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## **SUPPLY CHAIN COOPERATION AND COMPANY PERFORMANCE**

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The article presents analysis of the performance of companies characterized by varying approaches to formal and informal cooperation within the supply chain. The authors have identified and compared the performance of three groups of companies: cooperating with external entities only formally, cooperating only informally and cooperating both formally and informally.

The first main contribution of the paper is the inclusion of informal cooperation into companies' cooperation analysis. The second is relating cooperation to a company's performance. The conclusions may be of practical importance. By presenting the positive relations between cooperation and performance, companies may determine the sources which may increase their advantage over competitors.

**Keywords:** cooperation, informal cooperation, supply chain management, company performance, competitiveness

### **1. INTRODUCTION**

Traditionally, the significance and influence that factors such as product, product quality, price and market knowledge have on a company's performance is frequently underlined. In addition to these factors, contemporary theories emphasize the necessity of cooperation and developing partnerships (relationships) with external entities which can significantly influence company success (see Wilson, Mummalaneni 1986, p. 44-58; Fonfara 2009, p. 3). Of all the groups of entities with which companies may cooperate, the most attention is paid to those entities constituting links in the supply chain (see Håkansson, Johanson, Wootz 1976, p. 319-332; Ford 1984, p. 101-113; Gadde, Snehota 2000, p. 305-316; Hollensen, 2003, p. 197-254; Golicic 2007, p. 719-739; Barry, Dion, Johnson 2008, p. 114-135).

Cooperation between independent entities can have a formal (contractual) as well as informal nature. Theory points to the need to include both of the identified types of cooperation in any analysis pertaining to a company's

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external relationships. Most studies, however, concentrate upon the formal aspect (Håkansson, Johanson 1988, p. 375-376). As a result, the following key question emerges: “Does the inclusion of informal cooperation alongside formal cooperation within the supply chain have an impact on company performance?”

The aim of the article is to analyse the performance of companies characterized by varying approaches to formal and informal cooperation within the supply chain.

## 2. THEORETICAL BACKGROUND

An important issue from the perspective of the development of cooperation are entities forming a business environment in which companies may cooperate. Relationship Marketing theory indicates the significant importance of developing relationships with a wide range of entities from the surrounding business environment in order that a company may successfully function in a market. Among the most frequently referred to groups of entities are customers, suppliers, competitors and influential entities (Hollensen 2003, p. 197-253; Christopher, Payne, Ballantyne 1996, p. 21-30; Buttle 1996, p. 2-5).

The development of close relationships with customers is a key area of company activity (Fonfara 2004, p. 80, 116-121). This is particularly important for business to business markets which have a smaller number of purchasers in comparison to the market for consumer goods. Close cooperation with customers has a wide range of benefits for companies. Firstly, it allows for the reduction of service costs. The retention of existing customers is much cheaper than winning new ones. Additionally, it allows for the development of a product offering matched to individual customer needs thanks to including them in product conception and development processes. It also facilitates the development of customer loyalty resulting from elements not tied directly to the product, which can have a particularly important effect during times of rapidly spreading product innovation (Hollensen 2003, p. 202-223; Ritter 1999, p. 467).

Close cooperation with suppliers can lead to an improvement in companies' competitiveness. Attention is drawn to the role which suppliers can play in the process of designing as well as developing a product by sharing knowledge and skills. Attention is also drawn to the huge importance of the utilized materials for end-product quality. Cooperation with suppliers

can lead to a significant reduction in costs thanks to the implementation of the appropriate logistical solutions, just-in-time delivery etc. At the same time, cost reduction for the purchaser does not have to mean a reduction in supplier revenues (Hollensen 2003, p. 223-231; Gadde, Håkansson 1994, p. 27-35). It is suggested that the companies deriving the most benefits in the business to business markets are those which have gained *preferred customer status*. This status indicates that the supplier devotes their most valuable resources towards cooperation with a given customer (Steinle, Schiele 2008, p. 3-14). This concept reverses the traditional role of the seller and buyer where it is the seller who fights to maintain a good image (Schiele 2010, p. 2).

