

RAFAŁ PRUSAK

Influence of selected strategic variables on the development of the intellectual capital of an enterprise

1. Introduction

Answering the question what exactly intellectual capital is, what is its structure and what factors influence its value is not a simple task. According to the encyclopaedic definition, capital is a value that brings about an added value in the form of profit (Kopaliński 1989, p 252). In broader terms, capital can be regarded as a value capable of self-multiplication, which allows one to abandon the traditional tendency to associate it with financial resources, and include it also in the framework of elements, such as technology or intangible resources. The notion of intellect, in turn, means intelligence, the sum of mental abilities, experience and knowledge of an individual (Kopaliński 1989, p. 252). Thus, it refers to the ability to acquire and use knowledge, understand thoughts and cognize. Any attempt to define intellectual capital based on the encyclopaedic approach seems to be doomed to failure. However, already this method does show the number of possible areas of interpretation, points out to potential disputes and raises a number of questions. A basic issue that needs consideration is the question whether the

Ph.D. Rafał Prusak
Czestochowa University of Technology
Faculty of Manufacturing Engineering
and Materials Technology
Department of Production
Management and Logistics

intellectual capital refers only to man, or also to other resources of an enterprise. Or, considering its intangible nature and an undeniable relationship with mental processes taking place in the employees' minds, it is capable of being measured and efficiently managed. And, given that people provide the foundation for the formation and development of intellectual capital, while their knowledge, experience and - in a broader perspective - competencies are not the company's ownership, whether it is possible to develop its value in an intentional and guided manner. It seems also important to answer the question about the actual structure of intellectual capital, which will allow you us to identify elements that intensify its development.

The primary objective of this study is to analyze the nature of the approach of managers of selected companies to issues related to intellectual capital. The objects of the study were also the mechanisms of intellectual capital management. Using the self-developed research method components of intellectual capital (human capital, structural capital and market capital) in analyzed enterprises were also evaluated. For each of the areas of research there was conducted statistical analysis aimed to identify possible relationships with selected elements of strategic management.

2. Characteristics of intellectual capital

When analysing the views on intellectual capital existing in the available literature on the subject, one can find a wide variety, manifesting itself by the existence of several basic trends, as well as a lot of derivative trends. On the one hand, this reflects the complexity of the issue and a possible multiplicity of interpretations. On the other hand, they still indicate the need for research aimed at deepening the knowledge in this field and the need to detail its components. L. Edvisson and M.S. Malone (2001, p. 39) state that intellectual capital is hidden assets reflecting the gap between the market and book values of a company. T.A. Stewart (1997) sees intellectual capital as the sum of everything that anyone in the company knows, and what determines the competitive advantage. Then he clarifies his view by stating that intellectual capital is the knowledge that allows one to transform raw materials into more valuable materials that are able to bring about a particular financial value (Stewart 2001). We see here a clear separation of intellectual capital from the "traditional" material resources of an enterprise. Stewart indicates some kind of conditionality of the capability to achieve the expected results. It is not so much important to have adequate material and intangible resources, as to have the capability to

creatively combine them. At the same time, Stewart's approach clearly shows that intellectual capital is related to knowledge, the capability to efficiently allocate the resources and use them properly in order to achieve the intended goal. Similar views can be seen, for instance, in the studies by Y. Nahapiet and S. Ghosal, who interpret intellectual capital as knowledge and the competency in acquiring this knowledge, thus equating it with the sum of the knowledge of people gathered within an organisation (Nahapiet, Ghosal 1998, p. 242), as well as those by B. Olsson (1998), whose theory says that intellectual capital is created by the knowledge and skills that individual employees contribute to the company. Both approaches show emphasis placed on the role and importance of the company's employees, and their competence. In Poland, views close to the above-mentioned interpretation range are presented, among others, by M. Marcinkowska (2000, p. 93) (who sees intellectual capital as the knowledge of employees and management, which is a resource of strategic importance influencing the competitive position and market potential of an enterprise). The process of formation of intellectual capital is influenced, however, not only by employees, but also by suppliers, business relations, as well as the governance structure. The knowledge required for conducting business activity does not form only within the enterprise; its absorption from the environment is also necessary. Every contractor, every business entity with whom the company is in contact may become a source of relevant information, thereby contributing to the improvement of its performance. This is clearly pointed out by K. Wiig (1997), who defines intellectual capital as a collection of assets resulting from intellectual activities ranging from the acquisition of new knowledge through to the ingenuity in creating relations with the others. Such a broad perspective allows one to fully realize the scale of the problems related to the management of intellectual capital. This is well illustrated by J. Fitz-Enz (2001, p. 23), who interpret intellectual capital as a complex combination of processes and culture connected with a network of various relationships and human capital.

