

Marek Chrzanowski***LEVEL OF TRUST AND CONFIDENCE OF COMPANIES
IN CONTRACTORS AND BUSINESS PARTNERS
VS. THE LEVEL OF INNOVATION****Summary**

The purpose of this article is to determine the impact of the degree of confidence of companies in contractors and business partners on the level of innovativeness of those companies. The research included also the analysis of the capacity to build and enhance social capital in the context of respecting values and norms applied by “ethical companies”. The research was also supplemented with a statistical analysis of data collected within the survey carried out in 2012 by the Statistical Office in Lublin. According to the research discussed in this article, the level of trust and confidence of companies in contractors and business partners has a positive impact on innovative potential of companies. Analysis of literature showed that respecting values and norms applied by “ethical companies” improves the capacity to build and enhance social capital in the economy. The results show that the analysed problem is essential for the practice of functioning of not only regional, but also domestic economy. Given that, it is worth to carry out research in that area in future.

Keywords: trust, innovativeness, regional policy

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Introduction

Modern development economy and regional policy more and more often refer to the significance of institutional factors. Not only geographical vicinity may be a variable which affects the speed of growth, but also social vicinity starts to play an increasingly important role. The concept of social vicinity is based on the thesis of Granovetter¹ about the embedding of all economic relations in certain social contexts (spatially varying social contexts). Social vicinity reflects the embeddedness of companies and their employees in informal relationships and social networks, which are based on trust between people. This encourages the spread of knowledge and efficient learning by providing more communicative context than that associated with impersonal transactions, eliminating frictions and difficulties related to pure trade, allowing for the achievement of goals which would not have been realised without the existence of social relations and trust². Confidence may encourage innovative approach, thus creating the basis for a rapid growth.

The purpose of this article is to determine the impact of the degree of confidence of companies in contractors and business partners on the level of innovativeness of those companies. The research included also the analysis of the capacity to build and enhance social capital in the context of respecting values and norms applied by “ethical companies”.

The studies covered also the analysis of factors determining the innovative approach of companies and an in-depth analysis of organisational (internal) factors affecting innovativeness and the quality of social capital.

The research was also supplemented with a statistical analysis of data collected within the survey carried out in 2012 by the Statistical Office in Lublin³.

What is more, the studies of the impact of trust on the level of innovativeness of companies had already been carried out in Poland (with the use of a different method) and the results were published in 2010 and confirmed that confidence is the stimulus of innovativeness of companies⁴.

¹ M. Granovetter, *Economic Action and Social Structure. The Problem of Embeddedness*, „American Journal of Sociology” 1985, Vol. 91 (1), p. 487–493.

² C. Trigilia, *Social capital and local development*, “European Journal of Social Theory” 2001, 4, p. 427.

³ Within the framework of the “Lublin Intellectual Capital” Project.

⁴ The studies were carried out in 2007 and covered the group of 108 companies. More details can be found in: A. Sankowska, *Zaufanie a innowacyjność przedsiębiorstwa*, “Współczesne Zarządzanie” 2010, No. 3, p. 9–15.

1. Determinants of innovative approach in companies

We can indicate three groups of factors which serve as impulses to create innovative solutions:

1. Individual factors: individual disposition to innovative actions is a derivative of internal motivation, natural features of each individual and context in which it works⁵.
2. Organisational factors (internal): Birkinshaw defines the organisational context as the “set of administrative and social systems shaping the behaviours of individuals in organisations and those systems are subject to the management staff”⁶. The essence of Birkinshaw’s definition is the thesis that an initiative leading to an innovative approach is the function of the environment in which it is set and within organisations most key factors leading to the development of innovation are under direct or indirect impact and control of the management. The system of gratifying and reporting, the access to financial resources and many other issues affect and shape the behaviour of organisation members. All those factors form the organisational context.
3. Environmental factors (external): behaviour of individuals in an organisation is shaped not only by individual and organisational factors. Research results suggest that the factors related to the surrounding of a company, such as the approach and situation of clients, suppliers, competitors and the institutions with which the organisations interact, are visible determinants of the behaviour of individuals within those organisations. The factor analysed in that context is also the degree of confidence of companies in contractors and business partners.