It has been noticed that in recent years there has been an increasing research interest regarding coooperation, i.e. the simultaneous presence of both cooperation and competition between economic entities, particularly regarding cooperation with competitors within specific fields (Bengtsson, Kock 2000; Dagnino, Rocco 2009). Successful coooperation with competitors requires partners to deliver unique skills or resources. This facilitates an increase in the competitiveness of the partnership in comparison to other, external entities. However, simultaneously, companies must make an additional effort to protect their core skills and resources from being taken over by their competitors during coooperation relationships (Hollensen 2003, p. 237-242). The main benefit of coooperation is cost limitation which is achieved thanks to the cooperation of selected areas of the supply chain. This allows companies to concentrate on core competencies and, as a result, on building a competitive advantage.

Cooperation with influential entities is important for all companies, however, it “has specific importance in the case of financial markets as well as in the sale of goods and services with a strategic importance for a given country, region, town etc” (Fonfara 2004, p. 83-84). When planning activities regarding influential entities, companies should take into account the fact that their effects may only materialize later in time. The maintenance of close relationships with entities belonging to this group can have a positive impact on the sales turnover generated by the company.

It is suggested that the maintenance of close cooperation between companies and all entities from their business environment can lead to: efficiency gains in customer service as well as the ability to win new customers (including those in foreign markets); the acceleration of new product development and market delivery; the widening of the knowledge base; the exchange of technologies; the improvement of a company’s image

etc. The ability to begin and maintain cooperation may therefore have a significant positive impact on a company's competitiveness and in effect also improve the market results achieved (Hausman 2001, p. 600; Gadde, Snehota 2000, p. 305-306).

Research carried out to-date devotes most of its attention focuses mostly on the cooperation between companies within a supply chain – between customers and suppliers (see: Håkansson, Johanson, Wootz 1976, p. 319-332; Ford 1984, p. 101-113; Gadde, Snehota 2000, p. 305-316; Hollensen 2003, p. 197-254; Golicic 2007, p. 719-739; Barry, Dion, Johnson 2008, p. 114-135). On one hand, this is a result of more intense cooperation between companies and entities forming the supply chain as opposed to other entities from surrounding groups. On the other hand, this is linked to the easily noticed positive effects which can be tied to cooperation within the supply chain. That is the reason why particular attention should be paid in fact to the analysis of close cooperation between entities within the supply chain and above all, between customers, suppliers and subcontractors.

The cooperation of independent entities (including the supply chain) can have both a formal (based upon written contracts) as well as an informal dimension. The inclusion of these two dimensions seems to be crucial for the analysis of the bonds between a company and other entities as well as evaluating the impact of close cooperation on companies' performance. There are, however, very few studies which simultaneously tackle all of these issues.

Formal cooperation between independent entities is easy to identify and describe. The basis for this type of cooperation is written contracts. Formal cooperation can be based on formal contracts between suppliers and purchasers or formed by entities sharing common interests (Henriksen 1995, p. 254). Researchers most frequently concentrate their attention on formal cooperation. A detailed analysis of cooperation, however, requires the inclusion of both formal contracts as well as informal agreements (Håkansson, Johanson 1988, p. 369).

Informal contacts may include simple personal contacts between company representatives as well as the farther reaching form of co-operation of experts, which is particularly essential in the case of complex production processes. Informal contacts are connected to the concept of social networks and social capital, which in turn facilitate trust, reduce asymmetry of information and in consequence decrease transaction costs (through, among other things, the reduction of time and a decrease in the scope of activities performed under the transaction) (Gulati, Nohria, Zaheer 2000, p. 209-210)

and also lead to a more effective transfer of information and know-how (Cross, Parker, Prusak, Borgatti 2001). Strong social relationships provide access to trustworthy information (Uzzi, 1997 p. 35), whereas more accurate information improves decisions and limits risk (Van Alstyne, Bulkley 2004, p. 152).

Informal cooperation can be developed independently or accompany the conclusion of formal agreements. In the latter case it allows for the easier resolution of disputes or misunderstandings which can materialize during the execution of the contract and which could not be anticipated or included in the contract. This is possible thanks to the development of inter-organizational trust within the framework of informal interactions (Van Alstyne, Bulkley 2004, p. 152).

Informal cooperation can also occur independently of written contracts. As indicated by a few studies carried out in this area, this type of cooperation can cause fewer difficulties than exchanges based upon detailed contracts (Young, Wilkinson 1989, p. 114-123).

