





How Do Local Action Groups Connect to External Development Institutions? A Webometric Analysis in Digital and Geographical Space



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Abstract Local Action Groups (LAGs) are area-based cross-sectoral partnerships in receipt of European Union (EU) funding, grouping inhabitants and organizations working for local development and solving local problems. LAGs usually run their own websites informing about various activities of local communities and the possibility of obtaining funds for local projects. In our research, we analyzed Internet hyperlinks leading from LAG websites to websites of external institutions (non-members of LAGs). The main objective was to assess which non-member external organizations dealing with rural development issues are considered by LAGs as the most important sources of information and proposed as of potential interest to website visitors. The research covered all of 324 LAG websites existing in Poland in 2021 and hyperlinks led to websites of 313 external institutions (including other LAGs). A basic network analysis of the collected data was performed, with particular emphasis on the geographical location of the institutions to which the links lead. The average number of external organizations, whose homepages had been proposed through hyperlinks, was low—less than five per LAG. Only 19 LAG proposed websites of 10 or more external organizations. The websites of national government institutions supervising financing or supporting LAGs located in Warsaw, such as the Ministry

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of Agriculture and Rural Development (179) and the Agency for Restructuring and Modernization of Agriculture (174), were the most frequently recommended. Links to information portals of the EU were ranked fourth (only from 32 LAG websites). The relatively high number of hyperlinks also led to portals run or supervised by regional self-governments (Marshal's Offices). Analysis shows that LAGs focus mainly on providing information related to the redistribution of EU funds under Community-Led Local Development (CLLD) approach supporting local projects (most often the Rural Development Programme). LAGs are a weak intermediary in communicating information about the EU, its objectives and its regional policy. They also poorly inform about other organizations and programmes supporting local development and social activity. This indicates a high dependence of LAGs on the UE financing of the CLLD approach.

Keywords Rural development · Area-based partnership · Local Action Group · Information broker · Internet homepage · Hyperlinks · Institutional network analysis

1 Introduction

The development of Information and Communication Technologies (ICT) is associated in the economics literature with the transformation to the post-industrial New Economy, and in social sciences with the creation of new relationships and features of the Information Society (Kasperkiewicz, 2004; OECD, 2001). Wired and wireless telecommunications technologies today allow access to the Internet in most built-up areas in Europe (Eurostat, 2022). Digital technologies stimulate the development of links between urban development centres and less-developed peripheral regions, including remote rural areas (Grimes, 2003). Thanks to ICT, the transformation of rural areas from monofunctional areas of primary agricultural production to post-productivist multifunctional areas is facilitated, where various types of services also become more important (Almstedt et al., 2014; Varelidis, 2003). One of the elements of ICT, which affects the development of rural areas by reducing the asymmetry in access to information, is the World Wide Web (WWW). The WWW provides numerous information and geoinformation services as well as modern tools supporting the management of local resources, helping to increase the efficiency of local resource management (Hewitt et al., 2020; Janc et al., 2019; Kazak & Szewrański, 2014; OECD, 2001).

At the local level, local governments are important brokers of information and often run extensive websites containing content on the issues of territorial public resources relevant to residents, potential investors and tourists (Grodach, 2009; Svobodová & Dittrichová, 2017). Such sites focus on the issues of local resource management and the promotion of towns and rural communes (Serrano-Cinca & Muñoz-Soro, 2019). However, they can also help in the dissemination of information on supra-local development goals (e.g. national or supra-national of the European Union) and on the means to achieve them.

Since the 1990s in the European Union (EU), cross-sectoral territorial partnerships, called Local Action Groups (LAGs), have been developed to provide additional support to socio-economic development and the activity of residents in functional rural and fishing regions, and since 2014 also in cities and city districts (Furmankiewicz et al., 2015; Moseley, 2003; Panciszko, 2020; Servillo & De Bruijn, 2018). LAGs prepare territorial development strategies with the participation of local institutional actors and residents and then receive EU funds for their implementation under the so-called Community Led Local Development (CLLD) approach (Lacquement et al., 2020; Rodríguez et al., 2019; Servillo & De Bruijn, 2018). These organizations run websites where they inform about their activities, including local grant competitions offering support for local activities and investments of farmers, small entrepreneurs, social organizations and public entities (Cejudo-García et al., 2022; Ruskai et al., 2021). They can act as additional brokers of information for local communities in the field of external activities and programmes supporting local social and economic development (Galindo-Pérez-de-Azpillaga & Foronda-Robles, 2018, Foronda-Robles & Galindo-Pérez-de-Azpillaga, 2021).

So far, research on LAGs has focused primarily on the issues of social and power relations in local governance, local cross-sectoral cooperation, grassroots activity of residents, and implemented local projects (Biczkowski, 2020; Cañete et al., 2020; Konečný et al., 2020; Navarro et al., 2016). Analyses of personal and institutional networks of relations usually focused on territorial links within LAGs (Lacquement, 2013; Papadopoulou et al., 2011), while analyses of LAGs' external links with other organizations were much less frequent in the literature (Marquardt et al., 2012). Similarly, studies on the use of ICT by LAGs were rare. One of the few examples is the work of Galindo-Pérez-de-Azpillaga and Foronda-Robles (2018) which evaluated digital access to the information provided by the 251 LAGs in Spain.

In this chapter, we develop the issue of using LAG websites as a digital source of information about external institutions dealing with the issues of socio-economic development and local resource management. We use webometrics, a recently emerged field dedicated to the quantitative study of the structure and patterns of internet links and resources, to analyze hyperlinks placed on the home pages of the surveyed organizations. These methods have previously been used in research on links between research centres (Park, 2010), institutions such as enterprises and municipalities (Holmberg & Thelwall, 2009; Janc, 2015; Svobodová & Dittrichová, 2017), in the research of sources of information for agriculture (Janc, 2013). We emphasize that analyses of links between websites, taking into account the geographical location of the institutions managing them, were relatively rarely undertaken in relation to other areas of research. However, as Maggioni and Uberti (2009) point out, linking pages with hyperlinks is often conditioned by spatial factors, which is particularly true of websites of territorial institutions such as cities, municipalities, regional authorities or territorial partnerships (including LAGs).

The subject of our analysis is LAG websites in Poland. The main objective of the research was to determine which external organizations (which are not LAG members and usually located outside the LAG's territory), related to the policy of socio-economic development and local resource management, are important for

LAGs from the point of view of the information they provide. In this way, we also tried to assess whether LAGs, through their websites, are intermediaries in access to information on supra-local policies and development goals (including European Union policies), as well as on funds and organizations supporting local development and activity of residents, other than EU funds. We analyzed both which external institutions (organizations) the links lead to, as well as the geographical location of the seat of the institution that manages the website. Due to the fact that most Polish LAGs operate in rural areas, excluding cities inhabited by over 20,000 people (Ministerstwo Infrastruktury i Rozwoju 2014), and only seven LAGs operate in city districts (Panciszko, 2020), our considerations are discussed against the background of rural development issues.