When analysing the role of trust in creating grounds for innovativeness, the above mentioned environmental determinants should be taken into account. The external environment determines the degree of innovative approach and creates background for the achievement of strategic goals of companies. Interactions of companies with business partners and contractors based on trust allow for the diversification of risk within the cooperation system. In dynamic environment strategic alliances are the basis for the flexibility of companies which in case of lack of trust would be limited by the resources available in the company. Also the

⁵ More details: J. Birkinshaw: *The determinants and consequences of subsidiary initiative in multinational corporations*, “Entrepreneurship: Theory & Practice” 1999, No. 24, p. 9–36.

⁶ *Ibidem*, p. 11.

heterogeneity of the environment promotes cooperation. It allows for the use of perspectives, market niches or effects of scale, which would not be available for those companies which are not getting involved in structures based on trust.

In the perspective of creating innovative solutions, the role of confidence in a hostile environment with strong competitive pressure is of major importance. Agreements beneficial for all cooperating entities provide opportunities for an efficient fight for the market with the use of a combined potential of business partners.

In view of the empirical research carried out in Lubelskie Province, it should be noted that confidence and cooperation of economic entities in terms of challenges arising for the developing system of innovation are factors increasing the chance for the creation of a stable and sustainable network of modern companies.

2. Empirical prerequisites for the existence of relation between the degree of confidence of companies in contractors and business partners and the level of innovativeness

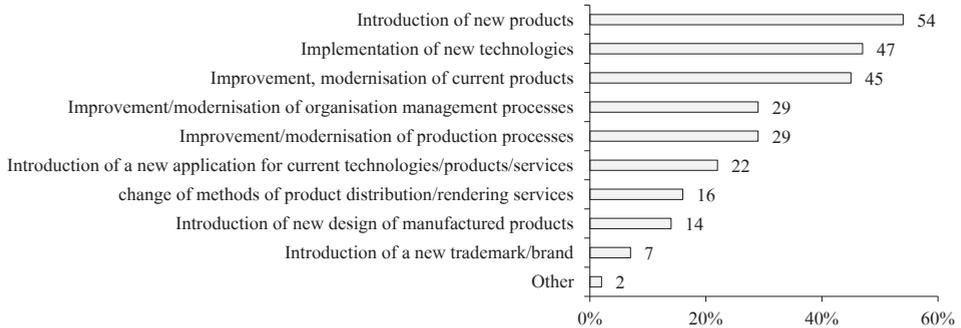
Within the framework of the “Lublin Intellectual Capital 2010–2013” Project, Statistical Office in Lublin carried out in 2012 a survey with 650 respondents⁷.

For the purpose of this research, the questions referring to: (a) the level of innovativeness of analysed companies, (b) the level of confidence of those companies in contractors, and (c) the level of investments in human capital were extracted from the survey.

2.1. Innovativeness of studies companies

The results of the survey proved that more than 31% of surveyed entrepreneurs implemented innovative solutions in the year preceding the survey. The entrepreneurs implementing innovation also indicated the nature of the innovative solutions. More than a half of them, meaning a major group, selected the answer “*introduction of new products*”, confirming the product-related nature of innovation. Detailed information on other types of innovation implemented by regional companies are presented in Figure 1.

⁷ The group of respondents reflected the diversity of classes of size and geographical location of companies. The respondents were randomly selected from the REGON (the National Official Register of Business Entities) Database (stratified sampling), what provided representativeness of the sample.



Respondents were allowed to select several answers, therefore the values do not sum up to 100%. Similar percentage values are given in relation to 208 companies, which implemented innovative solutions in 2011.