One of the basic problems related to intellectual capital is to define its real structure. Views and theories existing in the literature on the subject relate to different numbers of intellectual capital elements; also, they often indicate different components. The dominant view prevailing in the literature on the subject identifies three basic components of intellectual capital: human capital, customer capital and organizational capital. This division - in spite of sometimes used different names - is shown, inter alia, by W.R. Bukowitz and R.L. Williams (2000, p. 223) (who perceive intellectual capital as the relationship between human capital, customer capital and organizational capital, which maximizes

the the organization's potential for creating values). T.A. Stewart (2001, p. 34) (who, as the components of intellectual capital, indicates human capital - in particular talents, structural capital - including the methodology, intellectual property, software, documentation, and customer capital - understood as the relationship with customers), and L. Edvisson and M.S. Malone (2001, p. 39) (who specify three components: human capital, structural capital and relational capital). Also H. Saint - Onge (quoted in: Kasiewicz, Rogowski 2006, p. 93) and N. Brennman and B. Connell (2000, p. 229) use this type of division, while the latter additionally specifying the elements that make up these main categories:

- human capital (including: the level of the competence gap, the level of expenditures on training per employee, employee fluctuation and the level of job satisfaction),
- relational capital (in which they include, among other things, the following: the number of customers cooperating with the company for a specified period, the customer profitability rate, the value of their possessed brands and trademarks, and the average period of cooperation with suppliers),
- structural capital (including, but not limited to, the following: the level of expenditures on research and development, the value of possessed IT systems, the number of products covered by patent protection, and the level of efficiency of the main processes).