2 The Internet as a Source of Information for Local Communities

Just as in the nineteenth century, the industrial revolution led to significant socio-economic changes, so today there is a transformation towards the New (or Networked) Economy and Information Society, in which social development and socio-economic relations are heavily influenced, even driven by, Information and Communication Technologies (ICT) (OECD, 2001; Varelidis, 2003). This also applies to changes in rural areas, which are no longer monofunctional areas dedicated to agricultural production, but are transitioning to multifunctional modes of development (Almstedt et al., 2014; Slee, 2005). In this sense, ICT, which is conducive to the removal of geographical constraints typical of peripheral areas, including remote rural areas, is expected to play an important role (Marshall, 2001). The development of telecommunications and information technologies facilitates access to many knowledge and information-based services, regardless of geographical location (Grimes, 2003).

There are two main driving forces of the New Economy related to ICT development, increasing computational capabilities on one hand and increasing networking on the other. The first of these relates to the adoption of more powerful hardware and software, which together offer increasing efficiency, e.g. in controlling devices and modelling physical and socio-economic events, etc. (Balayev & Mirzayev, 2022; Hewitt et al., 2020). The second feature relates to the fundamental role of the Internet, which facilitates the creation of network social relations, the diffusion of information, and also allows remote use of particular services. At the same time, however, there is a risk of digital exclusion of some social groups and territories. Peripherality tends to be associated with cultural conservatism and resistance to innovations, limited access to information and lower abilities and knowledge to use ICT effectively. Hence, the creation of an Information Society, effectively using the advantages of ICT, regardless of the geographical (physical) location of citizens, is an important aim of EU policy (Kasperkiewicz, 2004; Shahin & Finger, 2009).

The creation of the World Wide Web (WWW) enabled a rapid increase in information and data resources available for exploration in the digital domain. The WWW itself can be defined in the simplest way as a set of digital documents stored on computer devices, interconnected by hyperlinks. Therefore, hyperlinks should be identified with connections between websites (WWW nodes) and within them (between pages). They enable the selection of related content or services located in different digital locations (websites). Hyperlinks, as a binding element, enable the functioning of the WWW, but their function goes beyond the purely technical aspect. They play an important role in navigating, directing the reader's attention from one place in the digital space to another (Halavais, 2008). Since hyperlinks are created by website developers for a specific purpose, it can often be assumed that they will show real preferences or relationships between people and institutions that are represented by individual websites.

ICT develops best in large cities (development centres), partly because these places offer a favourable ratio of infrastructure development costs (physical proximity of households and business premises) to the number of potential customers (high share of educated people with relatively high incomes, many company headquarters) (Brzezińska, 2018; Svobodová & Dittrichová, 2017). However, these technologies are also of great importance for the development of rural and peripheral areas, by facilitating access to information and some services (in remote form), the use of which was previously possible only by physically moving to an urban centre. In Poland, in 2021, 92.4% of households had access to the Internet (Gumiński et al., 2021), similar to the average for the entire EU (Eurostat, 2022). In rural areas of Poland, this share was 91.8% (increased from 78.6% in 2017). While this is a high proportion, this figure hides the generally poor availability of high-quality telecommunications infrastructure, e.g. lower Internet speeds in sparsely populated rural areas (Grimes, 2003; Janc et al., 2022). The social characteristics of rural residents also have a negative impact, as rural dwellers are usually less sensitive to technical and cultural innovations than city dwellers (Feuer et al., 2020; Łoboda, 1988; Melnyk et al., 2021; Philip & Williams, 2019). This is due, among other things, to a smaller number of social interactions (than in densely populated cities), as well as to the average lower level of education and average lower income of inhabitants of rural areas compared to urban areas.

The role of the Internet as a source of information for rural communities in Poland is becoming more and more important. According to Eurostat, when Poland joined the EU, only 29% of the population had used the Internet in the last three months (Eurostat, 2022). This share gradually increased, reaching 85% in 2021. In both cases, these values were lower than the EU-27 average (44.6% in 2004 and 89% in 2021). The highest value of the indicator—around 99%—was achieved in 2021 by countries such as Iceland, Norway, Ireland and Denmark, while the lowest was achieved by Bulgaria (75%). However, the social structure of the users is also important. According to surveys carried out by the governmental CBOS Foundation in Poland, people with primary education, unskilled workers and farmers used this medium the least. In rural areas, only 68% of residents used the Internet minimum once a week, while in cities with more than 100,000 inhabitants, this figure rose to

84% (Feliksiak, 2021). The main source of information for Polish residents about events in the country and in the world was television—in 2017 for 64% of people, while in 2021 for 52% of people (a notable decrease). At the same time, the role of the Internet increased from 21% in 2017 to 37% in 2021. However, in rural areas in 2021, only 33% of people used the Internet as the main source of information (Omyła-Rudzka & Roguska, 2021). This indicates that websites still have limited opportunities to provide information to residents of rural areas due to the relatively low proportion of Internet users among the rural population. This applies in particular to the elderly and retired people, who constitute a high percentage of the population in some rural areas, and farmers. In 2021, only 57.6% of retirees and economically inactive people used the Internet in Poland, and 75% of farmers (Gumiński et al., 2021). The share of Polish residents who obtained information from public authorities' websites (last 12 months) in 2021 was 29% and was below the EU-27 average (47%). For comparison, this rate was 91% in Denmark and only 11% in Romania (Eurostat, 2022). However, a clear upward trend in the value of this indicator showed that public websites are increasingly used. In Poland, digital services and technologies are less well-developed than the EU average (Melnik et al., 2021).

At the same time, the strong dominance of social media and excessive control of media content by the political governing authorities represent a threat to the provision of reliable information through Internet sources. In the first case, there is the problem of dissemination of false information, based on superstition or related to deliberate disinformation or marketing (Allcott et al., 2019). In the second case, political authorities often try to control the content of the media, deliberately filling it with information or propaganda that is beneficial for gaining support, something which has been visible in recent years in Poland (Żuk, 2020). LAG portals, independent of political authorities (including public media companies dependent on central political authorities), managed by educated people, could be an additional source of rational information on problems and opportunities for rural development, including supra-local and pan-European development goals.

3 Materials and Methods

The analysis of hyperlinks on websites presented in this chapter is the domain of webometrics, which concerns “the study of the quantitative aspects of the construction and use of information resources, structures and technologies on the Web drawing on bibliometric and informetric approaches” (Ingwersen & Björneborn, 2005). As noted by Dorogovtsev and Mendes (2002), the World Wide Web is a matrix of websites with hyperlinks constituting mutual relations between the sites. Since links are usually consciously introduced by website managers, by analyzing the links between them, real social and economic relations, as well as the dissemination of ideas and information can be identified (Thelwall, 2009). Hyperlink analysis is

the primary source of understanding the World Wide Web and the real-world relationships it expresses (Ooghe-Tabanou et al., 2018), including links between actors operating in the digital space (Rogers, 2018).