Figure 1. Major forms of innovative solutions implemented by surveyed companies in Lubelskie Province

Source: own work on the basis of data of the Statistical Office in Lublin from the survey with 650 respondents.

The sheer structure of innovative solutions proves the dominant role of product-related innovation. Moreover, majority of those solutions are incremental innovations, what proves that the innovative system of the Lubelskie Province is at the initial stage of development.

2.2. Contractor confidence

Degree of trust and confidence of companies in contractors and business partners is actually difficult to measure. It may be reflected by answers to other questions, *e.g.* referring to the range of business contacts, degree of cooperation with R&D institutions and entities from other regions and states, and the readiness to extend the payment deadlines.

Respondents were asked about the range of their business contacts⁸. Obtained answers may cast light on the openness of companies operating in Lubelskie Province to contractors from other regions and countries. Table 1 presents the range of business contacts (columns) in groups of companies implementing (or not) innovative solutions (rows). The values do not sum up to 100%, because the respondents were allowed to select more than one answer. Percentage values

⁸ The following codes were used: 5 – non-EU States, 4 – EU States, 3 – domestic, 2 – regional and local, 1 – no contacts.

refer to the size of two groups of companies which implement innovative solutions (or not).

Table 1

Range of business contacts of companies operating in Lubelskie Province and the level of their innovativeness (%)

Did the company implement any innovative solutions in 2011?	Range of business contacts:				
	non-EU States	EU States	domestic (Poland)	regional/local	no contacts
Yes	27.86	46.77	70.15	73.63	0.00
No	12.69	26.28	57.46	72.83	0.45
Relation between Yes/No	2.19	1.78	1.22	1.01	

Source: own work on the basis of data of the Statistical Office in Lublin from the survey with 650 respondents.

In case of regional and local contacts, the variations between companies which implemented innovative solutions (or not) in the previous year were not visible. More than three-fourth of all companies operating in Lubelskie Province maintain business contacts with entities operating locally or regionally. In case of business contacts beyond the regional, domestic or EU borders, we observe a positive dependency with the fact of implementing innovation. The larger the range of business contacts, the greater the dominance of positive answers among entrepreneurs who implemented innovative solutions in comparison to the other entrepreneurs. This is reflected by the indicator in the last row of Table 2, which reaches the highest value for business contacts with institutions from non-EU States (2.19 means that the entrepreneurs implementing innovative solutions twice as often maintain contacts with entities from outside the European Union).

Within the framework of the research, the selected sole proprietors operating in Lubelskie Province were asked about their functioning in the network of cooperation and the range of such cooperation. They were also asked about their cooperation with R&D institutions.

The number of positive answers (*i.e.* a company functions in a network of cooperation) among companies which implemented an innovative solution reached 55% and among the other companies the value reached 33%. The most evident is the dependency between the innovativeness and functioning in a network of cooperation in case of networks with supra-regional and international reach.

Table 2

Functioning within the network of cooperation and the innovativeness of companies from Lubelskie Province (%)

Did the company implement any innovative solutions in 2011?	With foreign companies	With companies from outside the region	With regional companies	Share of positive answers	Share of negative answers
Yes	8.46	18.91	27.36	54.73	45.27
No	3.56	9.35	19.60	32.52	67.48
Yes/No Indicator	2.37	2.02	1.40	1.68	

Source: own work on the basis of data of the Statistical Office in Lublin from the survey with 650 respondents.

Yes/No Indicator (last row in the Table 2) informs about the number of companies, which implemented innovative solutions in 2011, which function in the cooperation network within a given range (columns) in comparison to other companies, which did not implement any innovative solutions. The value of the indicator (*i.e.* innovative advantage of companies) increases along with the growth of the range of cooperation network.