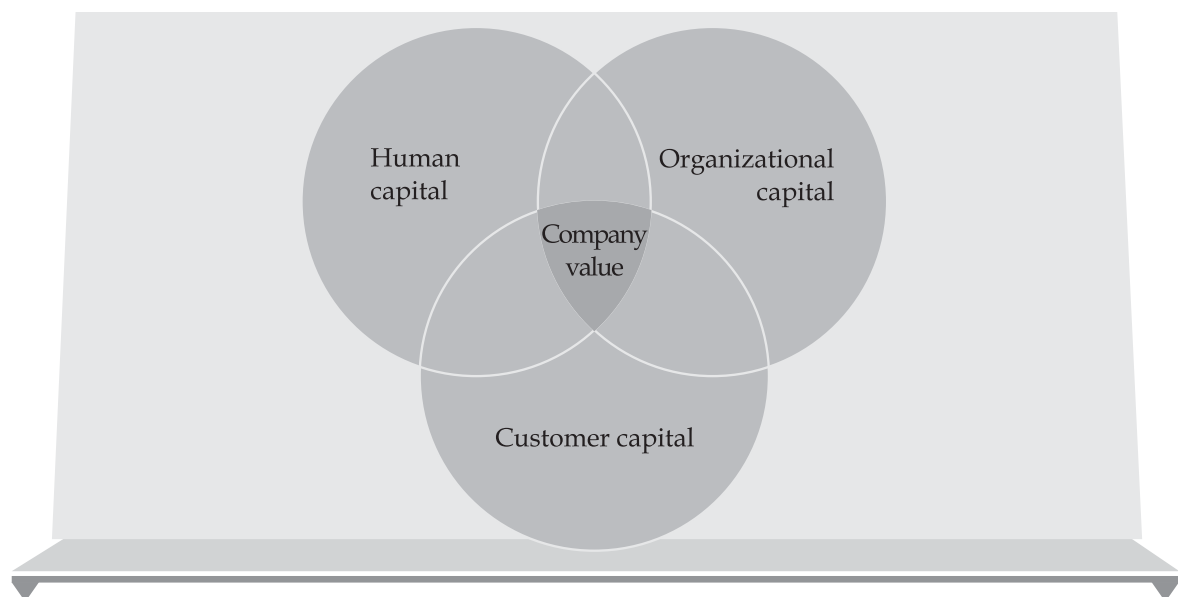


Figure 1. Relationship between intellectual capital and the company's value

Source: Petrash 1996

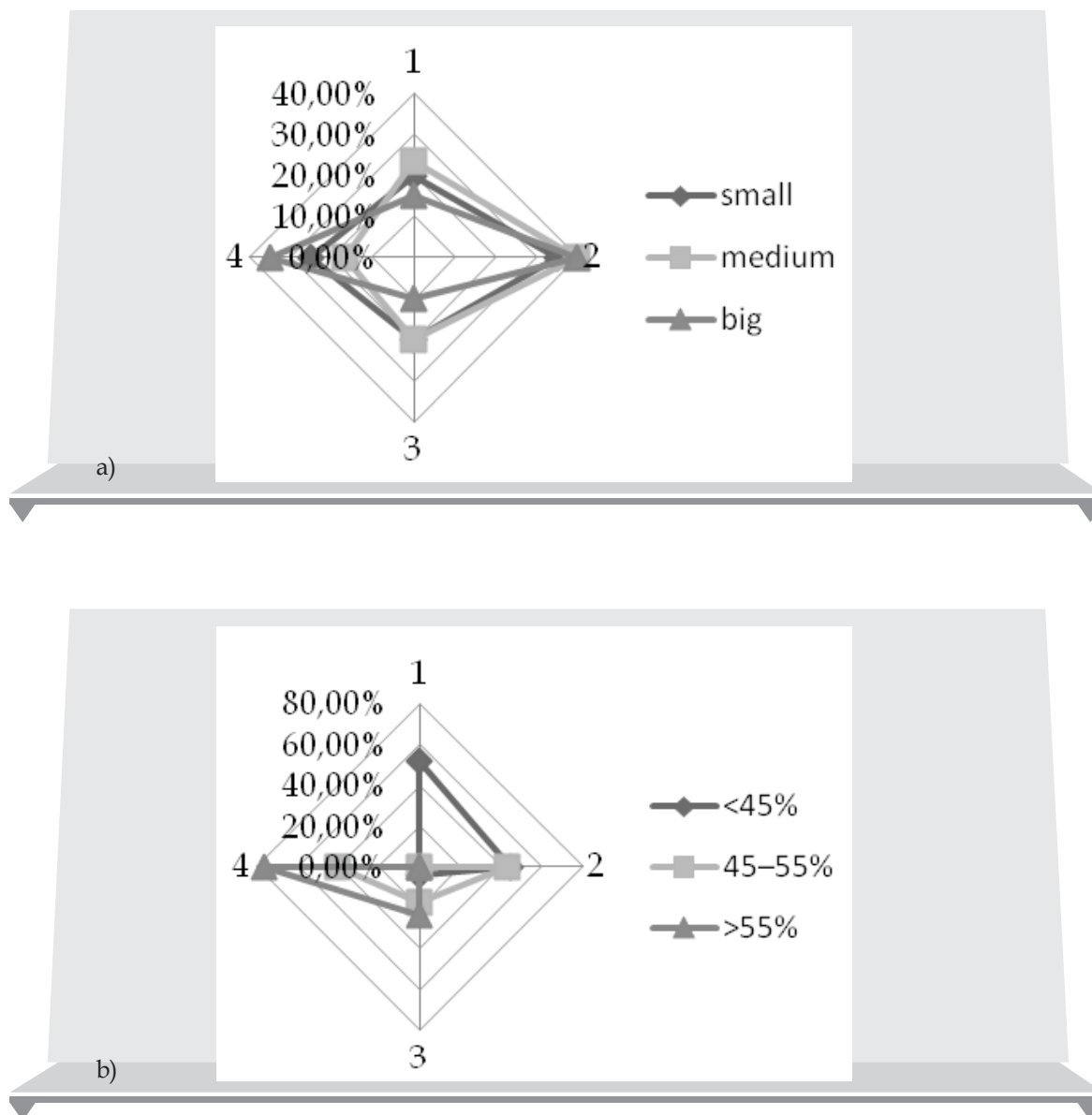
An important element in terms of the structure of intellectual capital is the interaction among its components. The co-operation and mutual integration of individual components is the prerequisite for achieving the expected scale effects. This phenomenon is well explained by the diagram proposed by Petrash, presented in figure 1. The increase in value of a company is not the result of an individual action of any of the intellectual capital components, but instead a whole series of interactions taking place among all these elements. It can be easily noticed that the greater the extent to which the circles overlap, that is the greater the interaction, the greater the value forms.

