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## OPEN INNOVATION STATE OF THE ART IN LODZ REGION (POLAND)

### Abstract

While analyzing open innovation,<sup>1</sup> it is crucial to mention the issue of clusters and analyze them with a special concern. Even though ideas spread slowly in the Lodz Region, it is not only crucial to concentrate on regional policy as a condition for development of such initiatives, but also on the effectiveness, methods of communication and relations of cluster members, because of the value of contact based on trust.<sup>2</sup> The aim of the article is to present the results of an in-depth study on the state of open innovation in the Lodz Region, with special concern devoted to Bioenergy for the Region Cluster.

### Key words

open innovation, cluster, communication, efficiency, bioenergy

### Introduction

The overall aim of this article is to present the state of the art in the field of open innovation in the region of Lodz, Poland, and information processing within Bioenergy for the Region Cluster. This article is based on one of four reports prepared in the regions of InfoPro sub-project partners: Stuttgart Region, Lodz Region, West-Pannon and Eindhoven Region. The reports provide general information about the open innovation in the regions concerned as well as an overview of:

- what information each InfoPro partner takes into consideration (or not),
- how the data is stored and classified,
- how information is made available to the network members and why, how and to whom the information is communicated,
- to what extent the network members currently use the information.

While the report drafted in Eindhoven Region was based on the information provided by the Technical University of Eindhoven, the reports drafted in Stuttgart Region, Lodz Region and West-Pannon were based on the results of:

- desk research – analysis of existing data and observation of relevant web pages of innovation networks;
- CAWI (Computer-Assisted Web Interview) conducted with 90 entities – 30 respondents in 3 regions of InfoPro partners that are regarded as innovation network members;
- IDI (Individual In-Depth Interview) conducted with 15 entities – 5 respondents in 3 regions of InfoPro partners.

The research methods were developed by InfoPro partners within the joint research methodology to allow for comparisons between different regions, as well as to draw lessons for open innovation development.

### Open Innovation in the Region of Lodz

The idea of open innovation in Poland is brand new and is still in the development phase. Therefore, there is no direct recollection of open innovation in regional strategy. Nevertheless, knowledge based development, new technologies and innovation fully matches the strategic aims of regional economic progress. Regional goals such as support for innovativeness, building information based society and economy, and increasing education levels are also factors.

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<sup>1</sup> H. Chesborough, *Open Innovation: The New Imperative for Creating and Profiting From Technology*, Harvard Business School Press, Boston 2003.

<sup>2</sup> J. Cornelissen, *Corporate Communication: A Guide to Theory and Practice*, SAGE Publications, London 2011, p. 39-51.

The region of Lodz also possesses scientific potential thanks to the presence of institutions like Lodz University, Lodz Technical University, Lodz Medical University, and Lodz Technopark.

For that reason, as well as diverse industry and business structures, the region of Lodz is very fertile with respect to the implementation of open innovation.

### Open Innovation in regional networks

In the region of Lodz, there are 3 different networks in which activity is close to the concept of Open Innovation:

- Bioenergy for the Region Cluster, founded in 2007 as a cooperative platform of companies, research institutions, local administration and business support institutions. Its main aim is to promote sustainable energy development in Central Poland. It realizes this goal through a complex solution of issues concerning the regulation of the biomass market in Central Poland. Of particular interest are the methods of collection, processing and use as a RES. Also of interest is the integration of members of the Cluster – businesses, researchers and local authorities to increase the share of solar and wind energy in the energy balance of the region. There are also educational and information activities, and the promotion of the use of renewable energy and energy efficiency. One of most important actions undertaken by Bioenergy for the Region Cluster was the organization of a Ph.D. Students Program. Within the project, each participant meets a team of experts, as well as a personal coach, to promote cohesion between Ph.D. research and the needs of enterprises in the region.
- Technology Transfer Center of Technical University of Lodz and University of Lodz. Both entities provide technical, substantive help and expertise regarding innovativeness of certain research outcomes to transfer intellectual property in the form of licenses, patents, and know-how. This can be done thanks to various experts and specialists with different scopes of interest and knowledge represented by both universities as well as patent offices.