The above presented analysis shows that establishing cooperation and joining cooperation networks positively affects the innovative potential of companies. Research results indicate also that supra-regional business contacts (domestic and international) have the strongest impact on innovation. This may be caused by a very low level of development of Lubelskie Province in terms of new technologies, modern organisation management systems and business processes. Therefore, for the companies from that region the most profitable would be to establish and maintain close relations with entities from other parts of the country or with foreign entities from the EU and non-EU regions.

Data from the research carried out by the Statistical Office in Lublin suggest that the cooperation between companies, being a tangible proof of a stronger mutual confidence, is the stimulus of innovation.

Inclusion of the case of cooperation between the companies and R&D institutions in the analysis shows positive effects of increasing trust and cooperation.

In case of cooperation with R&D institutions the difference is even more evident: from among 129 respondent companies which cooperate with R&D institutions 32% implemented innovative solutions in 2011. In the group of other

companies (not cooperating with R&D institutions) only 14% implemented innovative solutions in that time. Table 3 contains the details.

Table 3

Cooperation with R&D institutions and the innovativeness of companies
in Lubelskie Province, Poland (%)

Did the company implement any innovative solutions in 2011?	Company cooperates with R&D institutions	No cooperation with R&D institutions
Yes	32	14
No	68	86

Source: own work on the basis of data of the Statistical Office in Lublin from the survey with 650 respondents.

The level of confidence of companies in contractors is shown also by the answers to the question referring to the extension of payment deadlines, *i.e.* question No. 29: After what duration of business contacts are you ready to extend the payment deadlines for your contractor?⁹

Entrepreneurs were asked about their readiness to extend the payment deadlines for contractors, depending on the duration of their business contacts. More than 60% of respondents selected the answer: “*company prefers not to extend the payment deadlines*”. That result was not very different from the answers in other groups (in terms of implementing innovation). Similarly, in case of answers to other questions, the readiness to extend the payment deadlines among entrepreneurs who implemented innovative solutions in 2011 and the other companies were not significantly different. Table 4 contains detailed information.

Table 4

Innovative solutions and the tendency to extend payment deadlines for contractors (%)

Duration of commercial contacts	>3 years	2 years	1 year	0.5 year	None
Companies implementing innovative solutions	1.0	1.5	14.4	22.9	60.2
Companies not implementing innovative solutions	1.8	3.6	11.4	20.0	63.2

Source: own work on the basis of data of the Statistical Office in Lublin from the survey with 650 respondents.

⁹ Original codes used: 1 – Company prefers not to extend payment deadlines, 2 – 6 months, 3 – 1 year, 4 – 2 years, 5 – more than 3 years.

It is clearly visible that the answers show only slight differences in the groups of companies in terms of their approach to innovative solutions. The obtained results, however, indicate that innovative companies are more eager to trust their business partners and are slightly more positive about extending payment deadlines.

2.3. Logistic regression model

An attempt was made to characterise the dependencies between implementing innovative solutions and the degree of social confidence among entrepreneurs operating in Lubelskie Province with the use of an estimated econometric model. Social capital and the degree of confidence may be reflected by the answers to questions about: (i) the range of business contacts and cooperation networks, (ii) readiness to take actions aiming at educating employees, as well as about (iii) establishing cooperation with R&D institutions. The model included variables coded in binary system (1 = positive answer, 0 = negative answer), what allowed for the determination of significance and impact of particular factors on the “tendency” to implement innovative solutions. Answers to questions about the range of business contacts were coded within a discrete scale (1 = no contacts, 2 = regional/local contacts, 3 = domestic contacts, 4 = contacts with entities from EU States, 5 = contacts with entities from non-EU States). Due to such a selection of variables and their coding, the most appropriate model was the