3 Analysis of the nature of the approach to intellectual capital in selected enterprises

A survey was conducted on a group of 70 companies selected in such a way as to represent different sectors and different groups according to the stage of development, size and the type of business activity. The main research tool was a developed method for evaluating the components of intellectual capital using 63 indicators (20 for assessment of human capital, 21 for structural capital, and 22 for market capital). During the course of analyses, the focus was on the issues related to the dissemination of the concept of intellectual capital, its practical use in the strategic management of companies, and on the assessment of the state of intellectual capital components in the surveyed entities.

The survey results allowed us to find that most companies do not take any actions related to the management of the intellectual capital that they have. In twenty percent of the instances, the surveyed managerial staff stated lack of the knowledge of how to manage intellectual capital, while associating this concept predominantly with intellectual property, patents or copyrights. In 38.6% of the companies, the survey showed that in spite of the possessed knowledge of intellectual capital, there were no actions to promote its formation and development. Individuals managing these companies declared that they did not see the need for implementation of such solutions, or stated that such solutions were not required due to the specificity of the conducted business activity. Part of the polled showed a strongly negative and disrespectful attitude to the management of intellectual capital, describing it as a "temporary fashion." Only in 25% of the cases were conscious activities within all intellectual capital components found to exist. The conducted detailed analyses allowed us to demonstrate some trends and phenomena that can be observed at different research perspectives. Particularly interesting data

distributions were observed for the divisions of the surveyed population by company size, the degree of meeting the key success factors, and trade attractiveness. The results are presented in Figure 2 (the analysis of both the key success factors and trade attractiveness was made using point rating with weights - a general survey scheme was similar to that presented by G. Gierszewska and M. Romanowska (2007)).



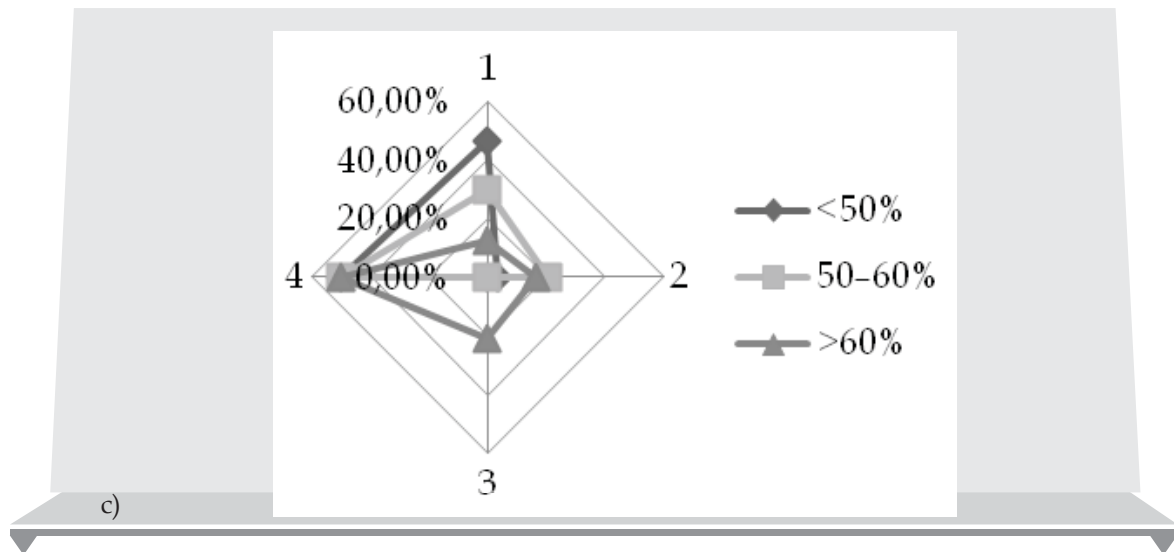


Figure 2. Distribution of answers concerning the knowledge of intellectual capital, as dependent on: a) company size, b) the degree of meeting the key success factors, c) trade attractiveness

Designations in the x-axis: 1 - the issue is not known and considered, 2 - the issue is known, but not considered, 3 - the issue is considered in the context of human resources, 4 - the issue is dealt with comprehensively