### Open Innovation in Bioenergy for the Region Cluster

The results of research are divided into parts similar to the questions that were asked in the interview. The first issue was the general interest of researched entities towards implementation of innovations. A visualization of results is presented below.

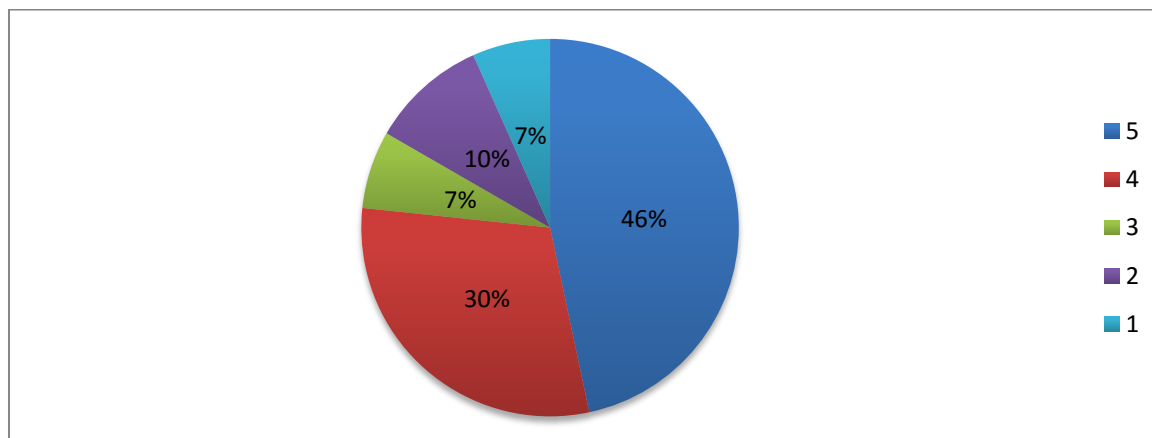


Figure 1. Level of respondents' interest in implementation of innovative solutions, where 1 is least interested and 5 is most interested.

Source: based on internet survey carried out by RIC Pro-Akademia.

It can be observed that most of respondents present very high (48%) or high (30%) interest in the implementation of innovative solutions. Moreover, 7% of respondents are moderately interested in the implementation of innovative solutions. Those who indicated low interest and very low interest in the implementation of innovative solutions were 10% and 7%, respectively. Based on the data gathered we can imply that most of Bioenergy for the Region Cluster members are interested in the implementation of innovative solutions.

The second aspect of the interview was devoted to the types of innovation in relation to their implementation. The results are presented below.