All LAGs in Poland have their own websites, which they are obliged to maintain under the support programme rules for the purposes of implementing the Local Development Strategy (Prezydent Rzeczypospolitej Polskiej, 2015). Current links to LAG websites were obtained by searching for their name using the Google Search Engine, based on the LAG contact list obtained from the Ministry of Agriculture and Rural Development in Warsaw.

This study of LAG websites was carried out manually, which is an acceptable method used in webometrics when analyzing a small number of websites (Holmberg & Thelwall, 2009). We deliberately did not use hyperlink search software externally on websites, as we wanted to include only user-readable links, clearly marked with a logo or with a clear message that it is a recommended external link. In this case, the researcher used their own subjective judgement to assess whether the user would be able to view and follow these links satisfactorily. In addition, the researcher had to verify whether the link leads to an external non-member institution (which was the subject of the analysis) or to a member organization located in the territory of the LAG (which was not taken into consideration).

Our results were obtained in two ways: (1) through analysis of the network of institutional connections in the digital space; (2) through analysis of the network of connections in geographical space (based on the location of the organization's headquarters and their regional branches). In the first type of analysis, we focused primarily on the institution (organization) that manages or is the owner of the website to which the links led (institutional analysis). If, on the one hand, the LAG had several links to portals (or various sub-pages) of a given institution or its branches, only one connection was counted in the analysis (one LAG relationship with an external organization via many links). This means that the presented data do not show the total number of hyperlinks, but the number of LAG websites that placed one or more hyperlinks on their website to websites run or supervised by the analyzed external institution (including its branches, if it had any). For example, the governmental Agency for Restructuring and Modernization of Agriculture (ARMA) has its headquarters in Warsaw and its subordinate regional branches. In the analysis of institutional links, they were counted jointly as a link with one organization (without distinguishing a branch). Similarly, the Agricultural Advisory Centre (AAC) based in Brwinów (a state organizational unit reporting directly to the Minister of Agriculture and Rural Development) was not distinguished from its 16 voivodeship branches and these were generally treated as AAC. Similarly, Marshal's Offices (self-governing authorities of regions called voivodeships in Poland) often own various websites—the main homepage, a website promoting a given region, a website dedicated exclusively to handling regional EU funds, and others. In this case, the analysis included one connection, shown on the graphs as a single line to the given Marshal's Office. Links to individual ministries of the central government in Warsaw were analyzed separately. We also counted links to archival pages of ministries that had been liquidated or transformed.

In the second part of the research, we carried out a spatial analysis of the headquarters of institutions managing websites. In this case, the regional headquarters of organizations and central institutions (e.g. the headquarters of provincial branches of ARMA and AAC) were considered separately.

The research deliberately omitted hyperlinks that:

- were provided temporarily in “news”, i.e. in current messages shown chronologically, which are not always archived. Such information can be changed on an ongoing basis and cannot be compared methodically, which is why we analyzed only relatively permanent links, which were proposed as the most important;
- were indicated in publications and text documents available for download (usually publications and brochures in the form of Adobe pdf files);
- led to the websites of IT companies that support the website in technical terms or a hosting company providing a domain or server;
- led unintentionally to companies that have purchased domains previously owned by other organizations. An example is the website <https://www.leaderplus.org.pl/> which was originally (according to information on the LAG websites) to lead to the website of the National LEADER + Network and was purchased by a commercial company that keeps a company directory, taking advantage of the earlier popularity of this portal;
- led to the pages of official journals of Polish legal acts (isap.sejm.gov.pl; dziennikustaw.gov.pl) and the EU (eur-lex.europa.eu), as they usually led to a specific document opening in the form of a file;
- were located deeper than the third level requiring opening the entire subpage (i.e. when you need to open more than three consecutive nested sub-pages to reach the link);
- led to articles about a given LAG in other national or regional media (often under the name “media about us”; “they talk about us”, etc.), unless it was a general link promoting a given medium, and not a link to a specific text about LAG;

Many LAGs had links to their “archival website” which were not analyzed. Preliminary data were collected at the end of 2020 with the participation of students of Spatial Management at the Wrocław University of Environmental and Life Sciences. They were subsequently verified in detail and organized for analysis by the authors in the period January–February 2021 (so they represent the state at the beginning of 2021). Finally, after corrections for this analysis, researchers considered 1283 links leading to websites maintained by 313 institutions (including LAGs).

4 Results

4.1 Network Analysis of Connections in the Digital Space

As a result of research on the official websites of LAGs in Poland, we found the existence of the types of hyperlinks that we analyzed on 272 websites (in 84% of LAGs). The average number of external institutions connected to by stable hyperlinks was 4 per LAG page. Hyperlinks to the largest number of external organizations were directed from the website LAG “Zielone Mosty Narwii”—35, then LAG “Szansa Bezdroży Gmin Powiatu Goleniowskiego”—32. The next 19 websites suggested viewing websites from 10 to 35 external institutions, while all other websites—below 10 (Fig. 1).

The external websites included in the analysis, proposed by LAGs, were maintained by 313 institutions (including other LAGs) both from Poland and from other countries. Table 1 lists the 20 institutions whose websites were most often suggested by LAG websites, while Fig. 2 shows a graph of outgoing connections from LAG websites to websites of other organizations. The clear leaders are two central institutions: the Ministry of Agriculture and Rural Development (Warsaw) and the Agency for Restructuring and Modernization of Agriculture (Warsaw), whose sites recommended 179 and 174 LAGs, respectively. These institutions are directly involved in creating procedures and accounting for EU funds, including funds available under the CLLD framework. For this reason, most pages proposed by LAGs concerned the implementation of the Rural Development Programme (in the case of typical rural

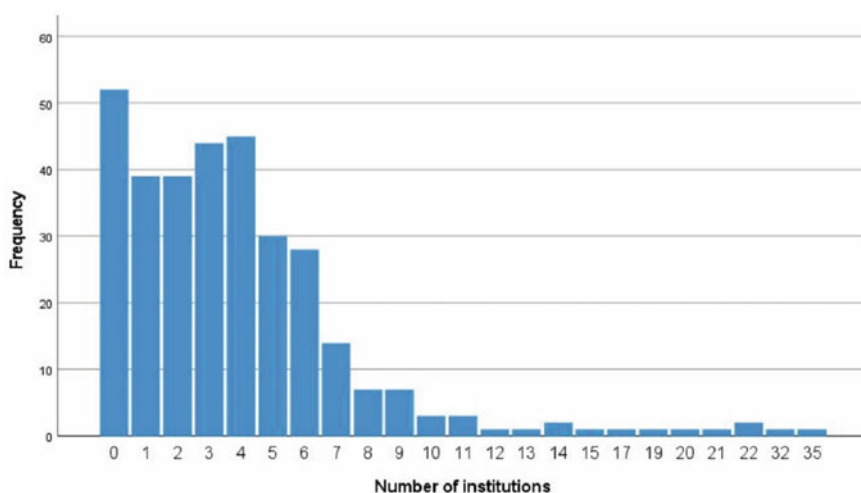


Fig. 1 Histogram of the number of institutions supervising Internet portals to which hyperlinks were directed from the homepages of 324 LAGs. *Source* authors' own work

LAGs), followed by the Operational Programme for Fisheries and Sea (in the case of fisheries LAGs).