Source: the authors' compilation based on empirical studies

About 34% of the surveyed companies declared to take, or showed willingness to put in place measures aimed at using the intellectual capital to improve the efficiency of their operation. It should be emphasized, however, that practically in none of examined entities, contrary to the claims made by the managerial staff, any systemic nature of this type of activities was found. In many cases, these were the initiatives taken in a selective manner, only in selected areas. What's more, there were no mechanisms for their closer mutual connection enabling the use of the synergy effect. Especially numerous were activities in the area of human capital, associated not only with professional development, but also with making attempts to introduce mechanisms for the identification, development and dissemination of knowledge within the organization. In spite of the simplicity that often characterized them, in most cases they did fulfill their roles, yielding satisfactory results to the companies. The examination performed using the Pearson correlation index has found a relationship to exist between the nature of activities with regard to intellectual capital and the degree of meeting

the company's key success factors and trade attractiveness. Despite the unclear character of the correlation, it is possible to infer on this basis about the existence of some mechanisms contributing to the increased interest in intellectual capital in companies achieving better financial results (a higher degree of meeting the key factors helps to build market advantages, while high trade attractiveness involves, among other things, an increase in the profitability of conducted activity).

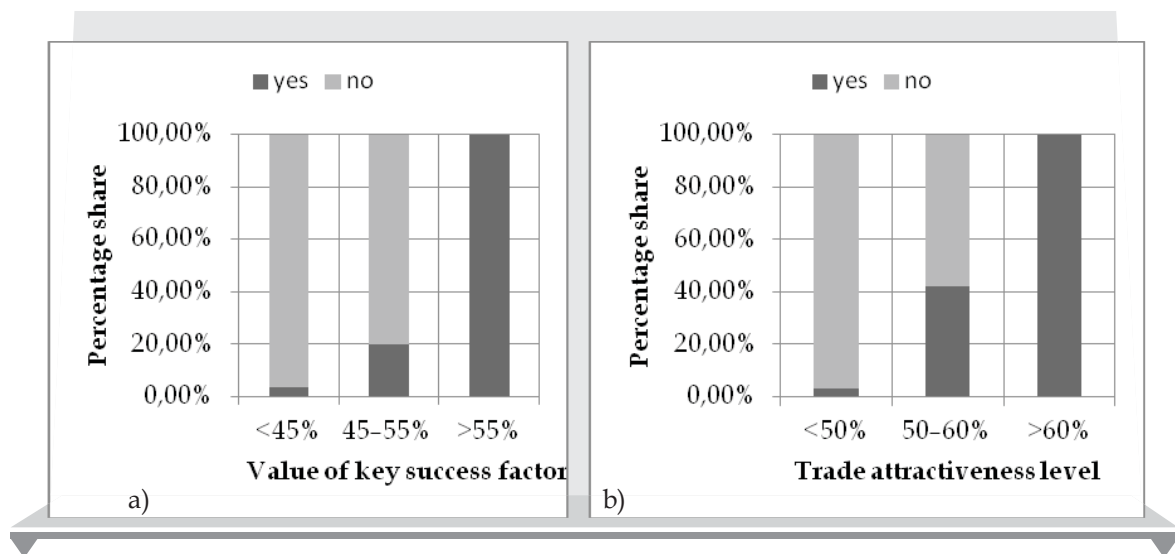


Figure 3. Distribution of answers concerning the implementation of intellectual capital management mechanisms, as dependent on: a) the degree of meeting the key success factors, b) trade attractiveness

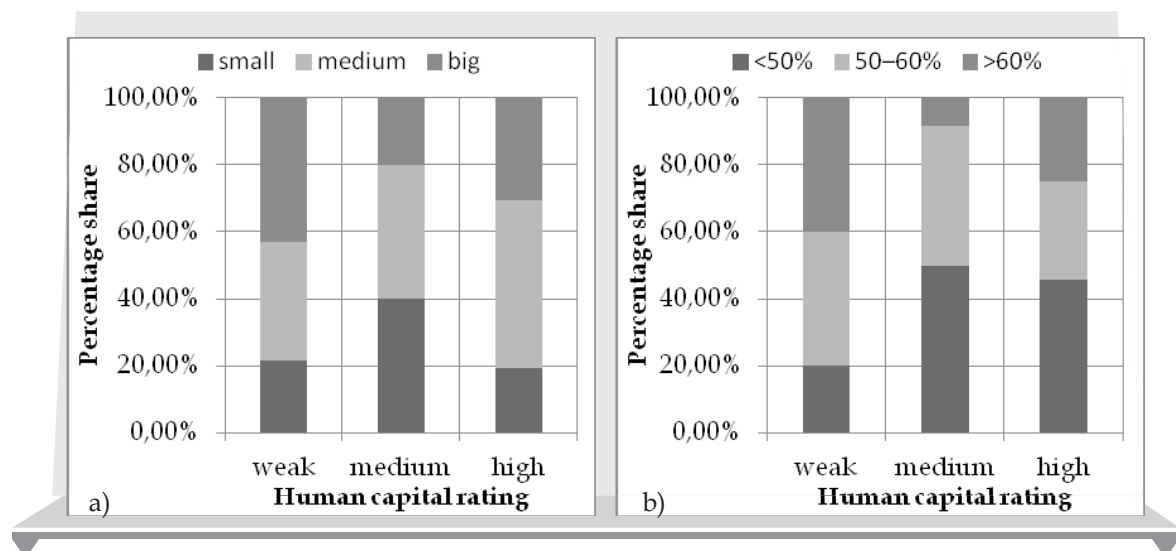
Source: the authors' compilation based on empirical studies