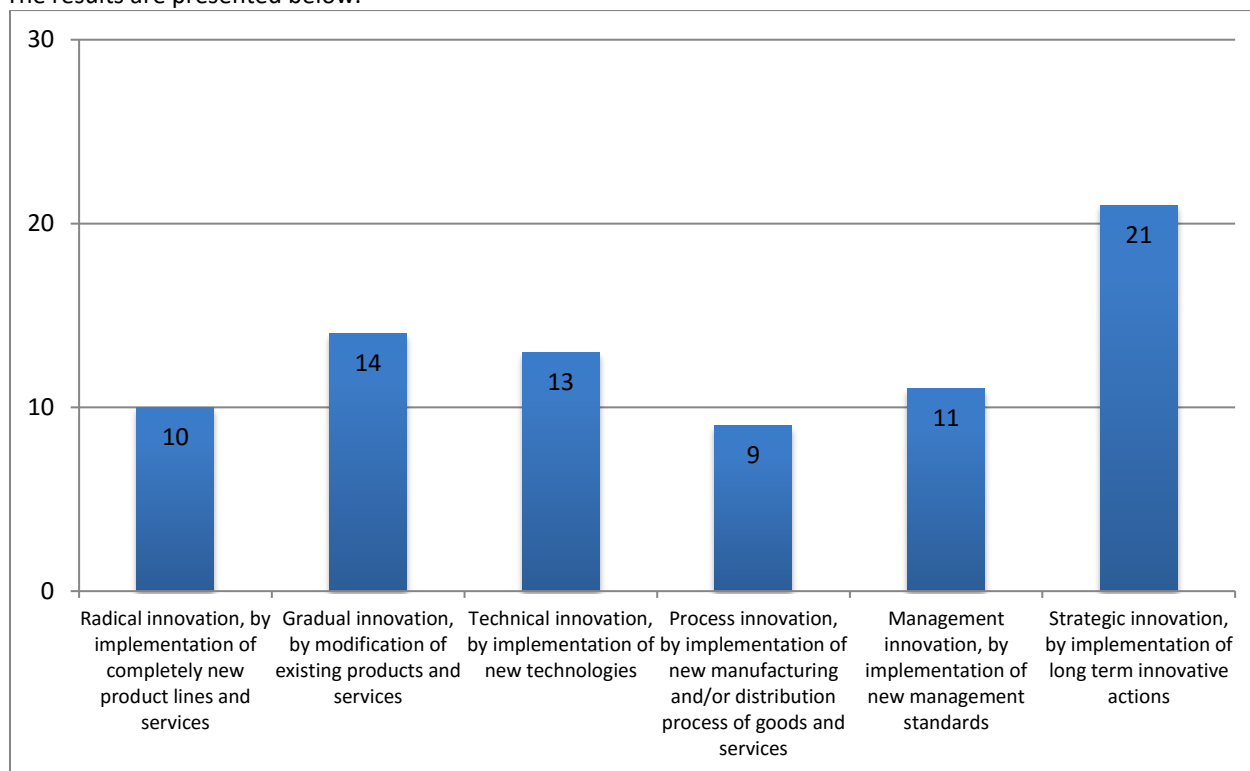


Figure 2. Types of innovations implemented by members of Bioenergy for the Region Cluster.

Source: based on internet survey carried out by RIC Pro-Akademia.

It can be observed that 21 out of 30 respondents indicated that the most desirable types of innovations are long term strategic innovations. 14 out of 30 respondents stressed the importance of gradual innovation by modification of existing products. The importance of technical innovation manifested by the implementation of new technologies was pointed out by 13 out of 30 respondents. 11 out of 30 respondents think that the implementation of new management standards is crucial for their company. One third of the respondents regards radical innovation by implementation of new product lines and services as important. Process innovation, represented by the implementation of new manufacturing and/or the distribution process of goods and services, was chosen by 9 out of 30 respondents.

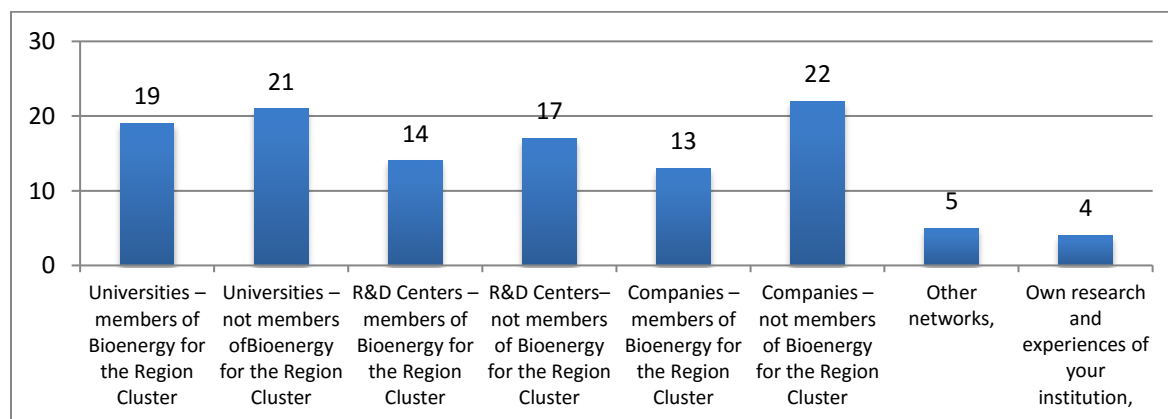


Figure 3. Sources of innovation used by members of Bioenergy for the Region Cluster. Please note that “Other – please specify” answer was omitted since it scored no points.

