

## CORRELATIONS BETWEEN TRUST, COOPERATION, NORMS AND VALUES IN HIGH-TECH ENTERPRISES IN WIELKOPOLSKA REGION

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**Purpose:** The aim of the article is to analyze the results of research on the interdependencies between cooperation, trust, as well as norms and values, as key elements of social capital in high-tech enterprises in Wielkopolska Region.

**Design/methodology/approach:** The analyzes carried out covered 51 enterprises belonging to advanced technology industries, including 41 small and 10 medium-sized ones. The research was conducted using the interview method, using a questionnaire and supported by the CATI technique. The obtained data were subject to further analysis and statistical inference. They consisted in determining the mutual dependencies for the three resources of social capital, i.e. trust, norms and values as well as cooperation (jointly creating the social capital of these enterprises) and their components. The relationships were determined based on the calculated Pearson's linear correlation coefficients.

**Findings:** Based on the conducted analyzes, it is legitimate to conclude that the designated level of cooperation, norms, values and trust are closely related. For all combinations of the indicated resources, the determined Pearson's linear correlation coefficients are statistically significant with a probability of 0.05. Also, many combinations of the components of these resources are correlated with each other.

**Practical implications:** The application dimension of the article is perceived in at least two possibilities. Firstly, for business representatives, it can be a valuable source of information on the key factors in the appreciation of social capital in a company. Secondly, on the basis of the calculated correlations, the article gives the opportunity to review the most important relationships between these components, which may also be useful from the point of view of the appreciation of social capital in the enterprise. It is also worth emphasizing the interdisciplinary nature by combining the scientific and application aspect, which can be used at the level of company management.

**Originality/value:** This work deals with an original approach to social capital, both due to the conceptualization of the concept of social capital and its components, as well as the interrelationships between its components. It is also worth emphasizing the interdisciplinary nature of the work, combining the scientific and application aspects that can be used at the level of company management. Moreover, the methodology described in the research process may be used in enterprises operating in industries other than high-tech.

**Keywords:** trust, cooperation, norms and values, social capital.

**Category of the paper:** research paper.

## 1. Introduction

The existing fragility, inconsistency and instability of the socio-economic and the geopolitical order of the world mean that enterprises constantly need a new philosophy of business and shaping new value on the still globalizing market and taking such decision-making or regulatory solutions that will create new value for customers and business, raise the competitive position, and also limited uncertainty and risk (Janasz, Janasz, 2017). Thus, the paradigms of modern management are gradually being redefined. Building a competitive advantage based on material factors becomes insufficient. It is necessary to extend them with such strategic and intangible elements as: trust, loyalty or credibility as well as social norms, collectively referred to as social capital.

Moreover, in the face of the unpredictability of the sphere of management, the importance of the category of entrepreneurship increases, which is the ability to use the opportunities and predispositions to meet specific expectations, which lead to the creation and multiplication of new values. The use of these possibilities depends on the understanding of what is the role of non-material conditions, and also on how these conditions can be used or gradually modified (Kwiatkowski, 2000). The aim of this article is to present the results of research on the components of social capital, i.e. trust, cooperation, norms and values, as well as their mutual correlations in high-tech enterprises in Wielkopolska Region.

## 2. On social capital once again

Currently, social capital is a very attractive phenomenon for many researchers. Although the term has been known for over a hundred years, it has only been used in management science for a decade. One can indicate at least several reasons for this state of affairs. Firstly, it is about the inherent imperative of social capital, which is trust and its role, which is seen as a significant role in the processes of shaping information societies, the growing importance of knowledge and its transfer in an enterprise, as well as cooperation and its networking, taking into account the nature of relations (formal and informal) (Grudzewski et al., 2010). Secondly, Poland, as a country that has undergone a system transformation and is currently in the convergence phase, experiences globalization and integration processes of particular importance for the directions of changes in the economy. It is indicated here that social capital has a significant impact on shaping institutional factors, and also "is an important element of the reconstruction of the social order" (Przybysz, Sauś, 2004, p. 32). It should be noted that, despite the success in assessing Poland's economic development in this period, it is indicated that one of the three barriers to further development that we will face by 2050 is the lack of trust (Kozmiński,

