

# Social Network Analysis of the Organizations Implementing Leader Approach in Bulgaria

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## Summary

The scope of the Common Agricultural Policy (CAP) of the European Union has been redirected in recent decades from a general focus on sectorial policies to ones designed according to the specific requirements of concrete regions and, therefore, territorially based. The purpose of the current research is to study the network of organizations implementing the LEADER approach in Bulgaria and to determine the important parameters that could influence the development of rural areas. The main hypothesis is that the level of structural social capital of Local Action Groups (LAGs) should increase during the research period. The methodology used includes two principal methods: document and social network analyses. As a result of the conducted research, the following conclusion has been drawn – the exchange of experience and collaboration on projects among the observed organizations increased within the investigated period.

**Key words:** rural areas, social capital, local action groups

## Развитие на мрежата от организации, прилагащи подхода „Лидер“ в България

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## Резюме

Обхватът на ОСП на ЕС е преориентиран през последните десетилетия – от общо фокусиране към секторните политики, до специфични изисквания за конкретни региони и следователно териториално базирани. Целта на настоящето изследване е да се анализира мрежата от организации, прилагащи подхода LEADER в България, и да се определят важни параметри, които могат да влияят на развитието на селските райони. Главната хипотеза е, че нивото на структурния социален капитал на Местните инициативни групи (МИГ) трябва да се повишава през следващия анализиран период. Изполваната методология включва два главни метода: анализ на документи и анализ на социални мрежи. Като резултат от проведеното изследване е оформен следният извод: обменът на опит и сътрудничеството по дадени проекти между наблюдаваните организации са се повишили през анализирания период.

**Ключови думи:** селски райони, социален капитал, местни инициативни групи

## Introduction

The change in development policies both at national and international level requires new approaches to be used in rural areas. Until the early 80s of the 20th century, the efforts for the devel-

opment of these areas were predominantly based on the so called “trickle-down” approach, which represents a chain distribution of positive effects in economics (Baas, 1997). These policies applied in the past, however, are characterized by

a number of disadvantages such as a limited participation of beneficiaries, underdeveloped institutional capacity at a local level, an emphasis on sectorial approaches, which do not take into account the important relationship between agricultural and non-agricultural activities, etc. In this regard, the endogenous, territorially-based development approach, determined by the new rural paradigm (OECD, 2006) has gained an increasing significance in recent years. The LEADER approach is a direct reflection of these changes, being an indispensable part of the Rural Development Programmes of the EU member states. During the current programming period 2014–2020, the LEADER approach is called “Community-Led Local Development”. Christoforou and Pisani (2015) state that social innovations are the basis of this endogenous approach. These innovations require the generation of new social interactions and institutional measures. The aim of the study is to analyze the network developed by Bulgarian LAGs in terms of its most important aspects.

**Methodology**

Two principal methods have been employed for the purposes of the current study: (1) document analysis and (2) social network analysis. The set of information used is derived from the following types of sources – electronic databases and data collection by means of own research. The first type encompasses specialized web sites integrating information on LAGs, including databases of the National Rural Network (NRN) and the Ministry of Justice (Central Register of Non-Profit Legal Entities – CRNPLE), as well as information from the official web pages of the studied

organizations. The data on LAGs obtained from the electronic sources has been supplemented by conducting in-depth interviews with key experts in this sphere. In this regard, field observations and unstructured interviews with representatives of three LAGs have been carried out. The object of the investigation are thirty-five LAGs developed under the LEADER approach in Bulgaria. The research period is 2011-2014. The existing ties are established based on two criteria in the context of the implementation of rural development activities: (1) collaboration on projects and (2) experience exchange.

One of the major challenges in the process of network construction is the defining of its boundaries. The approach, in which the boundary is determined according to the groups occupied with a certain activity, has been chosen. Another challenge is the assessment of the position and role of actors within the network. The actor’s importance is measured by means of two indicators: degree centrality and betweenness centrality. Network analysis is carried out through the software package UCINET 6 (Borgatti et al., 2002).

The analysis of the dynamics of network density as well as the comparison for differences between the two types of relations, are of considerable significance. The former makes it possible to draw justified conclusions about the changes in the level of structural social capital in the network. The latter reveals the type of relation which has greater potential to accelerate the processes, leading to the achievement of sustainable development. In this regard, the hypotheses presented in the following table have been tested (Table 1).