Source: based on internet survey carried out by RIC Pro-Akademia.

The other aspect was the source of information about innovation,<sup>3</sup> which are used by members of the Bioenergy for the Region Cluster. The most common sources of information were other companies and universities, which is visible in the figure below.

According to members of Bioenergy for the Region Cluster, the most promising source of information about innovation are other companies that do not belong to the Cluster (22 out of 30 respondents). It is also noteworthy that companies that are members of the cluster are regarded as sources of information about innovations by a lesser number of respondents (13 out of 30 respondents). This might be caused by the fact that companies within the Cluster share similar fields of expertise, and therefore have similar knowledge. The second possible source of information about information according to members of the Bioenergy for the Region Cluster are universities, both those cooperating with the cluster and external ones (19 and 21 out of 30 respondents, respectively). Respondents also see the possibility of obtaining information from R&D both from within and outside the cluster (14 and 17 out of 30 respondents, respectively). The lowest answer rates were "Other networks" (5 out of 30 respondents) and "Own research and experiences of your institution" (4 out of 30 respondents). Such a situation can be caused by the fact that there are not many networks in the region of Lodz and the concept of Open Innovation is quite new. The second grade can be justified by the fact that a large share of companies that work within cluster are micro, small and some medium companies without an in-house R&D department.

The other issue analyzed during the research process were problems in collecting information about innovations. The most significant percent of the respondents declared that a lack of information is the greatest problem for companies.

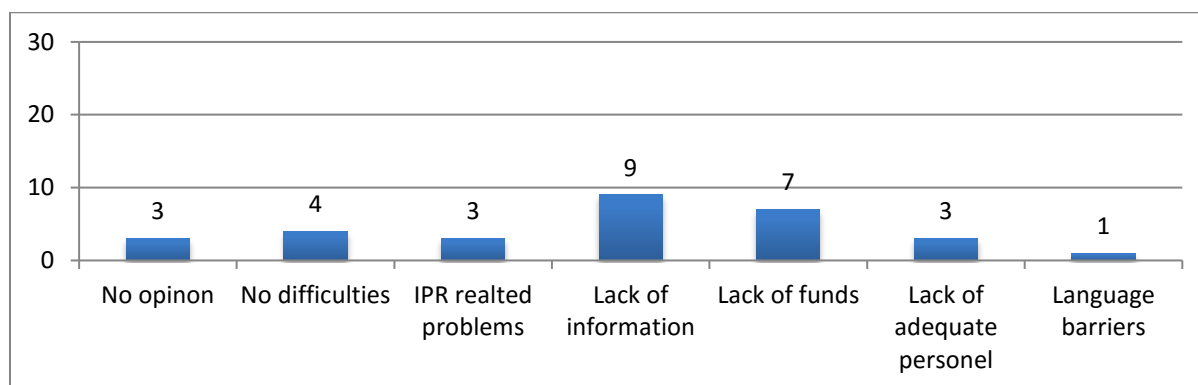


Figure 4. Most common problems that members of Bioenergy for the Region Cluster have to deal with in order to implement innovative solutions.

*Source: based on internet survey carried out by RIC Pro-Akademia.*

This problem concerns finding particular information, its interpretation, and high prices that have to be paid in order to acquire such information. The second problem refers to a lack of funds (7 out of 30 respondents), the high costs of new technologies, licenses and IPR rights. Some members do not have any problems with finding and implementing innovative solutions (4 out of 30 respondents). This might be related to the fact that they represent medium and large enterprises that have greater resources. Among other identified problems were a lack of adequate personnel and problems related to intellectual property rights (3 out of 30 respondents both). Language barriers seem also present a threat against the implementation of new solutions (1 out of 30 respondents). Three respondents had no opinion in this matter.