Table 5

Estimating the parameters of logistic regression model

Logistic regression		Number of obs = 650				
		LR chi2(6) = 74.05				
		Prob > chi2 = 0.0000				
Log likelihood = -364.98703		Pseudo R2 = 0.0921				
Innovation	coef.	std. err.	z	P > z	[95% coef. interval]	
education_of_employees	0.5452996	0.2448675	2.23	0.026	0.0653681	1.0252310
cooperation_R_D	0.7524147	0.2188132	3.44	0.001	0.3235486	1.1812810
range_of_contacts	0.3143297	0.0905439	3.47	0.001	0.1368670	0.4917925
cooperation_domestic	0.9055955	0.2673621	3.39	0.001	0.3815753	1.4296160
cooperation_region	0.6025024	0.2180998	2.76	0.006	0.1750347	1.0299700
cooperation_abroad	0.7259020	0.3952206	1.84	0.066	-0.0487161	1.5005200
_cons	-2.7618520	0.3552751	-7.77	0.000	-3.4581780	-2.0655250

Source: own work on the basis of data of the Statistical Office in Lublin from the survey with 650 respondents.

logistic regression model which parameters were estimated in accordance with MLE (Maximum-likelihood Estimation) using Stata 12 software. Table 5 shows the printout of the estimated parameters of the model and tests of significance of particular variables.

Assuming that the standard level of confidence is 95%, a significant dependency can be observed between implementing innovative solutions by companies and their activity in terms of developing their employees, maintaining business contacts with various range, cooperating with R&D institutions and functioning in a cooperation network of various range (international cooperation is negligible at the level of 5%, but the marginal value is 6.6%). Determination factor informing about the compatibility of the model with McFadden's pseudo R^2 model is 9.21%. It is a low result, but typical for such microdata. A good indicator of model quality is the assessment of its predicting capacity. The accuracy Table 6 indicates that the forecasts of the predictor variable (innovation implementation) based on the estimated model were accurate in 72.31% (count R^2). The model better forecasts negative answers (no innovative solutions implemented in 2011) – 92% of accurate forecasts, in comparison to positive answers – 28% of accurate predictions.

Table 6

Accuracy of model forecasts

classified	True		total
	D	~D	
+	56	35	91
-	145	35	559
Total	201	449	650
Classified + if predicted $\Pr(D) \geq 0.5$			
True D defined as innowacje != 0			
Sensitivity		$\Pr(+ D)$	27.86%
Specificity		$\Pr(- \sim D)$	92.20%
Positive predictive value		$\Pr(D +)$	61.54%
Negative predictive value		$\Pr(\sim D -)$	74.06%
False + rate for true ~D		$\Pr(+ \sim D)$	7.80%
False - rate for true D		$\Pr(- D)$	72.14%
False + rate for classified +		$\Pr(\sim D +)$	38.46%
False - rate for classified -		$\Pr(D -)$	25.94%
Correctly classified			72.31%

Source: own work.

In order to interpret the results of model parameter estimation, the marginal effects of the model were calculated using the statistical package. The results are given in the first column of Table 7.

Table 7

Marginal effects of the model

Marginal effects after logistic y = Pr(innovation) (predict) = 0.28873988							
Variable	dy/dx	std. err.	z	P> = z	[95%	C. I.]	X
educat~s*	0.1045966	0.04317	2.42	0.015	0.01998	0.189214	0.769231
cooper~D*	0.1668788	0.05121	3.26	0.001	0.066511	0.267246	0.198462
range ~s	0.0645536	0.01848	3.49	0.000	0.028341	0.100766	3.215380
cooper~c*	0.2067831	0.06464	3.20	0.001	0.080091	0.333475	0.123077
cooper~n*	0.1314566	0.04967	2.65	0.008	0.034101	0.228812	0.220000
cooper~d*	0.1658524	0.09673	1.71	0.086	-0.023741	0.355446	0.050769
(*) dy/dx is for discrete change of dummy variable from 0 to 1							

Source: own work.