The implementation of the LEADER approach includes a measure, which stimulates cooperation among LAGs both at a national and in-

**Table 1.** Hypotheses about development of the network

	Hypotheses	Indicator
H1	The level of structural social capital in the LAGs’ network increases during the studied period	Mean tie strengths at the beginning and at the end of the period
H2	The relations based on exchange of experience exceed those based on project collaboration	Mean tie strengths of two types of relations

Source: *Own research.*

ternational level (European Communities, 2006). This leads to the assumption that the researched organizations shall increase their mutual connections in time. However, the realization of the LEADER approach in Bulgaria during the programming period 2007–2013 is marked by several difficulties, including insufficient administrative capacity at all levels, low motivation of local communities, financial obstacles, delays in the launching of measures, etc. (Management Support Unit of the NRN, 2013). As a result of these drawbacks, it can be suggested that the relations among LAGs based on experience exchange shall be developed to a greater extent in comparison to the ones formed by means of project collaboration.

## Results

Figure 1 graphically presents the ties between the observed organizations in the network. The latter includes thirty-three LAGs, since there is a lack of sufficient information for two of them and, consequently, they have been deleted from

the sociogram as isolates. The strength of the relations corresponds to the width of lines.

The results of the analysis show that the average number of connections available to one organization within the network is 5.414, where the minimum number of these ties is 0, and the maximum – 16.250 (Table 2). The indicated values are relatively low, considering that the total number of surveyed units is 35.

The Freeman graph centralization measure of the network is only 8.45%. This means that no considerable concentration or centralization is observed. Therefore, it could be stated that positional advantages of the actors are rather equally distributed in this network.

The average extent, to which an organization plays an intermediary function (Freeman Betweenness Centrality) or lies on the shortest path between two others, is 34.686 with a standard deviation 66.483. The minimum and maximum values of betweenness centrality range widely from 0 to 326.392. The network index of centralization, on its part, is relatively low (26.76 %), which means that betweenness power in this network

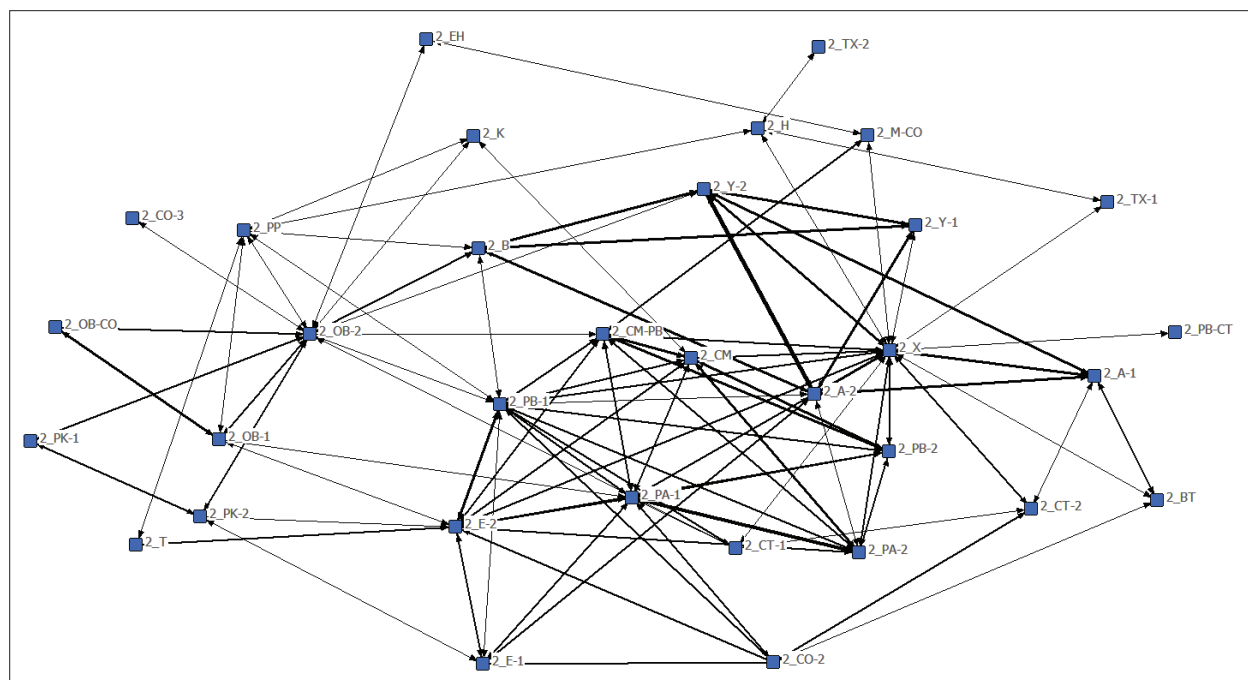


Fig. 1. Network of Bulgarian LAGs, 2011–2014

Source: Own research, developed with data from the CRN PLE and the NRN databases; web pages of the organizations and interviews.