The second research method used was individual in-depth interviews to diagnose the opinions about the co-operation with other stakeholders. Despite the fact that the respondents do not cooperate continuously with universities and R&D institutes, they present readiness to initiate such cooperation. Moreover, the chance to gain support from research institutes, that occurred during various conferences and seminars organized by RIC Pro-Akademia, is highly valued by members of Bioenergy for the Region Cluster. Direct contact, possibilities of discussions and exchanging experiences are considered the most effective forms of communication in the scope of innovations. The companies have indirect contact with universities and R&D institutes due to cooperation with

<sup>3</sup> W.J. Mitchell, A.S. Inouye, M.S. Blumenthal, *Beyond Productivity: Information, Technology, Innovation, and Creativity*, The National Academic Press, Washington 2001.

experts on different occasions. They usually use the internet and social networks for searching required expertise. Universities' and R&D institutes' websites are unclear for the companies and, moreover, the organizational structure constitutes a firm barrier in establishing contact between industry and science.

Because of the early stage in development of the cooperation between the entities in the subject of innovativeness, the respondents do not have any experience in using instruments such as file sharing, Intranet or RSS.

The extent to which the institutions embrace the concept of open innovation is rather low. They mostly undertake two actions related to "open innovation". The first one is cooperation with other companies in designing new products and services. The second one is participation in all sorts of meetings during which their experiences can be exchanged. However, this cooperation is not the purposeful implementation of the idea of open innovation itself, but takes the form of a partnership with suppliers or customers in the context of realized marketing actions. A similar characteristic can be seen as it comes to participation in meetings.

Generally, the potential suppliers of new technologies constitute the main source of information about innovative solutions for surveyed companies. It results, inter alia, from the fact that the innovation is seen more often as an implementation of new technologies rather than as a process or strategic innovations. In most cases, contact with universities or R&D institutes is due to participation in the Bioenergy for the Region Cluster.

Large companies with capital for developing new, advanced products and services indicate that their contact with universities and R&D institutes is based on cooperation with individual experts. However, it is not a planned institutional cooperation for the long term.

For small companies, the main problem with the development of innovation is the lack of funds and competences. These are the main factors that discourage the entities from undertaking more advanced actions and limiting mostly to a realization of marketing strategies that react to the market demand, such as the introduction of improved products or services.

Large companies with large economic and human capital resources pointed out difficulties in obtaining access to the newest innovative research and a lack of effective support systems as the main barriers in the development of innovativeness.