The need to include both of the mentioned aspects in the analysis results from the significant characteristic differences between formal and informal cooperation (see Table 1). Firstly, formal cooperation is easy to identify for both entities involved in the interaction as well as for the market environment. Informal cooperation is more difficult to observe and analyse. Secondly, informal cooperation is based upon trust, which in order to be created requires both time and interaction between both of the affected sides. Under formal agreements, the exchange is included within contracts which do not always lead to the formation of trust-based partnerships. Thirdly, informal contacts are developed by entities directly involved in the exchange, who often dictate both their direction and success. Formal agreements are often concluded by representatives of senior management, who are not involved in operations, as well as by direct interactions accompanying the fulfilment of contracts (Håkansson, Johanson, 1988 p. 375-376).

Table 1

Differences between formal and informal cooperation

<b>Formal cooperation</b>	<b>Informal cooperation</b>
<ul style="list-style-type: none"> <li>• Easy to identify by surrounding and cooperating entities.</li> <li>• Contractual (development of cooperation progresses quickly).</li> <li>• Cooperation does not always have a partnership nature; the interorganizational trust may be at low level.</li> <li>• Initiated by senior management, usually not engaged in a direct exchange.</li> </ul>	<ul style="list-style-type: none"> <li>• Difficulty in characterizing as well as identifying links.</li> <li>• Initiated via interaction (its development requires more time).</li> <li>• Cooperation based upon trust.</li> <li>• Developed by entities directly engaged in cooperation (often by middle managers and line employees).</li> </ul>

Source: own work based upon H. Håkansson, J. Johanson (1988), p. 375-376

Despite differences in the nature of formal and informal cooperation, both ways can have a positive impact on companies' performance. Analysis carried out on this subject to-date is insufficient. Research regarding the effects of cooperation concentrates on the isolated effect on companies (e.g. the positive impact of close cooperation on the learning process, benefits from a logistics perspective, product development etc.). There is, however, a lack of comprehensive research relating to the effects of both formal and informal cooperation on companies' performance.

### 3. CONCEPTUAL FRAMEWORK

A conceptual research framework was developed based upon the different aspects of companies' relationships and cooperation previously discussed. It embraces three elements: cooperation and a company's bonds with different types of entities; cooperation and bonds within supply chain including formal and informal cooperation and, finally, a company's performance (see Figure 1).

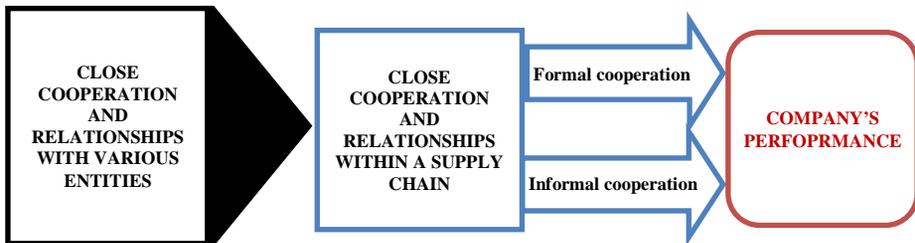


Figure 1: Conceptual framework

Source: authors' work

A company cooperates with different types of entities (suppliers, customers, subcontractors, influential entities, competitors as well as centres of knowledge creation). Vertical relationships which link a company with entities forming the supply chain play mostly a significant role. The empirical analysis below is mostly devoted to these bonds and cooperation within the supply chain.

Cooperation is examined from both a formal and informal dimension. It has been assumed that the following groups of companies with a different approach to cooperation and especially to cooperation within the supply chain with respect to formal and informal relationships can be identified:

- solely formal cooperation within the supply chain,
- solely informal cooperation within the supply chain,
- both formal and informal cooperation with entities in the supply chain.

It is assumed that different approaches to cooperation can lead to varying company performance. It is assumed therefore that a company's performance is determined both by formal and informal cooperation within the supply chain.

This article includes elements presented as part of the conceptual framework which are accompanied by successive stages of empirical results. The empirical section is structured as follows. As part of the first stage, the proportion of companies cooperating with various types of surrounding entities (suppliers, customers, subcontractors, influential entities, competitors as well as centres of knowledge creation) is examined.

In the second stage, the analysis is narrowed down to cooperation within the supply chain and a group of companies with varying approaches to formal and informal cooperation with entities of the supply chain was

identified. Additionally, a group of companies not cooperating within a supply chain is also identified.