An important element of the examination was to identify the existence of potential relationships between the analyzed factors of a strategic nature and the components of intellectual capital. The examination covered human capital, structural capital, and market capital, while being based on the view describing the structure of intellectual capital, which prevails in the literature on the subject.

With regard to human capital, some indistinct correlations have been found to exist in terms of the relationship of this component with company size (an index value of 0.25) and the level of trade attractiveness (0.29). Among medium- and large-sized companies, a greater percentage of enterprises

showing high rating of human capital is observed. Without deeper research, it is difficult to definitely indicate the reason for this situation; however, it can be presumed that this is associated with the need to put in place more complex human management mechanisms enabling the efficient use of large employee groups and the synchronization of conducted work.

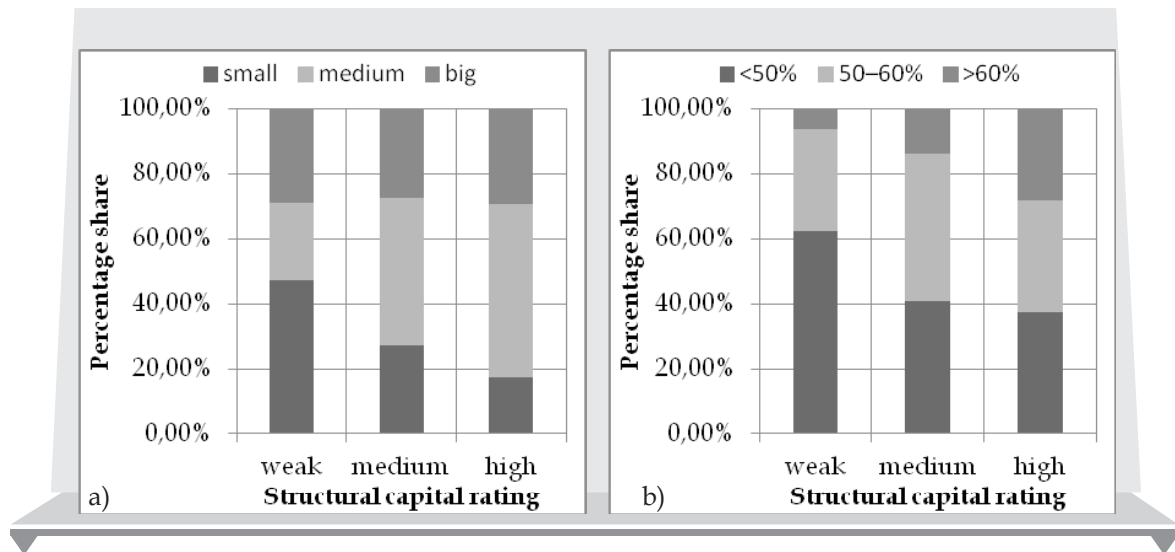
To a similar extent, correlations have been identified with respect o structural capital (in terms of enterprise size, the index value was 0.28, while in terms of trade attractiveness, 0.26). At the same time, however, the examination has demonstrated weak correlations between the structural capital rating and the stage of company development and the degree of meeting the key success factors (in both cases, the index value was around 0.2). A better position of this intellectual capital component is found in mature and leading companies. Young and developing enterprises showed smaller or bigger problems in this area (though there were deviations from this trend).