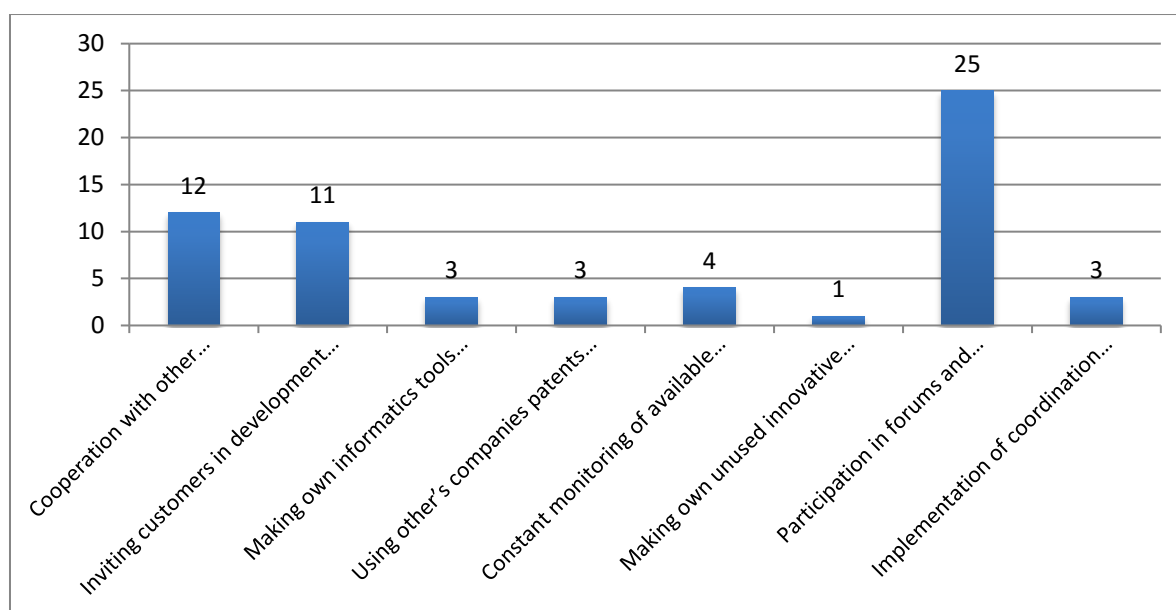


Figure 5. Actions that are conducted by members of Bioenergy for the Region Cluster.

Source: based on internet survey carried out by RIC Pro-Akademia.

To most popular actions undertaken by the members of Bioenergy for the Region Cluster that will contribute to idea of open innovation are participation in forums and conferences in the field of innovative solutions (25 out

of 30 respondents), cooperation with other companies in the field of new products and services development (12 out of 30 respondents) and inviting customers in the process of development of new products (11 out of 30 respondents). Other actions such as monitoring available solutions in the field of IPR (4 out of 30 respondents), making informatics tools available free of charge, using patents and solutions from other companies, implementation of coordination systems that allow every employee to contribute in searching of new innovative solutions (3 out of 30 respondents each) and making unused innovative solutions available in the form of licenses for other members of Bioenergy for the Region Cluster (1 out of 30 respondents) are less popular.

Apart from the actions undertaken by the Cluster members, an important and interesting issue is whether they have an awareness of the issue of open innovation. This was analyzed too and the results are presented on the figure below.

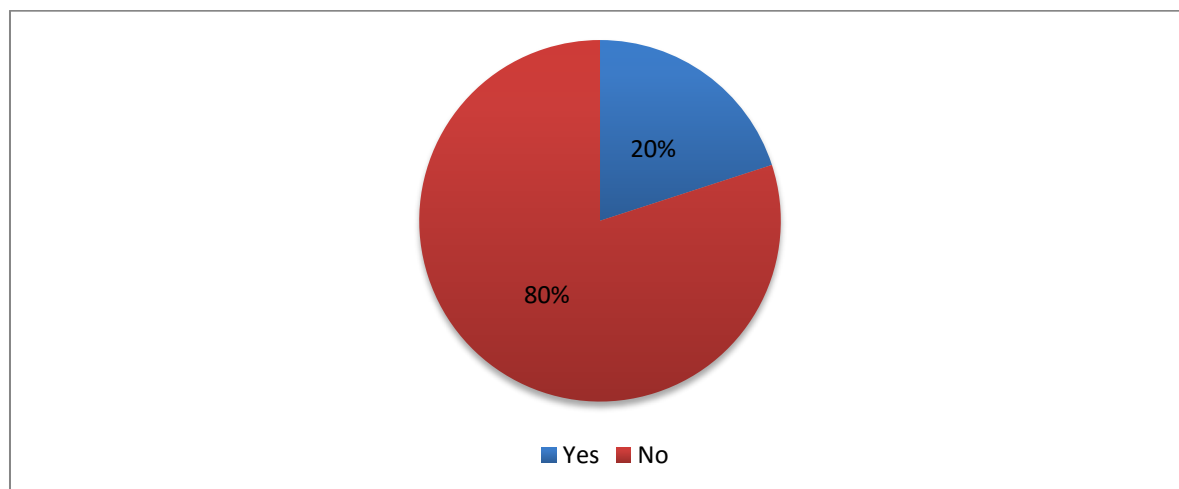


Figure 6. Perceived knowledge of respondents regarding concept of open innovation.

Source: based on internet survey carried out by RIC Pro-Akademia.