The National Rural Network (NRN, links from 102 LAGs) was also of relatively substantial importance for LAGs. This network has existed since 2009. Currently, it consists mainly of public government institutions: the managing authority (Ministry of Agriculture and Rural Development), the Agricultural Advisory Centre in Brwinów and its 16 regional units, the Agency for Restructuring and Modernization of Agriculture and the National Centre for Agricultural Support. According to EU recommendations, such networks must operate in every Member State. The national networks belong to the European Network for Rural Development (ENRD). The NRN carries out projects supporting the development of rural areas. As part of the Network's projects, conferences, fairs and study trips are organized, training sessions, seminars and workshop meetings are conducted, scientific research and expert opinions are carried out, publications and films are published. In addition, the NRN collects and disseminates information on the development of rural areas and modern agriculture. Information on these activities can be found on the NRN website.

It should be emphasized that some of the links led to archive pages of non-existent organizations and ministries (e.g. the Ministry of Maritime Economy and Inland Navigation, liquidated in 2020). This is the result of the instability of the organizational structures of the central political authorities and poor knowledge of these changes at the local level.

The websites run or supervised by regional authorities (Marshal's Offices) were of relatively high importance and were hyperlinked from many LAG websites. Websites recommended by LAGs most often concerned EU funds available under the CLLD approach, and less often they were general websites of Marshal's Offices or websites promoting a given region.

Among the external websites of institutions recommended by LAGs, there are also websites of large non-governmental organizations supporting local development, such as: the Klon/Jawor Association (links from 19 LAGs), the Forum for the Animation of Rural Areas (16), the Polish-American Freedom Foundation (13) and its associated Academy for the Development of Philanthropy in Poland (15). The Klon/Jawor Association is a non-political non-profit association whose main goal is the development of a tolerant, active, creative, self-organizing society. It runs the largest portal of non-governmental organizations in Poland and publishes reports on the condition of civil society in Poland. The Forum for the Animation of Rural Areas is a nationwide agreement of organizations working for the development of rural areas within the EU by activating rural communities and increasing their participation in the process of transformation in the countryside, as well as promoting sustainable development of rural areas. The Academy of Philanthropy in Poland focuses, among other things, on supporting local (usually covering several communes) small grant funds for local communities, co-financed by the Polish-American Freedom Foundation. They apply much simpler procedures than for grants co-financed from EU funds, which facilitate the preparation of projects by groups of residents. A dozen or

Table 1 Institutions (including their regional branches) whose services were most often proposed via hyperlinks by the surveyed LAGs

No.	Acronym and name of the institution	Number of LAG websites with hyperlink to the institution*
1	MARD—Ministry of Agriculture and Rural Development, Warsaw	179
2	ARMA—Agency for Restructuring and Modernization of Agriculture, Warsaw (government organization)	174
3	NRN—National Rural Network, Warsaw (government organization)	102
4	EU—European Union (or European Commission), Brussels	32
5	MFRP—Ministry of Funds and Regional Policy, Warsaw	26
6	Mazowieckie—Marshal's Office of the Mazowieckie Region, Warsaw (regional self-government)	26
7	AAC—Agricultural Advisory Centres (government organization)	24
8	Małopolskie—Marshal's Office of the Małopolskie Region, Kraków (regional self-government)	21
9	FAPA—FAPA Foundation Polish Chamber of Cooperative Banking, Warsaw (government organization)	19
10	KJA—Klon/Jawor Association, Warsaw (non-governmental organization)	19
11	Podkarpackie—Marshal's Office of the Podkarpackie Region, Rzeszów (regional self-government)	19
12	MMEIN—Ministry of Maritime Economy and Inland Navigation, Warsaw	18
13	Wielkopolskie—Marshal's Office of the Wielkopolskie Region, Poznań (regional self-government)	17
14	FARA—Forum for the Animation of Rural Areas, Warsaw (non-governmental organization)	16
14	ADP—Academy for the Development of Philanthropy in Poland, Warsaw (non-governmental organization)	15
16	Lubelskie—Marshal's Office of the Lubelskie Region, Lublin (regional self-government)	15
17	PAFF—Polish-American Freedom Foundation, Warsaw (non-governmental organization)	13
18	Pomorskie—Marshal's Office of the Pomorskie Region, Gdańsk (regional self-government)	12

(continued)

Table 1 (continued)

No.	Acronym and name of the institution	Number of LAG websites with hyperlink to the institution*
19	Świętokrzyskie—Marshal’s Office of the Świętokrzyskie Region, Kielce (regional self-government)	12
20	Warmińsko-Mazurskie—Marshal’s Office of the Warmińsko-Mazurskie Region, Olsztyn (regional self-government)	12

*Number of LAG websites offering minimum one hyperlink to institutional websites. *Source* authors’ own work

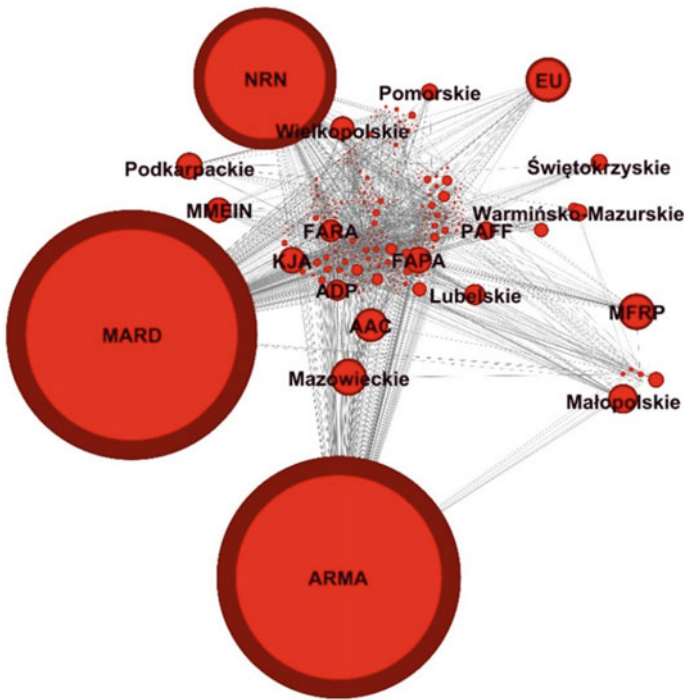


Fig. 2 Graph of the network of links between LAG websites and websites of other organizations that are not members of a given LAG (node size proportional to the number of incoming links). The acronyms of the organizations whose websites were most frequently suggested for viewing are explained in Table 1. *Source* authors’ own work

so LAGs in Poland are involved in promoting this type of additional grant competitions in their territory (regardless of EU funds); hence, they have placed links to these two organizations on their websites.