The third and most important stage of the analysis relates formal and informal cooperation within the supply chain to a company's performance. The measure of the company's performance covers the assessment of its profits, sales volume and market share achieved in the last year compared with those of its closest competitors. The analysis of the company's performance was carried out both at an individual level with respect to all of the three above mentioned results, as well as at an aggregated level.

Finally the conclusions and implications for further research are discussed.

#### **4. DATA COLLECTION AND SAMPLE CHARACTERISTICS**

Data was obtained from an internet survey. The questionnaire was designed based upon the research project's conceptual framework, some of the authors' earlier research (Fonfara 2008; Ratajczak-Mrozek 2010) and numerous interviews with company representatives. In most of the questions a Likert scale was used.

The survey time frame covered a period from September to November 2010. The address list was prepared on the basis of a national data base by the company Kompas Poland. The dataset included companies representing all industries from all over Poland. The sample was selected randomly, which enabled making generalizations on the whole population. The paper presents the data concerning 193 companies based in Poland.

Over 90% of the research sample was made up of micro, small and medium-size enterprises (according to the criterion of 249 employees). The remaining part (less than 10%) is large and very large enterprises. Private entities definitely dominate (almost 90% of the sample). The size and ownership structure of the researched companies is consistent with the structure of the entire Polish economy that is mainly made up of small and medium-size enterprises. It is also significant that for such companies one way of improving performance may be by seeking synergy effects arising from cooperation. Respondent characteristics are presented in Tables 2 and 3.

Table 2

Respondent characteristics by company size

<b>COMPANY SIZE (no. of employees)</b>	<b>Number</b>	<b>%</b>
below 10	63	32.6%
10-49	59	30.6%
50-249	55	28.5%
over 249	16	8.3%
<b>Total</b>	193	100.0%

Source: author's own

Table 3

Respondent characteristics by industry

<b>INDUSTRY</b>	<b>Number</b>	<b>%</b>
Manufacturing	65	33.7%
Construction	23	11.9%
Services	52	26.9%
Retail trade	10	5.2%
Wholesale trade	15	7.8%
Other	27	14.0%
<b>Total</b>	192	99.5%

Source: author's own

## 5. DATA ANALYSIS AND RESULTS

### 5.1. Companies' Cooperation with Entities from the Business Environment

The first stage of the analysis included the investigation into the proportion of companies cooperating with various entities from the surrounding business environment. Six groups of entities were identified: suppliers, customers, subcontractors, influential entities (sector organizations, administrative organs), competitors as well as centres of knowledge creation (institutions of higher education and research & development institutions).

Chart 1 presents the proportion of the studied companies which declared close formal and informal cooperation with all of the indicated entities. These statements concerning the utilization of formal and informal cooperation (reaching beyond written contracts and agreements) had a declarative character. The presented data was based on respondents' subjective opinions.

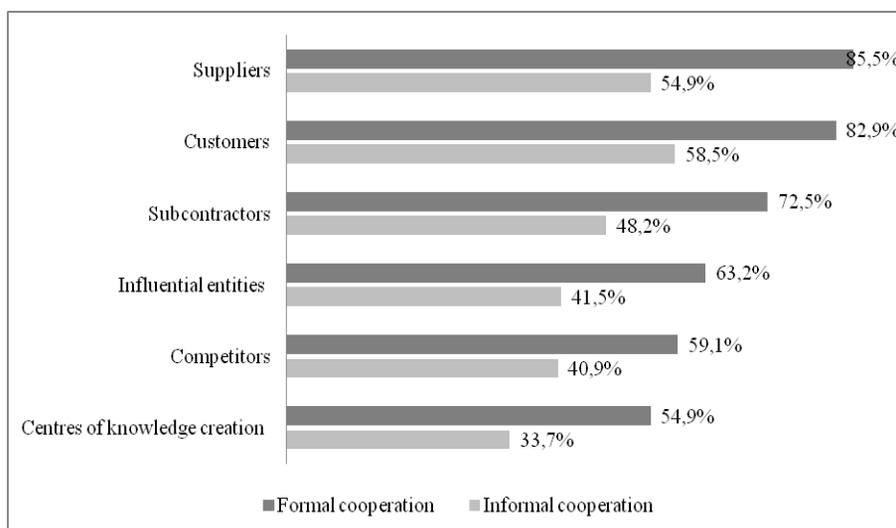


Chart 1. The Proportion of Companies Utilising Formal and Informal Cooperation with Selected Types of Entities

Source: author's own

Decidedly more companies indicated the use of formal cooperation with all of the identified groups from the surrounding business environment. The most significant proportion of companies cooperate (both formally and informally) with entities from the supply chain – suppliers, customers and subcontractors. This suggests that cooperation with these entities is most common, but also important for the functioning of the companies.