It shows that 80% of Bioenergy for the Region Cluster members are not familiar yet with the idea of open innovation. The remaining 20% present very narrow knowledge regarding open innovation idea. This might be related to the fact that this concept is a brand new one in Poland and that it is mostly restricted to large enterprises and corporations.

It is crucial to be well informed, especially when an innovation implementation and development process is concerned,<sup>4</sup> considering that they are very highly interrelated. There were two basic dimensions in which the attitude towards information was analyzed. The results of studies related to the scope and importance of information are presented in the table below.

**Table 1. Types of information provided by the knowledge broker (1 – never, 5 – very frequently).**

Thematic focus	Frequency
Technology information (products and methodologies)	3
Company information (technology providers)	2
Funding opportunities	4
Foreign experiences	5
News about the activity of the networks' members	3
Norms and standards	2
Business and innovation support services	5
Other (please specify)	

Source: own study.

<sup>4</sup> K. Huges, N. Moore, The role of information in the economy and society, [in:] F. de Bruine (ed.), The role of information in the economy and in society, November 1992, Luxembourg 1992, p. 1-50.

Not only is the issue of importance of information crucial, but the scope of information is equally important because it is related to its perceived value.<sup>5</sup>

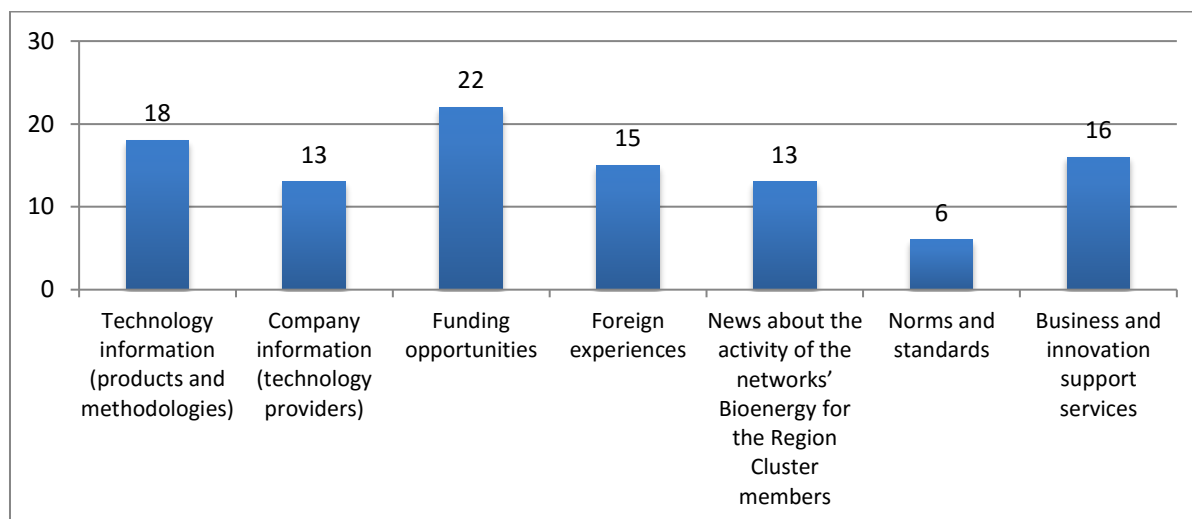


Figure 7. Distribution of answers to the question regarding interest of Bioenergy for the Region Cluster members towards provided information.

Source: based on internet survey carried out by RIC Pro-Akademia.

Data shows that most desired information that should be provided by RIC Pro-Akademia regards funding opportunities (22 out of 30 respondents). The second most popular answer was - technology information regarding products and methodologies (18 out of 30 respondents). The third most popular answer was business and innovation support services (16 out of 30 respondents). The fourth most popular answer was information about the activity of the networks' Bioenergy for the Region Cluster members (15 out of 30 respondents). Other answers scored below 15 points.

This section focuses on the website<sup>6</sup> of Bioenergy for the Region Cluster. The website's validation and description are presented below.