LAGs very rarely offer visitors to their websites information about the EU, its policy and development goals. Only 32 LAGs' (almost 10%) websites have linked to websites endorsed by EU institutions, even though many of these EU-endorsed websites also offered basic information in Polish. Only one LAG website linked to the European Network for Rural Development and three to the FARNET Fisheries Areas Network. These are two important European organizations dealing also with CLLD issues and supporting LAGs.

4.2 Network Analysis of Connections in Geographical Space

Another important feature of the analyzed websites is the geographical location of the seat of the institution (or its regional branch) that runs the website (Figs. 3 and 4). In the case of Polish LAGs, hyperlinks on websites led to organizations whose seats were located in a total of 83 towns (including 11 abroad). The largest number of links led to institutions located in Warsaw (Warszawa), as most state central institutions and large nationwide organizations are based in the capital of the country. The capitals of regions in which Marshal's Offices (directly supervising LAGs) and regional branches of government agencies and institutions are located are also of great importance.

Only 47 LAGs (15%) posted links to institutions outside Poland on their websites. These were usually information portals of the EU, whose departments are mainly located in Brussels (Fig. 5). In addition, only seven Polish LAGs placed links to LAGs located in other countries, including four in Italy, two in France and one in Lithuania. This was usually related to the implementation of cooperation projects involving study visits. In addition, one link led to the International Visegrad Fund based in Bratislava, Slovakia. This organization supports regional cooperation between civil society organizations in Central Europe.

5 Discussion and Conclusions

In this work, we analyzed hyperlinks leading to websites maintained by external institutions, not belonging to the LAG, operating in support of local social and economic development. LAGs' websites most often linked to information portals of central authorities—ministries, agencies and government foundations, which usually prepare the rules for the implementation and financing of various types of public support programmes or supervise their implementation. A similar relationship was found in the case of municipal Internet pages in the Czech Republic (Svobodová & Dittrichová, 2017).

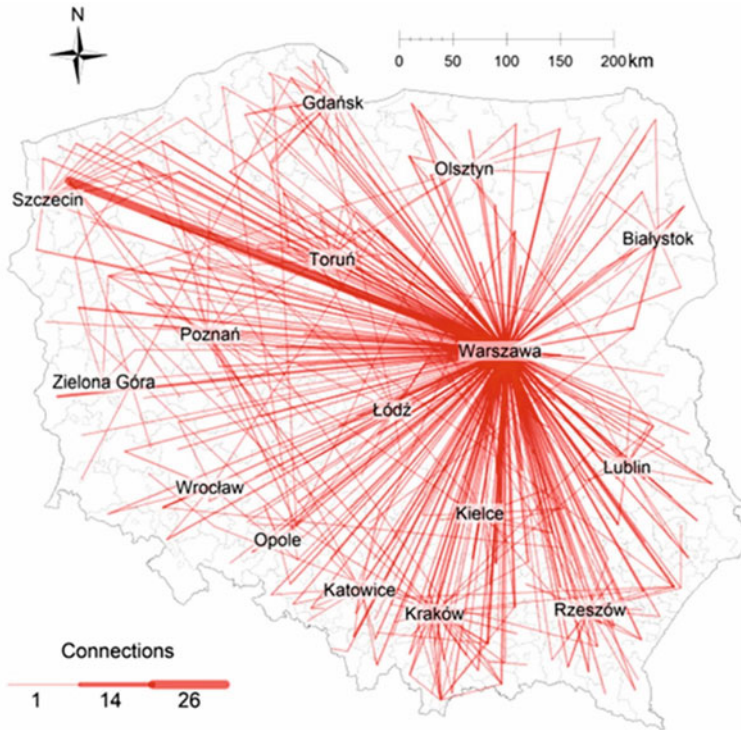


Fig. 3 Geographical visualization of the analyzed links between LAGs and external organizations based on hyperlink analysis. *Source* authors' own work

The activities of LAGs emphasize their bottom-up character, based on the ideas and needs of local communities (Cejudo-García et al., 2022; Chmielinski et al., 2018). Meanwhile, it should be remembered that according to many authors, LAGs should be a conscious element of neo-endogenous development, in which at least partial compliance of local and supra-local development goals is sought (Bosworth et al., 2016; Furmankiewicz et al., 2021b). The LAG websites analyzed suggest, however, that such local organizations focus almost exclusively on informing about the procedures related to spending EU funds under the CLLD approach and to much lesser extent informing about pan-European development goals and policies. Only a few LAGs offer users' access to EU information portals on their websites, although they are usually financed almost exclusively from EU funds. Information on EU policies is most often "filtered" by actors associated with national central authorities and therefore may not reach local communities at all. The relatively low interest in EU objectives at the local level is confirmed by the example of the analysis of LAGs' local development strategies in two regions of Poland, which found that only half of the documents mention the existence of the Europe 2020 strategy, which formulates supra-national EU development goals (Furmankiewicz et al., 2021b).

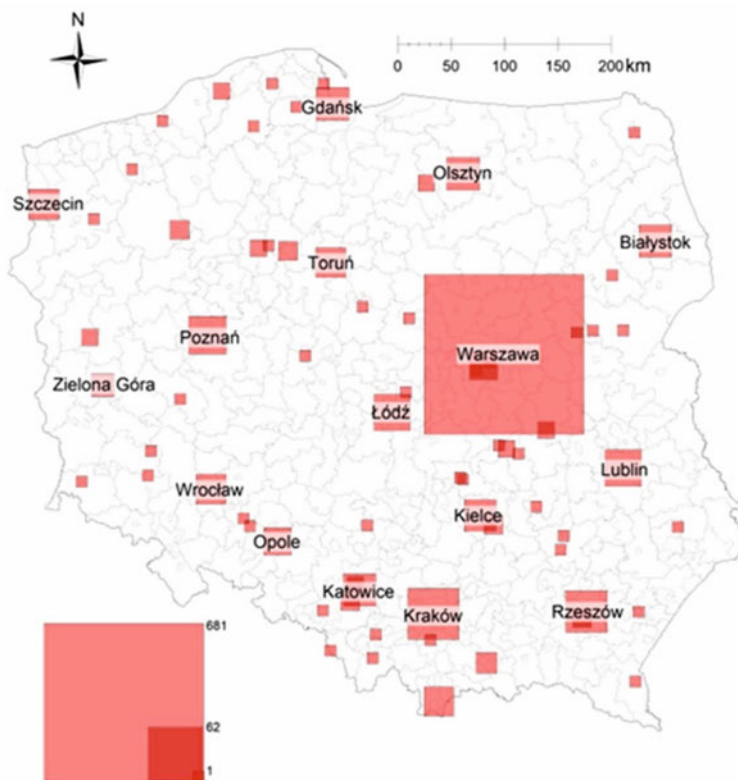


Fig. 4 Number of analyzed incoming calls from LAG websites to websites of entities located in a given town in Poland (other than LAGs). *Source* authors' own work

Poor information on EU-wide goals and institutions is not conducive to European integration. Indeed, the outcome of the Brexit referendum in 2016, resulting in the UK's exit from the EU, was strongly influenced by UK citizens' very low level of knowledge about the EU, its goals and institutions (Puchalska, 2019).