4.10.2018, p. 22). The validity of this thesis seems to be also confirmed by the opinions of other researchers in Poland, including government reports, which are the main source of knowledge about social capital for the country. They indicate a low level of social capital for the country, and thus the need to create conditions for the development of its new forms, other than survival and adaptation capital, in order to avoid the so-called "Development drift" (see Polska 2030..., 2009). The existence of the social capital gap can be seen both vertically (state and society) and horizontally (between individuals) (see Gajowiak, 2010; Hausner, 2009). Secondly, the literature on the subject indicates numerous benefits of creating and using social capital in enterprises. The most important of them are:

- facilitated information transfer in the existing networks of connections (Serageldin, Grootaert, 2000; Beugelsdijk, van Schaik, 2005);
- creating a partner organization that uses social capital in the short term as a factor of success and in the longer term as a "vehicle for entrepreneurship", through the e.g.: increasing the effectiveness of the organization's functioning, viability and longevity, increased risk taking, revival of entrepreneurship (Bratnicki et al., 2002);
- reduction of transaction costs in the process of finding contractors, monitoring work and business relations as well as enforcing obligations and contracts thanks to increased trust in business partners. We can talk about the costs of e.g. notaries 'and lawyers' remuneration, the costs of arbitration and trials (Sztompka, 2016);
- support for teamwork and effective sharing of private goods, including knowledge (Dyduch, 2001);
- pro-innovation action through "creation, diffusion and use of new knowledge by and for organizations" called "social innovative capital" (McElroy, 2002).

In the light of the above, it should be admitted that all studies on the conceptualization and operationalization of social capital as well as the search for ways of its appreciation are important and desirable not only from the point of view of filling the cognitive (scientific) space, but also the economic development of the country in the micro, meso and macro scale.

In this article, the following definition of social capital was adopted, recognizing that it is "the resultant of trust on each side of relations, norms and values, and cooperation, hidden in internal and external social relations, which allow both individuals and groups to benefit from that they create" (Libertowska, 2020). The selection of the components of the phenomenon in question, i.e. trust, norms, values and cooperation, was made on the basis of an analysis of domestic and foreign literature on the subject (see, among others, Bourdieu, 1986; Coleman, 1988; Putnam, 1995; Fukuyama, 1997; Grootaert, van Bastelaer, 2002; Dash, 2004; Lin et al., 2001; Knack, 1999; Skawińska, 2012; Grudzewski et al., 2009; Januszek, 2004; Matysiak, 2008). The selection of the indicated elements of social capital was part of a wider research conducted and published by the author on the level of social capital and its impact on the value management of high-tech enterprises in the region of Greater Poland (see also Libertowska,

2020). The research results presented in this article on the interdependencies between the distinguished elements constitute a secondary analysis to the above-mentioned studies.

## **2.1. Trust**

Based on the analysis of the literature on the subject, trust was assigned such features as: certainty (predictability), competences (knowledge, skills and abilities), consistency, reliability, building attachment, responsibility and fairness. On the basis of these features, a set of factors assigned to the trust in the enterprise resource and subjected to the assessment by the respondents was distinguished. Belong to them:

- 1.1. Friendship/friendliness of relationships with colleagues.
- 1.2. A sense of stabilization at work (in terms of health, social and living, etc.).
- 1.3. The level of trust in colleagues.
- 1.4. Keeping secrets by most co-workers.
- 1.5. Employee skills.
- 1.6. The level of mutual trust among employees.
- 1.7. The level of trust in management.
- 1.8. The content of organizational knowledge in databases, procedures, internal materials.
- 1.9. The degree to which the trust of business units in the company increases the exchange of resources (knowledge, information, skills) between employees.
- 1.10. The degree to which trust determines the level of cooperation of the enterprise with other entities.
- 1.11. Applying high security to new customers (e.g. first payment only in cash, etc.).

## **2.2. Norms and values**

In the literature on the subject, norms and values are identified with such features as: openness (information, ideas, solutions), truthfulness, acceptance of being different, willingness to express principles, respect for moral principles, and respect for property rights. As part of this phenomenon, the following were assessed:

- 2.1. The employee's feelings about being a valuable member of the organization.
- 2.2. Justifying the breach of formal procedures by colleagues?
- 2.3. Performing activities outside the employee's duties that, in his/her opinion, should be done.
- 2.4. The importance of the value system of colleagues.
- 2.5. Sharing the empowering stories between employees, supporting the value system in the organization.
- 2.6. Employees prioritize the common good over their own good.
- 2.7. The degree of proper use of skills and individual predispositions of employees at work stations.
- 2.8. The level of employee openness to new information, ideas, solutions.
- 2.9. Having valuable ideas by the company's organizational culture how to do business.