**Figure 4. Distribution of human capital data, as dependent on:
a) company size, b) trade attractiveness**

Source: the authors' compilation based on empirical studies

The strongest correlation, within the conducted examination, has been found in terms of relationship between the market capital rating and the degree of meeting the critical success factors (0.34). This result is probably



**Figure 5. Distribution of structural capital data, as dependent on:
a) company size, b) trade attractiveness**

Designations in the x-axis: 1 - poor, 2 - medium, 3 - high

Source: the authors' compilation based on empirical studies

due to a better understanding of market mechanisms and, consequently, fuller adjustment to the needs of both customers and suppliers companies - that is elements classified into the group of key success factors. Some indistinct correlations have also been found between the capital market rating and the level of trade attractiveness (0.24) and the degree of enterprise diversification (0.21). In particular the latter case seems to be interesting, allowing one to believe that a greater number of existing market relations, as it wear, compels companies to maintain a higher quality of these relations (developed internal company procedures are intended to prevent any disturbances in communication with particular contractors and information leaks between various relations - which could lead to a reduction of contractor satisfaction or - in extreme cases - to breaking the cooperation). Drawing specific conclusions requires, however, additional studies and analyses to be carried out.

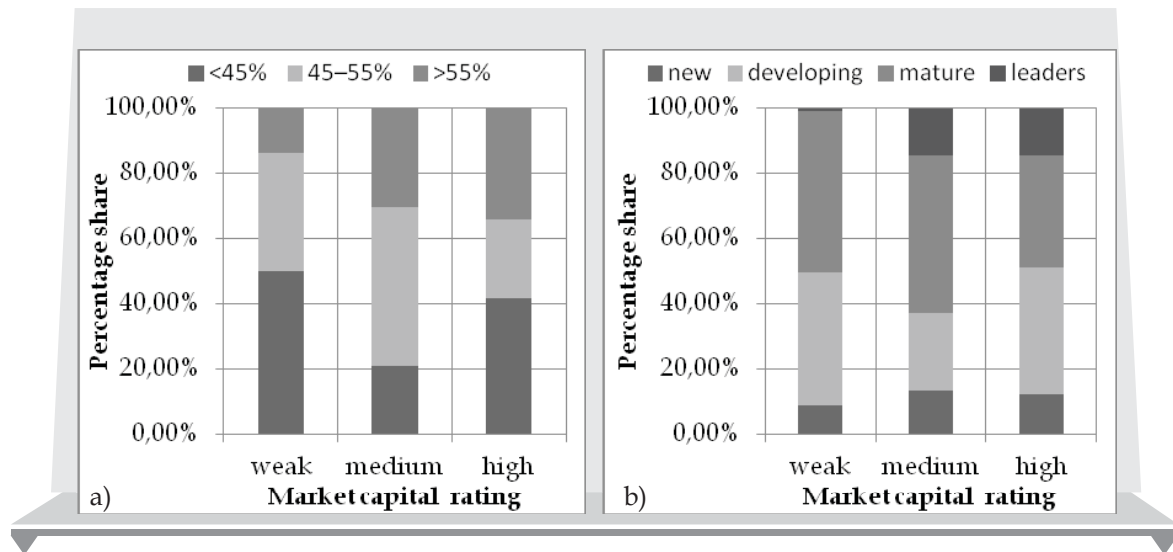


Figure 6. Distribution of market capital data, as dependent on a) the degree of meeting the key success factors, b) the stage of company development

Designations in the x-axis: 1 - poor, 2 - medium, 3 - high

Source: the authors' compilation based on empirical studies

4. Summary

The vast majority of the correlations examined within the conducted analyses were indistinct in character (although in some cases they were very close to the average). Such results would suggest that the majority of the considered relationships were questionable. It seems, however, that both to the examined issues and - more broadly - to the intellectual capital, an approach should be applied, which would fully allow for the nature of these items. Intellectual capital, among other elements undergoing management processes, is extremely complex and, in addition, covers many different factors, among which there are a number - often not fully identified and examined - relationships. This can be clearly seen when analysing the literature on the subject. Among the researchers of this problem, there is no complete agreement as to the nature, role and importance of individual components of intellectual capital. Moreover, the problem is not only to understand the inner aspects but, also - and perhaps primarily - the relationship of intellectual capital with the enterprise's resources, the nature of the market, state of the enterprises, management techniques

used, the type of activity and a number of other elements of key importance to the market success. With such a complex, multi-faceted and still not fully understood issue, it is hard to expect a fully conclusive research results. It seems that there will always remain room for asking further questions and raising doubts resulting either from a different research perspective, or from the identification of new facts or trends.