In Poland (which is a unitary state), for many years, the most influential organizations in the field of rural development policy have been central government ministries, agencies and foundations involved in the formulation and implementation of national agricultural and rural development policy, often having extensive branches also at the regional level. In the literature, this system was perceived as weakening bottom-up activities and promoting a tendency to wait passively for directives and central funds (Osa et al., 2006). Osa et al. in (2006) indicated that accession to the EU initially even strengthened the role of central authorities, whose agencies became the main distributors of European funds. The analysis of LAG websites confirms the key role of central government institutions as a source of information on rural development opportunities, supporting the findings of previous research which noted the importance of central government institutions as a source of knowledge for farmers (Janc,

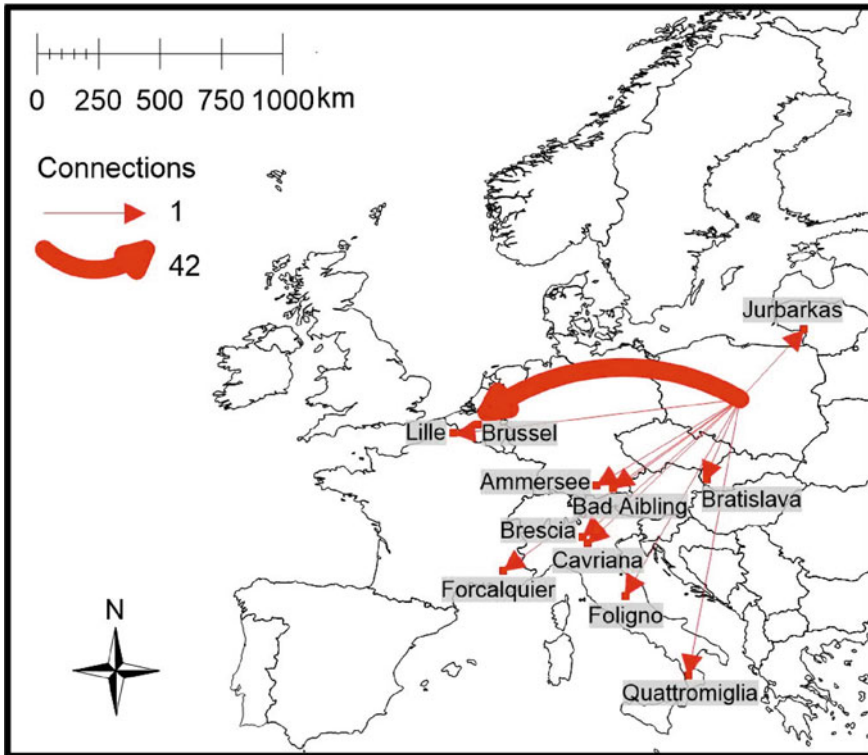


Fig. 5 Geographic visualization of hyperlinks leading from Polish LAGs to organizations located outside Poland. *Source* authors' own work

2013). However, in comparison to these earlier analyses conducted a decade ago (Janc, 2013; Osa et al., 2006), the present study suggests an increase in the importance of regional self-governing authorities for local stakeholders. This is probably due to the gradual strengthening of the role of regional self-governing authorities, which were established in Poland only on 1 January 1999, in managing regional development.

Non-governmental organizations independent of the central political authorities are of lesser importance for LAGs, although several large organizations working for the activation of local communities (including rural ones) are noted by (i.e. hyperlinked from) LAG associations, e.g. the Klon/Jawor Association from Warsaw. LAGs also provide little information on other (non-EU) opportunities to raise funds for local activities, with the most well-known among Polish LAGs being the programme of the Academy for the Development of Philanthropy and the Polish-American Freedom Foundation “Act Locally”, under which competitions for small grants are organized. Relatively weak links between LAGs (strongly associated with member municipalities) and other non-governmental organizations are probably the result of the lack of tradition of establishing institutionalized networks of cooperation between local

state and society in post-socialist Poland (Gašior-Niemiec, 2010; Gendźwiłł et al., 2020).

LAG websites could also inform to a greater extent not only about the successes of local projects, but also show innovative projects that have been successful in other LAGs in the country and abroad. Meanwhile, only six LAGs posted links to friendly LAGs from other European countries. Despite the problem of the language barrier, placing information about the so-called good practices in other LAGs (including those abroad) could become an inspiration for local communities, especially in the field of activities that, bringing benefits to local communities, would also be in line with the implementation of supra-local development goals.

LAGs could, at low cost, become an additional intermediary of information on the goals and possibilities of socio-economic development on a supra-local scale, but as the analysis of the external services they propose shows, they are usually not interested in such issues. While maintaining support for bottom-up activities, it is worth paying more attention in EU programmes to informing the public about national and supra-national development goals. Permanent information and links on LAG websites could be a way to promote such important goals as counteracting dangerous climate change, energy transformation, ameliorating social exclusion, or increasing the share of professionally active people. Objectives of this type are often mentioned in EU strategies, but they are often disregarded in Poland, both in national and local strategies and documents (Furmankiewicz et al., 2021a). Of course, we are aware that offering links on LAG websites is only a passive way of promoting external institutions and their objectives. Due to the poor use of Internet portals as a source of information in rural areas, the actual use of links proposed by LAGs (local residents becoming familiar with them) may be negligible. Currently, however, even this method of passive transfer of information is poorly used by LAGs and is mainly limited to recommending information from government institutions involved in the implementation of the CLLD approach.

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References

- Allcott, H., Gentzkow, M., & Yu, C. (2019). Trends in the diffusion of misinformation on social media. *Research & Politics*, 6(2), 1–8. <https://doi.org/10.1177/2053168019848554>
- Almstedt, Å., Brouder, P., Karlsson, S., & Lundmark, L. (2014). Beyond post-productivism: from rural policy discourse to rural diversity. *European Countryside*, 6, 297–306. <https://doi.org/10.2478/euco-2014-0016>
- Balayev, R. A. & Mirzayev, N. S. (2022). Digital agricultural technologies for sustainable rural development: Opportunities and barriers. *Engineering For Rural Development*, 21, 34–40. <https://doi.org/10.22616/ERDev.2022.21.TF009>