2.10. Multifaceted problem analysis.

2.11. Diversification of cultural and moral principles among employees.

### 2.3. Cooperation

The phenomenon of cooperation was described by features such as: joint projects, readiness to expand the contact base, sharing knowledge, supporting creativity/entrepreneurship, openness to negotiations, solidarity. Its scope includes such features as:

3.1. Organizing integration meetings in the company.

3.2. Participation in integration meetings (if organized).

3.3. The frequency of conflicts between employees.

3.4. The repetitive nature of cooperation within the organization (formal or informal).

3.5. Abilities of employees to cooperate in diagnosing and solving problems.

3.6. Ability to share information, knowledge and learn from each other.

3.7. The degree to which the number of contacts between employees and management influences the creation of new organizational, technological, production solutions, etc.

3.8. The degree to which the strength of employee relationships influences on new ideas and solutions.

3.9. The extent to which companies in the industry collaborate to benefit from participation.

3.10. Fostering the formation of a network of appropriate links in the organization.

3.11. Fostering teamwork.

## 3. Methodology

The research population is made up of small and medium-sized enterprises (with employment from 10 to 249 employees)<sup>1</sup> operating in the high-tech industries in the administrative area of the Greater Poland.

In the studies, the methodology defined by Eurostat, based on the statistical reporting of the Member States, candidate and European Free Trade Association (EFTA) and third parties<sup>2</sup>,

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<sup>1</sup> The distinction between enterprises into small and medium-sized enterprises was made on the basis of the Recommendation of the Commission of the European Communities No. 2003/361/EC of May 6, 2003 concerning the definition of small and medium-sized enterprises. 2003, p. 36.

<sup>2</sup> According to this classification, advanced technology industries, in accordance with the Polish Classification of Activities (PKD 2007), include (Nauka..., 2012, based on Eurostat data):

- production of basic pharmaceutical substances as well as medicines and other pharmaceutical products (C 21),
- production of computers, electronic and optical products (C 26),
- production of aircraft, spacecraft and similar machinery (C 30.3),
- activities related to the production of films, video recordings, television programs, sound recordings and music (J 59),
- broadcasting free and subscription programs (J 60),
- telecommunications (J 61),

was adopted as the basis for the classification of advanced technology fields. The choice of high industries for the implementation of the research process resulted from at least two reasons. Firstly, it is an industry whose business profile is predestined to have a high level of social capital. A high level of trust is strongly correlated with organizational innovation (Grudzewski et al., 2009). The tendency to trust, self-credibility and adherence to informal rules and standards of operation result in the achievement of better results in the field of innovation of enterprises (Sankowska, 2011). Secondly, the high level of technological advancement is the result of activities based on cooperation with research and development centers, high qualifications of employees, high risk of investments and high tendency to internationalize activities. The bond that creates the technological potential and value of these organizations can be social capital, based not only on trust in external partners but also in relation to internal relations established in the company.

On the basis of the above criteria, the size of the surveyed population consists of 263 enterprises (GUS database, as of July 31, 2013). Out of this group, 51 effective interviews were obtained (agility rate at the level of 19.4%), of which 41 entities were qualified as small (employment at the level of 10-49 people), and 10 as medium (employment at the level of 50-249 people). The interviews were conducted using the CATI technique (computer assisted interview). The gender structure of the respondents was 27 women and 24 men. The survey was addressed to: heads of departments related to personnel management (35%), directors and employees of departments dealing with human resources management (23 and 20% respectively), business owners (12%), presidents (6%), members of the Supervisory Board (4%).

Each of the distinguished elements, i.e. trust, norms and values as well as cooperation, was assigned 11 questions (described in sections 2-4), formulated in the course of an in-depth literature analysis. The grades were assigned on a 5-point ordinal scale, and the corresponding statements, depending on the question posed, were as follows:

- 1 – definitely not/very rarely or zero/negligible/very low phenomenon,
- 2 – rather not/rarely/rather low,
- 3 – hard to say/average,
- 4 – rather yes/often/rather high,
- 5 – definitely yes/very often/very high.

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- activities related to software, consultancy in the field of computer science and related activities (J 62),
  - information service activities (J 63),
  - research and development work (M 72).