The model estimated with the use of that set of answers of respondent entrepreneurs shows the following dependencies:

1. Companies which took actions aimed at developing their employees showed a 10.5% higher probability to implement innovative solutions in comparison to other companies.
2. The fact of cooperating with R&D institutions increased the probability of implementing innovation by 16.7% in comparison to other companies.
3. Functioning of a company in a cooperation network positively affects the degree of innovation of that company: regional cooperation increases the probability to implement innovative solutions by 13.1%, domestic by 20.7% and international by 16.6%.
4. Maintaining business contacts with regional, national and foreign entities has a positive influence on implementing innovative solutions. The dependency between the range of contacts with the degree of innovativeness of a company is positive (the larger the reach, the more "eager" the company to implement innovation).

It should be emphasised that despite the fact that the above given econometric model was selected as the best from among other specific and estimated models,

it still is not a perfect tool to describe factors affecting the innovative approach of companies. The model was constructed only on the basis of data from a survey and such data do not include a series of internal factors (characteristics of companies) and external factors (characteristics of environment) affecting the degree of innovativeness of companies in the region.

Conclusions

According to the research discussed in this article, the level of trust and confidence of companies in contractors and business partners has a positive impact on innovative potential of companies. Analysis of literature showed that respecting values and norms applied by “ethical companies” improves the capacity to build and enhance social capital in the economy.

An additional reservation which results from the experience of highly developed economies and international corporations must be mentioned here in the context of studying the impact of confidence on innovative approach of companies. As Bidault and Castello noticed in their studies, “when companies cooperate, a low degree of confidence is detrimental to innovativeness. However, a very high degree might also be harmful. An optimum level, which gives the best results, is somewhere in between”¹⁰.

The confidence is profitable for those types of cooperation which require flexibility.

The results show that the analysed problem is essential for the practice of functioning of not only regional, but also domestic economy. Given that, it is worth to carry out research in that area in future.

¹⁰ As a confirmation of this thesis we should refer to the turbulent partnership between Daimler-Benz Ag&Co. and The Swath Group Ltd. which resulted in the creation of Smart – a microcar with provocative shape, a huge market success. On the other hand, there is the Peugeot 806 / Fiat Ulysse – result of harmonious cooperation between PSA Peugeot Citroen SA and Fiat S.p.A., which has never won the hearts of consumers and is only treated as another minivan on the market. More details: F. Bidault, A. Castello, *Why too much trust is death to innovation*, “MIT Sloan Management Review” 2010, May.

Literature

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STOPIEŃ ZAUFANIA PRZEDSIĘBIORSTW WOBEC KONTRAHENTÓW I PARTNERÓW BIZNESOWYCH A POZIOM INNOWACYJNOŚCI

Streszczenie

Celem niniejszego artykułu jest zdeterminowanie wpływu stopnia zaufania przedsiębiorstw wobec kontrahentów i partnerów biznesowych na poziom ich innowacyjności. Dodatkowo problem badawczy został rozszerzony o analizę zdolności budowy i wzmacniania kapitału społecznego w kontekście respektowania wartości i norm obowiązujących w tzw. „etycznych” firmach. Badanie uzupełniła analiza statystyczna danych zgromadzonych w ramach prowadzonej w 2012 roku przez Urząd Statystyczny w Lublinie ankiety. Jak wskazują przytoczone w artykule wyniki badania, poziom zaufania przedsiębiorstw wobec kontrahentów i partnerów biznesowych pozytywnie oddziałuje na ich potencjał innowacyjny. Analiza literatury wskazuje natomiast, że respektowanie wartości i norm obowiązujących w tzw. „etycznych” firmach poprawia zdolności budowy i wzmacniania kapitału społecznego w gospodarce. Jak pokazują wyniki badań, problematyka podjęta w artykule jest niezmiernie istotna dla praktyki funkcjonowania regionalnej, ale i krajowej gospodarki. Warto, mając to na uwadze, w przyszłości rozwijać prowadzone w tym zakresie badania.

Słowa kluczowe: zaufanie, innowacyjność, polityka regionalna

Tłumaczenie Marek Chrzanowski