- Biczkowski, M. (2020). LEADER as a mechanism of neo-endogenous development of rural areas: the case of Poland. *Miscellanea Geographica—Regional Studies on Development*, 24(4), 232–244. <https://doi.org/10.2478/mgrsd-2020-0041>
- Bosworth, G., Rizzo, F., Marquardt, D., et al. (2016). Identifying social innovations in European local rural development initiatives. *Innovation the European Journal of Social Science Research*, 30, 442–461. <https://doi.org/10.1080/13511610.2016.1176555>
- Brzezińska, J. (2018). A multivariate statistical analysis of the information society in Poland. *Argumenta Oeconomica Cracoviensia*, 19, 83–101. <https://doi.org/10.15678/AOC.2018.1905>
- Cañete, J. A., Nieto, A., Cejudo, E. & Cárdenas, G. (2020). Territorial distribution of projects within the LEADER approach (2007–2013) in Extremadura and Andalusia. In E. Cejudo & F. Navarro (Eds.), *Neoendogenous development in european rural areas: Results and lessons* (pp. 87–109). Springer International Publishing.
- Cejudo-García, E., Navarro-Valverde, F. & Cañete-Pérez, J. A. (2022). Who decides and who invests? The role of the public, private and third sectors in rural development according to geographical contexts: The LEADER approach in Andalusia, 2007–2015. *Sustainability*, 14, 3853. <https://doi.org/10.3390/su14073853>
- Chmielinski, P., Faccilongo, N., Fiore, M. & La Sala, P. (2018). Design and implementation of the local development strategy: A case study of Polish and Italian local action groups in 2007–2013. *Studies in Agricultural Economics*, 120, 25–31. <https://doi.org/10.7896/j.1726>
- Dorogovtsev, S. N., & Mendes, J. F. F. (2002). Evolution of networks. *Advances in Physics*, 51, 1079–1187. <https://doi.org/10.1080/00018730110112519>
- Eurostat. (2022). Digital economy and society statistics - households and individuals. In: Statistics Explained. https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Digital_economy_and_society_statistics_-_households_and_individuals
- Feliksiak, M. (2021). Korzystanie z Internetu. Komunikat z badań No 83. Fundacja Centrum Badań Opinii Społecznej, Warszawa
- Feuer, H. N., Van Assche, K., Hernik, J., et al. (2020). Evolution of place-based governance in the management of development dilemmas: Long-term learning from Małopolska, Poland. *Journal of Environmental Planning and Management*, 64, 1312–1330. <https://doi.org/10.1080/09640568.2020.1820314>
- Foronda-Robles, C. & Galindo-Pérez-de-Azpillaga, L. (2021) Territorial intelligence in rural areas: The digitization of non-profit associations through social media. *Technology in Society*, 64, 101459. <https://doi.org/10.1016/j.techsoc.2020.101459>
- Furmankiewicz, M., Hewitt, R. J., Kapusta, A. & Solecka, I. (2021a). Climate change challenges and community-led development strategies: Do they fit together in fisheries regions? *Energies*, 14, 6614. <https://doi.org/10.3390/en14206614>
- Furmankiewicz, M., Janc, K., Kaczmarek, I. & Solecka, I. (2021b). Are rural stakeholder needs compliant with the targets of the Europe 2020 strategy? Text mining analysis of local action group strategies from two Polish regions. *Hradec Economic Days*, 11, 195–205. <https://doi.org/10.36689/uhk/hed/2021-01-019>
- Furmankiewicz, M., Knieć, W. & Atterton, J. (2015). Rural Governance in the New EU Member States: The Experience of the Polish LEADER+ Pilot Programme (2004–2008). In J. Buček & A. Ryder (Eds.), *Governance in transition* (pp. 133–153). Springer.
- Galindo-Pérez-de-Azpillaga, L. & Foronda-Robles, C. (2018). Digital governance and information technologies in local action groups (LAGs). *Cogent Social Sciences*, 4, 1528730. <https://doi.org/10.1080/23311886.2018.1528730>
- Gąsior-Niemiec, A. (2010). Lost in the system? Civil society and regional development policy in Poland. *Acta Politica*, 45, 90–111. <https://doi.org/10.1057/ap.2009.24>
- Gendźwił, A., Krukowska, J. & Swianiewicz, P. (2020). Local state-society relations in Poland. In F. Teles, A. Gendźwił, C. Stănuș, & H. Heinelt (Eds.), *Close ties in European local governance: linking local state and society* (pp. 289–302). Springer International Publishing.
- Grimes, S. (2003). The digital economy challenge facing peripheral rural areas. *Progress in Human Geography*, 27, 174–193. <https://doi.org/10.1191/0309132503ph421oa>

- Grodach, C. (2009). Urban branding: An analysis of city homepage imagery. *Journal of Architectural and Planning Research*, 26, 181–197.
- Gumiński, M., Guzowski, W., Huet, M., et al. (2021). Społeczeństwo informacyjne w Polsce w 2021 roku. Główny Urząd Statystyczny, Urząd Statystyczny w Szczecinie, Szczecin.
- Halavais, A. (2008). The hyperlink as organizing principle. In J. Turow & L. Tsui (Eds.), *The hyperlinked society* (pp. 39–55). University of Michigan Press.
- Hewitt, R. J., de Boer, C. & Flacke, J. (2020). Participatory development of digital support tools for local-scale energy transitions: Lessons from two European case studies. *Global Transitions*, 2, 138–149. <https://doi.org/10.1016/j.glt.2020.07.003>
- Holmberg, K. & Thelwall, M. (2009). Local government web sites in Finland: A geographic and webometric analysis. *Scientometrics*, 79, 157–169. <https://doi.org/10.1007/s11192-009-0410-6>
- Ingwersen, P. & Björneborn, L. (2005). Methodological issues of webometric studies. In H. F. Moed, W. Glänzel, & U. Schmoch (Eds.), *Handbook of quantitative science and technology research: The use of publication and patent statistics in studies of S&T systems* (pp. 339–369). Springer.
- Janc, K. (2015). Geography of hyperlinks—spatial dimensions of local government websites. *European Planning Studies*, 23, 1019–1037. <https://doi.org/10.1080/09654313.2014.889090>
- Janc, K. (2013). Źródła informacji dla rolnictwa - analiza powiązań między serwisami WWW. *Więść i Rolnictwo*, 3(160), 168–181.
- Janc, K., Czapiewski, K. & Wójcik, M. (2019). In the starting blocks for smart agriculture: The internet as a source of knowledge in transitional agriculture. *NJAS: Wageningen Journal of Life Sciences*, 90–91, 1–12. <https://doi.org/10.1016/j.njas.2019.100309>
- Janc, K., Ilnicki, D. & Jurkowski, W. (2022). Spatial regularities in Internet performance at a local scale: The case of Poland. *Moravian Geographical Reports*, 30, 163–178. <https://doi.org/10.2478/mgr-2022-0011>
- Kasperkiewicz, W. (2004). The concept of an information society in the European Union. *Acta Universitatis Lodzianis. Folia Oeconomica*, 182, 319–318.
- Kazak, J. & Szewrański, S. (2014). The use of geoinformation in land acquisition for road developments. *Real Estate Management and Valuation*, 22, 29–35. <https://doi.org/10.2478/remav-2014-0004>
- Konečný, O., Binek, J. & Svobodová, H. (2020). The rise and limits of local governance: LEADER/community-led local development in the Czech Republic. In C. Nunes Silva (Ed.), *Contemporary trends in local governance: Reform, cooperation and citizen participation* (pp. 173–193). Springer International Publishing.
- Lacquement, G. (2013). Involvement of local stakeholders in LEADER (2007–2013) programme partnerships in Eastern Germany: Network thinking and context effects. *Acta Universitatis Lodzianis Folia Sociologica*, 44, 55–72.
- Lacquement, G., Chevalier, P., Navarro, F., & Cejudo, E. (2020). Public action and territorial development: The LEADER approach in the recomposition of rural spaces in Languedoc-Roussillon (France) and Andalusia (Spain). In E. Cejudo & F. Navarro (Eds.), *Neoendogenous development in European rural areas: Results and lessons* (pp. 63–86). Springer International Publishing.
- Łoboda, J. (1988). The problems of diffusion of innovation processes in the farming areas of Lower Silesia. *Acta Universitatis Carolinae, Geographica*, 23(2), 21–32.
- Maggioni, M. A. & Uberti, T. E. (2009). Knowledge networks across Europe: Which distance matters? *The Annals of Regional Science*, 43, 691–720. <https://doi.org/10.1007/s00168-008-0254-7>
- Marquardt, D., Möllers, J. & Buchenrieder, G. (2012). Social networks and rural development: LEADER in Romania. *Sociologia Ruralis*, 52, 398–431. <https://doi.org/10.1111/j.1467-9523.2012.00571.x>
- Marshall, R. (2001). Rural policy in the New Century. *International Regional Science Review*, 24, 59–83. <https://doi.org/10.1177/016001701761013015>
- Melnyk, M., Shcheliuk, S., Leshchukh, I. & Litorovych, O. (2021). Digitalization of the economies of Ukraine and Poland: national and local dimensions. *Economic Annals-XXI*, 191(7–8), 30–42. <https://doi.org/10.21003/ea.V191-03>