The above-mentioned areas have been distinguished based on the measurement of the content of the R&D component in the conducted activity. The following indicators are used as measures of the intensity of this component (Nauka..., 2012):

- ratio of direct expenditure on R&D to added value,
- ratio of direct expenditure on R&D to the value of production (sales),
- relation of direct expenditure on R&D activity increased by indirect expenditure "incorporated" in investment goods and semi-finished products to the value of production (sales).

The assessment of the relationship between individual variables was made based on the Pearson correlation coefficients  $r$ . The correlation coefficient  $r$  is determined by the formula (1) (Józwiak, Podgórski, 2012):

$$r = \frac{c_{xy}}{s_x s_y} \quad (1)$$

where:

$c_{xy}$  – covariance in a two-dimensional empirical distribution,

$s_x s_y$  – the standard deviation in the empirical boundary distributions of the variable X and Y.

The correlation coefficient  $r$  takes values within the range  $\langle -1; 1 \rangle$ . It is equal to 0 when the features are not linearly correlated. The modulus of the correlation coefficient  $r$  is 1 if and only if there is a linear functional relationship between two features (Józwiak, Podgórski, 2012). Pearson's correlation coefficient was used for the features of the empirical representation in the form of a numerical scale. The strength of the relationship between the features was assessed based on the following classification (Guilford, 1942):

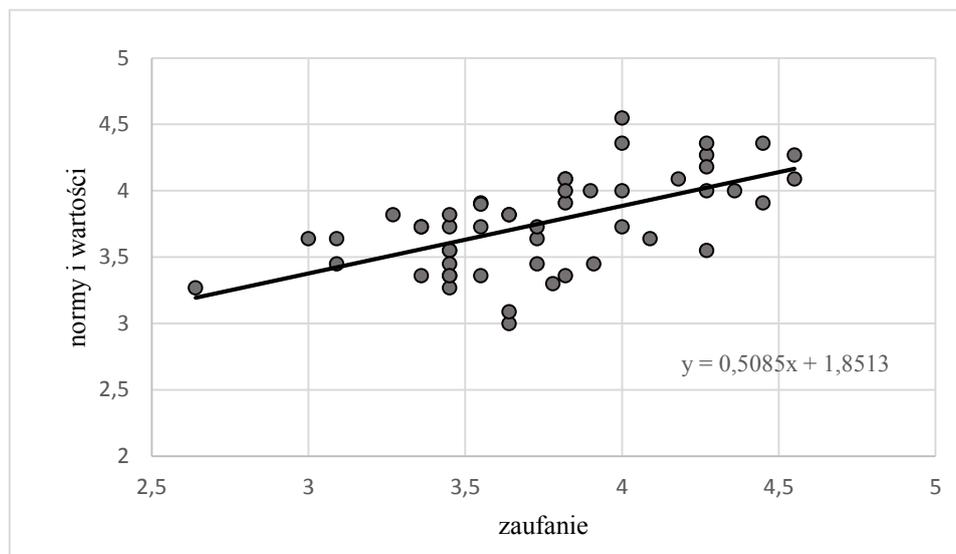
- $|r|=0$  – no correlation,
- $|r| < 0,2$  – no linear relationship,
- $0,2 < |r| < 0,4$  – weak correlation,
- $0,4 < |r| < 0,7$  – moderate correlation,
- $0,7 < |r| < 0,9$  – quite strong correlation,
- $|r| > 0,9$  – very strong correlation,
- $|r|=1$  – full correlation.

## 4. Results

Based on the obtained assessments of phenomena, it is possible to make a preliminary assessment of the interdependencies of the studied phenomena in high-tech enterprises, i.e. trust, norms and values as well as cooperation. For this purpose, the scatter plots for the examined variables were made. The results are presented in Figures 1-3. As it results from the conducted analysis, positive linear relations are visible among the examined variables. This applies to all the phenomena presented. This means that:

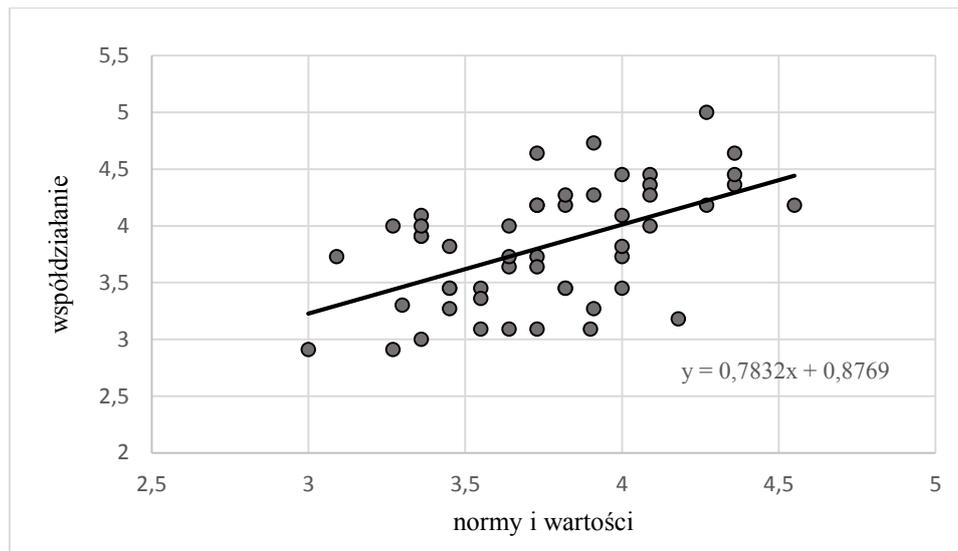
- an increase (decrease) in norms and values in an enterprise is correlated with an increase (decrease) in trust,
- an increase (decrease) in norms and values is correlated with an increase (decrease) in cooperation
- an increase (decrease) in trust is correlated with an increase (decrease) in cooperation.

In order to supplement the preliminary assessments of the scatter plots, an analysis of the correlation of the studied variables was carried out on the basis of the Pearson's linear correlation coefficients. The results are presented in Table 1. The table contains only the values of the correlation coefficients for the aggregated values of trust, norms and values, and cooperation. Due to the extensive data on the values of correlation coefficients for the components of these phenomena (discussed in sections 2.1-2.3), the content of the article discusses the main conclusions drawn from the analyzes. In the detailed interpretation for the calculated correlations between the components, the relationships of features with the values of correlation coefficients lower than 0.5 were omitted, considering them to be less significant.



**Figure 1.** Scatter plot of the level of norms and values in relation to the level of trust in the surveyed group of enterprises. Source: own study.

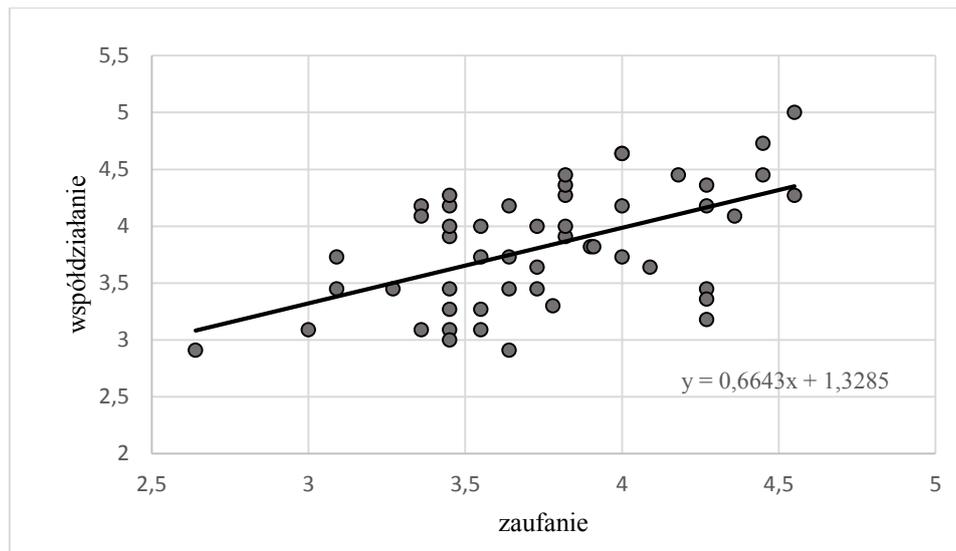
Trust and norms and values correlate with each other at the level of  $r = 0.6$ . It is a dependency which, according to the adopted classification, can be considered moderate. Trust is indicated in the literature dealing with social capital as its main building component. Among the variables assigned to the resource of norms and values, trust correlates most strongly in the studied group with factors 2.8 (the level of employee openness to new information, ideas;  $r = 0.72$ ), 2.6 (Employees prioritize the common good over their own good;  $r = 0.55$ ) and 2.10 (multifaceted problem analysis;  $r = 0.52$ ). It becomes justified to conclude that a higher level of trust in a company is conducive to the level of employees' openness to new challenges, putting the group's needs above their own, and a multi-level analysis of emerging problems. On the other hand, the general level of norms and values correlates most strongly with factor 1.9 ( $r = 0.53$ ). Therefore, it should be assumed that the higher the level of moral and ethical principles represented by employees, the higher the level of trust favoring the exchange of resources in the enterprise.



