiorstw w latach 2012–2014*, Warszawa.
- <http://www.Instytut.info/IIIkonf/referaty/3c> (Access 11.01.2017).
- Maráková V., Dyr T., Wolak-Tuzimek A. (2016). *Factors of tourism's competitiveness in the European Union countries*. E&M Economics and Management, No. 3.
- Pietruszka-Ortyl A. (2007). *Kapitał intelektualny organizacji*, [In:] Mikuła B., Pietruszka-Ortyl A., Potocki A. (eds.), *Podstawy zarządzania przedsiębiorstwami w gospodarce opartej na wiedzy*, Difin, Warszawa.
- Ślusarczyk B. (2011). *Międzynarodowa pozycja konkurencyjna Polski, Teoria i praktyka*, CeDeWu, Warszawa.
- Walczak W. (2010), *Analiza czynników wpływających na konkurencyjność przedsiębiorstw*, „e-Mentor” No. 5 (37).