- Ministerstwo Infrastruktury i Rozwoju (2014). Zasady realizacji instrumentu “Rozwój lokalny kierowany przez społeczność” w Polsce. Ministerstwo Infrastruktury i Rozwoju, Warszawa.
- Moseley, M. J. (Ed.). (2003). *Local partnerships for rural development*. CABI Publishing.
- Navarro, F. A., Woods, M. & Cejudo, E. (2016). The LEADER initiative has been a victim of its own success. The decline of the bottom-up approach in rural development programmes. The cases of Wales and Andalusia. *Sociologia Ruralis*, 56, 270–288. <https://doi.org/10.1111/soru.12079>
- OECD. (2001). *Information and communication technologies and rural development*. Organisation for Economic Co-operation and Development.
- Omyła-Rudzka, M. & Roguska, B. (2021). Postrzeganie telewizyjnych programów informacyjnych i publicystycznych. Komunikat z badań No 106. Fundacja Centrum Badania Opinii Społecznej, Warszawa.
- Ooghe-Tabanou, B., Jacomy, M., Girard, P. & Plique, G. (2018). Hyperlink is not dead! In *Proceedings of the 2nd international conference on web studies* (pp. 12–18). <https://doi.org/10.1145/3240431.3240434>
- Osa, M., Gorlach, K. & Podedworna, H. (2006). Integracja z Unią Europejską a polityka rolna Polski w perspektywie analizy sieciowej. In K. Szafranec (Ed.) *Jednostkowe i społeczne zasoby wsi*. Instytut Rozwoju Wsi i Rolnictwa PAN (pp. 147–169).
- Panciszko, B. (2020). Urban and rural local action groups in the Kuyavian-Pomeranian Voivodeship. *Polish Political Science Review*, 8, 47–69. <https://doi.org/10.2478/ppsr-2020-0015>
- Papadopoulou, E., Hasanagas, N. & Harvey, D. (2011). Analysis of rural development policy networks in Greece: Is LEADER really different? *Land Use Policy*, 28, 663–673. <https://doi.org/10.1016/j.landusepol.2010.11.005>
- Park, H. W. (2010). Mapping the e-science landscape in South Korea using the webometrics method. *Journal of Computer-Mediated Communication*, 15, 211–229. <https://doi.org/10.1111/j.1083-6101.2010.01517.x>
- Philip, L. & Williams, F. (2019). Remote rural home based businesses and digital inequalities: Understanding needs and expectations in a digitally underserved community. *Journal of Rural Studies*, 68, 306–318. <https://doi.org/10.1016/j.jrurstud.2018.09.011>
- Prezydent Rzeczypospolitej Polskiej. (2015). Ustawa z dnia 20 lutego 2015 r. o rozwoju lokalnym z udziałem lokalnej społeczności. *Dziennik Ustaw*, 378, 1–10.
- Puchalska, B. (2019). Referenda as a threat to democracy and constitutionalism: A few lessons from the ‘Brexit’ vote. *Białostockie Studia Prawnicze*, 24, 91–92. <https://doi.org/10.15290/bsp.2019.24.01.06>
- Rodríguez, M., Sanchez, M. L., Cejudo, E. & Camacho, A. J. (2019). Variety in local development strategies and employment: LEADER programme in Andalusia. *Agricultural Economics*, 65, 43–50. <https://doi.org/10.17221/106/2018-AGRICECON>
- Rogers, R. (2018). Digital methods for cross-platform analysis. In J. Burgess, A. Marwick, & T. Poell (Eds.), *The SAGE handbook of social media* (pp. 91–100). SAGE Publications Ltd.
- Ruszkai, C., Pajtók Tari, I. & Patkós, C. (2021). Possible actors in local foodscapes? LEADER action groups as short supply chain agents—A European perspective. *Sustainability*, 13, 2080. <https://doi.org/10.3390/su13042080>
- Serrano-Cinca, C. & Muñoz-Soro, J. F. (2019). What municipal websites supply and citizens demand: A search engine optimisation approach. *Online Information Review*, 43, 7–28. <https://doi.org/10.1108/OIR-02-2018-0042>
- Servillo, L. & De Bruijn, M. (2018). From LEADER to CLLD: The adoption of the new fund opportunities and of their local development options. *European Structural and Investment Funds Journal*, 6 (3), 223–233. <https://estif.lexxion.eu/article/estif/2018/3/5>
- Shahin, J. & Finger, M. (2009). The history of the European information society: Shifts from governments to governance. In J. Tuptimhin & R. Pipe (Eds.), *Global e-Governance* (pp. 62–83). IOS Press.
- Slee, R. W. (2005). From countrysides of production to countrysides of consumption? *The Journal of Agricultural Science*, 143(4), 255–265. <https://doi.org/10.1017/S002185960500496X>

- Svobodová, L. & Dittrichová, J. (2017). Use of internet and social networks in the Czech municipality environment. *Hradec Economic Days*, 7, 870–876.
- Thelwall, M. (2009). *Introduction to Webometrics: quantitative web research for the social sciences*. Springer International Publishing.
- Varelidis, N. (2003). *Information society and sustainable rural development*. PRISMA—Centre for Development Studies.
- Žuk, P. (2020). One leader, one party, one truth: public television under the rule of the populist right in Poland in the pre-election period in 2019. *Javnost—The Public*, 27, 287–307. <https://doi.org/10.1080/13183222.2020.1794413>