**Figure 2.** Scatter plot of the level of cooperation in relation to the level of norms and values in the examined group of enterprises. Source: own study.

Aggregate ratings for cooperation as well as norms and values (as arithmetic averages of respondents' ratings) correlate with each other at a moderate level, with the value of the correlation coefficient  $r = 0.53$ . There are several positive correlations between the general level of cooperation and the individual components of the resource of norms and values. The most important are the relations of cooperation with the following factors: 2.10 (multifaceted problem analysis;  $r = 0.66$ ), 2.9 (having valuable ideas by the company's organizational culture how to do business;  $r = 0.62$ ) and 2.8 (the level of employee openness to new information, ideas;  $r = 0.52$ ).

Among the data on the correlation of norms and values with individual variables regarding cooperation, the most important correlations with the following factors should be considered: 3.6 (ability to share information, knowledge and learn from each other;  $r = 0.54$ ) and 3.10 (Fostering the formation of a network of appropriate links in the organization;  $r = 0.50$ ). As a result of these analyzes, it should be concluded that bringing together a group of employees by promoting appropriate attitudes and behaviors as well as commonly shared norms is conducive to the flow of knowledge in the organization and the creation of appropriate channels.



**Figure 3.** Scatter plot of the level of cooperation in relation to the level of trust in the examined group of enterprises. Source: own study.

Among the set of cooperation resource variables, the overall level of trust is most strongly correlated with the ability to share information, knowledge and learn from each other ( $r = 0.52$ ). As for the components of trust, none of the Pearson's correlation coefficients in relation to the cooperation resource exceed the value of 0.5. The highest value of this coefficient was recorded for factor 1.8, i.e. the content of organizational knowledge in databases, procedures, internal materials ( $r = 0.43$ ).

**Table 1.**

*Values of Pearson's correlation coefficients for social capital resources*

	Trust	Norms and values	Cooperation
Trust	–	0,602902339	0,53390211
Norms and values	0,602902339	–	0,53089953
Cooperation	0,53390211	0,530899529	–

Note. All given correlation coefficients are statistically significant with  $p < 0.05$  ( $N = 51$ ). Source: own study.

Taking into account the values of the correlation coefficients between the components of the distinguished resources of social capital, two pairs of variables deserve attention. In both cases, we can talk about a fairly strong relationship between them (values of correlation coefficients above 0.7). The first pair of variables includes factors related to the organization and participation in the so-called integration events in the company (3.1 and 3.2). The observed linear relationship between the grades awarded is not surprising ( $r = 0.7$ ) and means that the more such events are organized, the greater the number of willing participants. The second pair of strongly correlated variables concerns factors with numbers 3.10 and 3.11, i.e., respectively: fostering the formation of a network of appropriate connections in the organization and fostering teamwork ( $r = 0.78$ ). This dependence confirms the theoretical findings, promoting teamwork by caring for proper internal and external relations in the organization. Therefore, taking care of the working atmosphere, creating conditions based on trust, mutual acceptance and respect have a strong impact on the readiness to work in a team, sharing your ideas, creating

new value of work, which in the long term contributes to increasing the competitiveness of enterprises.

## 5. Summary

Summarizing, it can be stated that there are relations between cooperation, trust and norms and values, the reflection of which can be found in the calculated values of Pearson coefficients. This article is an attempt to supplement the knowledge with the aspect related to the synthetic conceptualization of social capital and its components, along with the determination of the characteristics/behaviors specific to them, as well as the determination of the interdependencies between them. Conclusions contained in this paper regarding particularly delineated correlations may be an important aspect for deepening managerial knowledge. It discovers areas in the enterprise concerning the structure of relations in which it is worth investing in order to build social capital.

Based on the adopted research methodology, the future direction of research may be a comparative analysis on a group of enterprises belonging to other industries or regions. On the basis of the conducted considerations, it is also possible to develop a tool to control the current level of social capital in the enterprise, which may strengthen investing in non-material resources of the enterprise, and in the long term – increase its competitiveness.

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