Formal cooperation with all of the identified entities from the surrounding environment was declared by more than 50% of the studied companies (in the case of cooperation with customers and suppliers, cooperation was declared by more than 80% of companies). This suggests significant activity regarding the development of formal relationships with external entities by analysed companies.

The utilization of informal cooperation was declared by a smaller proportion of companies. Each time more than 50% of companies indicated informal cooperation solely with customers and suppliers, whilst more companies maintain informal contacts with customers.

The presented results could have been influenced firstly by the desire to limit risk and by managers who prefer to document cooperation within a formal framework. Secondly, the results may be caused by an aversion to disclose the importance of informal cooperation due to its underestimation in business practice or desire to maintain the contacts lying behind informal cooperation a secret (see: Lipson 1991, p. 6-7).

## **5.2. Segregation into Groups of Companies With Varying Approaches to Supply Chain Cooperation**

The next stage of the analysis deals with the identification of company groups with varying approaches to formal and informal cooperation holistically throughout the whole supply chain. The split was carried out based upon the analysis of responses pertaining to cooperation between various entities. Three types of entities were taken into account: customers, suppliers and subcontractors. In each case both formal and informal cooperation were looked at. In order to be classified within the formal (informal) supply chain cooperation group, entities had to demonstrate formal (informal) cooperation with at least two entities. One of these had to be customers, otherwise cooperation would only be demonstrated to exist between one very similar supply chain link.

Based on this, respondents were classified into the following four groups:

- no cooperation within the supply chain,
- informal cooperation within the supply chain,
- formal cooperation within the supply chain,
- both formal and informal cooperation within the supply chain.

The six variables describing the particular characteristics of the identified groups of companies were subjected to a reliability analysis. The Cronbach coefficient is statistically acceptable, amounting to 0.75 (exceeding the conventional level of 0.7), thus confirming that the suggested scale is a reliable measuring tool. The research confirms the presence of different attitudes towards supply chain cooperation among the proposed groups of companies. The respective proportions of these groups is presented in Table 4.

Table 4

Groups of companies with varying approaches to cooperation within the supply chain and their respective proportions relative to the sample

<b>Company Group</b>	<b>Number</b>	<b>%</b>
Lack of Cooperation	29	15.0%
Solely Informal Cooperation	10	5.2%
Solely Formal Cooperation	65	33.7%
Both Formal and Informal Cooperation	89	46.1%

Source: author's own

Among the firms analysed, companies with a comprehensive approach to cooperation within the supply chain (formal and informal cooperation) clearly dominate. Such a result suggests advance cooperation going beyond formal boundaries. This may indicate that a relatively large number of companies appreciate the need for a comprehensive approach to cooperation with entities forming their supply chain as well as building contacts and relationships with them.

The second largest group is those companies which emphasise solely the formal aspect of cooperation. It can be said that these are entities with an aloof approach to cooperation within the supply chain. A formal contract exists to ensure that agreements are fulfilled and in order to minimize the firm's risk.

The final two groups are more sparsely populated. These are, first of all, companies choosing to cooperate only informally within the supply chain. Such a result should not come as a surprise. Informal relationships are often treated as additional or complementary with respect to the formal aspect of cooperation.

Conversely, the category of companies described as non-cooperative within the supply chain may not require or have any cooperative links with their counterparts. These companies may also utilize a transactional approach and thus they do not build close business relationships. As a result, in their case, this group of companies was excluded from the remainder of the analysis pertaining to company performance. Further analysis was carried out based on a selection of 164 companies declaring that they cooperate within the supply chain.

The characteristics of the three analysed groups (in terms of company's size and the industry) were similar to the total sample characteristics

presented in section 4, with exception to the “solely informal cooperation” group. This group was dominated by relatively small companies (70% of respondents represented micro enterprises, followed by 20% of small-sized enterprises). There were also no companies operating in the construction industry in this group.