is comparatively weak. In other words, a favourable environment has been developed providing opportunities for unobstructed functioning of the concerned organizations.

A test for comparing density of the network in time is applied. The data on LAGs' relations is aggregated and refers to the whole period. The information about the ties is undirected and valued. Since the data is valued in hypothesis testing, the aim is to determine whether there is a change in the network mean tie strengths at the beginning and at the end of the period. A one-tailed test is applied.

The results from the bootstrap paired sample T-test are presented in Table 3. The number of trials is 5000. In this case, the p-value (0.0006) is below the chosen level of significance  $\alpha = 0.05$ . The abovementioned gives sufficient grounds to conclude that the mean strength of ties in the net-

work in 2014 exceeds that established in 2011. Hypothesis H1 is statistically supported. The values of the studied indicator are respectively 0.0534 at the end of the period and 0.0004 at its beginning. Respectively, the difference in mean tie strength in the network is 0.053. A greater variance is observed in 2014 (0.0437) compared to 2011 (0.0001).

Of particular interest is the distribution of relations among organizations based on the considered two criteria: (1) collaboration on projects and (2) experience exchange, since it is assumed within the current research that the first criterion is characterized by greater strength of interaction. This test is conducted by using summarized information on ties during the period. The performed procedures are identical to those described above. In this case, the number of random samples is 10 000. The density of the relations

**Table 2.** Descriptive statistics

N	Indicator	Degree Centrality	Betweenness Centrality
1	Mean	5.414	34.686
2	Std. deviation	4.637	66.483
3	Variance	21.500	4419.993
4	Minimum	0.000	0.000
5	Maximum	16.250	326.392
6	Number	35.000	35.000

Source: Own research.

**Table 3.** Tests for density in time and of two relations

Indicators	Year		Experience exchange/ period	Project collaboration/ period
	2014	2011		
Density	0.0534	0.0004	0.0950	0.0685
Variance of ties	0.0437	0.0001	0.0726	0.1224
Estimated Bootstrap SE for density (5000/10 000 samples)	0.0129	0.0004	0.0208	0.0214
Difference in density	0.0530		0.0265	
t-statistic	4.1014		0.8876	
t-critical one tail	1.6909		1.6909	
p - value one-tailed test	0.0006		0.1532	

Source: Own research.

**Table 4.** Results from the testing of hypotheses about network development

	Hypotheses	Results
H1	The level of structural social capital in the LAGs' network increases during the studied period	Supported
H2	The relations based on exchange of experience exceed those based on project collaboration	Not supported

Source: Own research.

based on experience exchange (0.0950) surpasses the one of the relations resulting from project collaboration (0.0685) by 0.0265. However, this difference is not statistically significant, so it can be concluded that hypothesis H2 for the domination of experience exchange over project collaboration among LAGs, is not statistically supported.

## Conclusions

It can be concluded, on the basis of the obtained results that the density of the network at the end of the studied period is higher compared to its beginning. This means that the level of structural social capital available to the observed organizations rises in time. The distribution of these ties, based on the discussed two criteria: (1) experience exchange and (2) collaboration on projects, is of considerable interest, since it is assumed that the latter possesses greater strength of interaction. The test for a difference in the mean tie strengths of the two relations is not statistically supported. Therefore, in this aspect, the strength of the two types of relations develops in a similar manner.

No significant network centralization and concentration is found. In addition to that, favourable conditions for normal functioning of organizations are provided and no actors possessing too great power over the others are observed within the network. However, the current report does not include the existing ties between the LAGs and the donor. An important aspect of future research would be to establish the type of ties – whether they are based on subordination or decentralized

partnership. It can be summarized that LAGs have great potential for further development of their cooperation, and the donor should facilitate this process instead of obstructing it.

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