Among the results obtained from analyses, particularly interesting seem to the relationships between various intellectual capital components and the degree of meeting the key success factors by companies and trade attractiveness. Reserving the need for a deeper examination of these issues, it can be stated that the market position of companies and the comfort resulting from the trade attractiveness positively influence both the nature of the decision to implement an intellectual capital management process, as well as the quality of measures shaping the level of individual intellectual capital components. At the same time, one can point out to a relationship of the opposite, more obvious nature, which is: the development of intellectual capital contributes to a better adjustment of the company to the market needs.

Abstract

Influence of selected strategic variables on the development of the intellectual capital of an enterprise

Intellectual capital is an important issue of currently undertaken studies in the field of enterprise organization and management.. The introduction of this concept has undoubtedly opened up new prospects for enterprises to perceive their business activity and building market advantages. At the same time, however, it has given rise to many new problems associated with the hard-to-determine nature of intellectual capital and its internal and external relationships and dependencies. An attempt has been made in the article to analyze problems related to the dissemination of the concept of intellectual capital, and its practical use, and to assess the state of the intellectual capital components in the surveyed entities.

Keywords: *intellectual capital, human capital management, strategic management.*

Streszczenie

Wpływ wybranych zmiennych o charakterze strategicznym na rozwój kapitału intelektualnego przedsiębiorstwa

Kapitał intelektualny jest istotnym zagadnieniem współcześnie podejmowanych badań z zakresu organizacji i zarządzania przedsiębiorstwami. Wprowadzenie tego pojęcia bez wątplenia otworzyło przed przedsiębiorstwami nowe perspektywy postrzegania swojej działalności oraz budowania przewag rynkowych. Jednocześnie jednak przyczyniło się do powstania wielu nowych problemów związanych z trudnym do określenia charakterem kapitału intelektualnego oraz jego wewnętrznymi i zewnętrznymi związkami i zależnościami. W artykule podjęto próbę analizy zagadnień związanych z rozpowszechnieniem koncepcji kapitału intelektualnego, praktycznym jego wykorzystaniem oraz na ocenie stanu składowych kapitału intelektualnego w badanych obiektach.

Słowa

kluczowe: *kapitał intelektualny, zarządzanie kapitałem ludzkim, zarządzanie strategiczne.*

References

1. Brennman N., Connell B. (2000), *Intellectual Capital. Current Issues and Policy of Implications*, Journal of Intellectual Capital, No. 3.
2. Bukowitz W.R., Williams R.L. (2000), *The Knowledge management fieldbook*, Financial Time, Prentice Hall, London.
3. Edvisson L., Malone M.S. (2001), *Kapitał intelektualny*, Wydawnictwo PWN, Warszawa.
4. Fitz - Enz J. (2001), *Rentowność inwestycji w kapitał ludzki*, Oficyna Wydawnicza, Kraków.
5. Gierszewska G., Romanowska M. (2007), *Analiza strategiczna przedsiębiorstwa*, PWE, Warszawa.
6. Kasiewicz S., W. Rogowski, M. Kicińska (2006), *Kapitał intelektualny. Spojrzenie z perspektywy interesariuszy*, Oficyna Ekonomiczna, Kraków.
7. Kopaliński W. (1989), *Słownik wyrazów obcych i zwrotów obcojęzycznych*, Wiedza Powszechna, Warszawa.
8. Marcinkowska M. (2000), *Kształtowanie wartości firmy*, PWN, Warszawa.
9. Nahapiet Y., Ghosal S. (1998), *Social Capital. Intellectual Capital and the Organizational Advantage*, "Academy of Management Review", No. 2.

10. Olsson B. (1998), *Staff Training and Further Development in Place of Redundancies: A Swedish Example*, "Journal of Human Resources Costing and Accounting", No. 1.
11. Petrash G. (1996), *Dow's Journey to a Knowledge Value Management Culture*, "European Management Journal", No. 14.
12. Stewart T.A. (1997), *Intellectual Capital*, Nicholas Brealey Publishing, London.
13. Stewart T.A. (2001), *The Wealth of Knowledge – Intellectual Capital and the Twenty- First Century Organization*, Nicholas Brealey Publishing, London.
14. Wiig K. (1997), *Integrating Intellectual Capital with Knowledge Management*, July.