### **5.3. The Performance of Companies Characterized by a Varying Approach to Formal and Informal Supply Chain Cooperation**

Taking into account the various groups of companies with different approaches to close cooperation within the supply chain, an attempt to check if these approaches have any bearing on the financial and non-financial performance of these companies can be made.

The analysis of the company’s financial and non-financial performance covered the profits, sales volume and market share achieved by the respondents in the last year compared with those of the closest competitors. Due to the difficulties in comparing companies with different characteristics (taking into account elements such as size, ownership and sector among others) a subjective assessment method of comparison against competitors was adopted, based upon the relative assessment of the companies themselves. The application of such an evaluation method facilitates the comparison of companies with different characteristics in terms of their overall performance.

The 5-point Likert scale was used for the assessment. The respondents, by answering the questions posed in the questionnaire relating to three aspects of their performance (total profit, total sales, market share) were to provide their own self-assessment in relation to their closest competitors. The higher the average score (and the closer it is to 5.0), the better the company’s perceived performance with respect to its closest competitors. It should be noted, that due to the applied scale, the relative differences of the rating may seemingly appear to be rather small. This is, however, largely caused by the small range between the minimum and maximum rating (1 – 5).

Close cooperation with entities in the supply chain is not the only factor influencing a company’s financial and non-financial performance. However, the data presented is intended to indicate a certain tendency and to verify if the inclusion of informal cooperation alongside formal cooperation can have a positive impact on a company’s performance.

Table 5 presents the average results of the three aspects of companies’ performance split by the varying approaches to the supply chain cooperation.

Table 5

The average results of the three aspects of companies' performance (financial and non-financial) by approaches to cooperation within the supply chain

Company Group	Total Profit	Total Sales	Market Share
Solely Informal Cooperation (N=10)	<b>3.44</b> n=9	2.89 n=9	2.79 n=7
Solely Formal Cooperation (N=65)	2.91 n=43	2.98 n=45	2.97 n=45
Both Formal and Informal Cooperation (N=89)	2.96 n=66	<b>3.06</b> n=67	<b>3.00</b> n=66

N – The number of companies in a given group

n – The number of responses regarding the specific result

Scale of results from 1 to 5 (1 – considerably worse, 2 – worse, 3 – almost the same, 4 – better, 5 – considerably better)

Source: author's own

The varying number (n) of responses to the questions posed regarding the specific performance effects deserves some attention. This may raise questions regarding any deductions, however, the aim of this article is to provide an indication of tendencies among companies with varying approaches to cooperation within the supply chain and not to provide absolute figures. On the other hand, due to the very similar number of responses in each case, it would seem that the most accurate comparison can be carried out among the companies cooperating both formally and informally within their supply chains as well as the group limiting their cooperation to only the formal type.

There are significant differences in assessment in terms of the “Total Profit” category. The average value of this performance effect, in relation to closest competitors, assigned by companies cooperating only informally (3.44) is significantly different from the assessment made by companies in the remaining two groups (values close to 3.0 where a value of 3.0 implies “almost the same”). These companies can also be characterized by greater elasticity, thereby allowing them to react quickly to make the most of market opportunities as well as to stop non-beneficial cooperation (the statement

seems to be confirmed by the size of these companies, 90% of them are micro- and small-sized enterprises). Such opinions were confirmed during the interviews with the entrepreneurs involved in reviewing the survey. This, on one hand, allows for the increase in incomes and, on the other, for the reduction in operating costs. Alongside such an interpretation, the differences in group sizes must be taken into account.

In terms of “Total Sales”, the average value is the highest for the group of companies emphasizing both the formal and informal aspects of cooperation within the supply chain (3.06). This fact could be the result of a comprehensive approach to cooperation. Informal contacts serve to support the formal aspect which, from the customer perspective, facilitates a higher quality of service, the maintenance of and, indeed, an increase in order volumes, as well as the winning of new customers. In turn, informal contacts with suppliers facilitate (among others) a shorter delivery time as well as discount prices. This would thereby lead to greater bargaining power with respect to customers. These statements were also confirmed during the interviews with the entrepreneurs

Also, in the case of “Market Share” (linked to total sales) the highest results were achieved by the group of companies cooperating both formally and informally within the supply chain. The “Market Share” result reaches a value of 3.0 (the same as the closest competitors) only for this group of companies.

It is crucial for the research to relate complex, aggregated companies’ performance to the identified groups of companies with different attitudes towards cooperation within the supply chain. The aggregated measure of the companies’ performance altogether covers the profits, sales volume and market share achieved by the respondents in the last year compared with those of the closest competitors. In terms of aggregated performance, the respondents’ companies were divided into three groups: worse than the competition – WTC, the same as the competition – SAC, and better than the competition – BTC. The adopted analysis method was based on previous research (Fonfara 2008).

The three variables describing the particular characteristics of the identified groups of companies were tested for their reliability. The Cronbach coefficient is statistically acceptable, amounting to 0.88 (exceeding the conventional level of 0.7), thus confirming that the suggested scale is a reliable measuring tool.

The respective proportions of WTC, SAC and BTC split by the approach to the supply chain cooperation is presented in Table 6.

Table 6

The respective proportions of WTC, STC and BTC split by the approach to formal and informal cooperation within the supply chain

Company Group	Number of all firms of a given type	Number of firms of a given type which responded to all questions regarding performance	PERFORMANCE		
			WTC*	SAC*	BTC*
Solely Informal Cooperation	10 6.1%	7 70.0%	4 57.1%	2 28.6%	1 14.3%
Solely Formal Cooperation	65 39.6%	43 66.2%	20 46.5%	8 18.6%	15 34.9%
Both Formal and Informal Cooperation	89 54.3%	64 71.9%	26 40.6%	11 17.2%	27 42.2%
<b>Total</b>	164	114	50	21	43

\*WTC – worse than the competition (average aggregate variable describing performance 1-2.70)

SAC – the same as the competition (average aggregate variable describing performance 2.71-3.30)

BTC – better than the competition (average aggregate variable describing performance 3.31-5.0)

Source: author's own

The group of companies referred to as emphasising solely informal cooperation within the supply chain is dominated (57%) by companies whose performance is worse than the competition's. At the same time, only 14% of these companies assessed themselves as being better than the competition. It could be tentatively assumed (owing to the very small number of answers) that this group copes neither in the market place nor with the competition. This group rated its aggregated performance the worst of all three company groups.

Companies which limit their cooperation with entities in the supply chain only to the formal kind have more than two-fold greater (with respect to companies concentrating solely on informal cooperation) share in the BTC group (35%), whilst still maintaining a relatively large and dominant share in WTC (47%).

Companies with a comprehensive approach to cooperation within the supply chain (formal and informal) performed better than the remaining two groups. In this case, the share of BTC (42%) surpassed slightly the share of WTC (41%). The BTC share is also the highest of the three analysed groups whilst the WTC share is the smallest.

It is interesting that generally all of the analysed companies rated their performance relatively low in comparison to their closest competitors. In all of the three groups, the sum of the scores from WTC and SAC (namely companies worse or the same as their competitors) surpassed 50% each time.

## CONCLUSIONS

The conducted analysis indicates that of all the companies cooperating within the supply chain, companies utilizing both formal and informal cooperation clearly dominate. At the same time, this is a strategy which seems to allow for achieving the best company performance. It appears that informal cooperation plays a very important supporting role for formal cooperation. Companies utilizing a solely formalized approach to business contacts within the supply chain achieved worse results. A much better strategy is therefore to widen the spectrum of cooperation by building close relationships with external entities.

It is important to remember that close cooperation with entities within the supply chain is not the only factor influencing a company's financial and non-financial performance. However, the data presented above confirms that the inclusion of informal cooperation alongside formal cooperation can have a positive impact on the results achieved by companies. However, due to the presence of certain limitations in the analysis, caused above all by an insufficient number of responses, it would be appropriate to carry out further studies on this subject.

The analysis is not free of certain limitations which also suggest further areas for study. First of all, the analysis included only three groups of entities forming the supply chain. Meanwhile, it is important to go beyond the boundaries of such a short supply chain and to investigate the whole supply process required for producing one item, for example, modular production (where they often are much longer). Secondly, the industry aspect requires further analysis. Some important questions come to light. Does formal or informal cooperation dominate any industry? Is informal cooperation within the supply chain more important in some industries? Due to the limited

sample size, at this stage it is not possible to answer these questions. Thirdly, due to the applied survey approach, more detailed analysis of particular formal and informal relationships was impossible to conduct. It would be important to know which characteristics of both formal and informal relationships predispose to better company's performance.

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