Website Identification	1	Address (URL)	www.bioenergiadlaregonu.eu	
	2	Owner/Manager	Research and Innovation Center RIC Pro-Akademia	
Accessibility	3	Is content structurally separate from navigational elements?	Yes	
	4	Is the website cross-browser compatible?	Firefox	Yes
			Internet Explorer	Yes
			Opera	Yes
			Chrome	Yes
	5	Valid HTML	Errors	20
			Warnings	0
	6	Valid CSS	Errors	79
			Warnings	0
	7	Are there different language versions of website?	English	Yes
German			No	
Dutch			No	
Hungarian			No	
Polish			Yes	
Other			No	

<sup>5</sup> J.P. Soto, A. Vizacaino, J. Portillo-Rodriguez, M. Piattinni, Applying Trust, Reputation and Intuition Aspects to Support Virtual Communities of Practice, [in:] J.G. Carbonell, J. Siekmann, Lecture Notes in Artificial Intelligence, Springer, Berlin 2007, p. 353-359.

<sup>6</sup> J.M. Spool, Web Site Usability: A Designer's Guide, Academic Press, London 1999.

	8	Are text-based alternatives in place to convey essential information if this is featured within images or multimedia files?	Yes	
	9	Can users co-create content?	No	
	10	Is there a forum associated with the website?	Yes	
	11	Are there any elements related to social networks?	Facebook	No
Twitter			No	
LinkedIn			No	
Other			No	
Navigation	12	Do links provide a clear indication of where they lead?	Yes	
	13	What is the maximum number of clicks it takes to reach a page within the depths of the site?	3	
	14	Do clickable items stylistically indicate that they are clickable?	Yes	
	15	How intuitive is it to navigate? (1 - not intuitive 5 - most intuitive)	4	
	16	Is PURPOSE of the site clear? Purpose must become clear within a few seconds without reading much or no text copy at all.	Yes	
	17	Is a logical site map available? If not, is a keyword-based search feature available?	Yes	
Design	18	Is the site's design aesthetically appealing? (1-Not appealing 5-Very appealing)	5	
	19	Are the color choices visually accessible? (For example high enough in contrast to assist the color-blind and visually impaired in reading the site appropriately)?	Yes	
	20	Is the design audience appropriate?	Yes	
	21	Are fonts easily readable, and degrade gracefully on various screen resolutions?	Yes	
Content	22	Is the website copy succinct and informative?	Yes	
	23	Are bodies of text constrained to <80 characters per line?	Yes	
	24	Can text be resized through the browser?	Yes	
	25	Is the contrast between text and its background color sufficient to make reading easy on the eyes?	Yes	
	26	Is text broken into small, readable chunks and highlighted using headings, sub-headings and emphasis features where appropriate to assist in skimming?	Yes	
	27	Within articles, are there links to more detailed explanations of subjects, or definitions of jargon terms?	No	
	28	Is there an "about page" that identifies the author of the content, credits to source for content that was not written by the site owner himself?	Yes	
	29	Are there testimonials and are they published?	Yes	
	30	Is the website updated regularly?	Yes	
	31	Is there an open database?	Yes	
	32	Is there a search engine implemented?	Yes	
	33	Does information that users can acquire before logging in differ from that provided after registration?	Yes	
	34	Is there any preview into the content (Abstract, summary, etc) before logging in?	Yes	
	Security	35	Can user browse content (before or after logging in)?	Before
			After	Yes
36		Can user contact other users (before or after logging in)?	Before	Yes
			After	Yes
37	Can user co-crate content (before or after logging in)?	Before	No	
		After	No	
38	Is the registration process automatic or does it require verification from site admin? (Indicate "admin" OR "automatic")	Yes		
39	Are forms resilient to special characters?	Yes		
40	Are private directories password-protected?	Yes		



The frequency of contacts as way of communication is also an important aspect of analyzing interpersonal relations.<sup>7</sup> This can be similarly applied to the entities that cooperate with each other. For that reason, this was also analyzed during the research. Results are presented below.

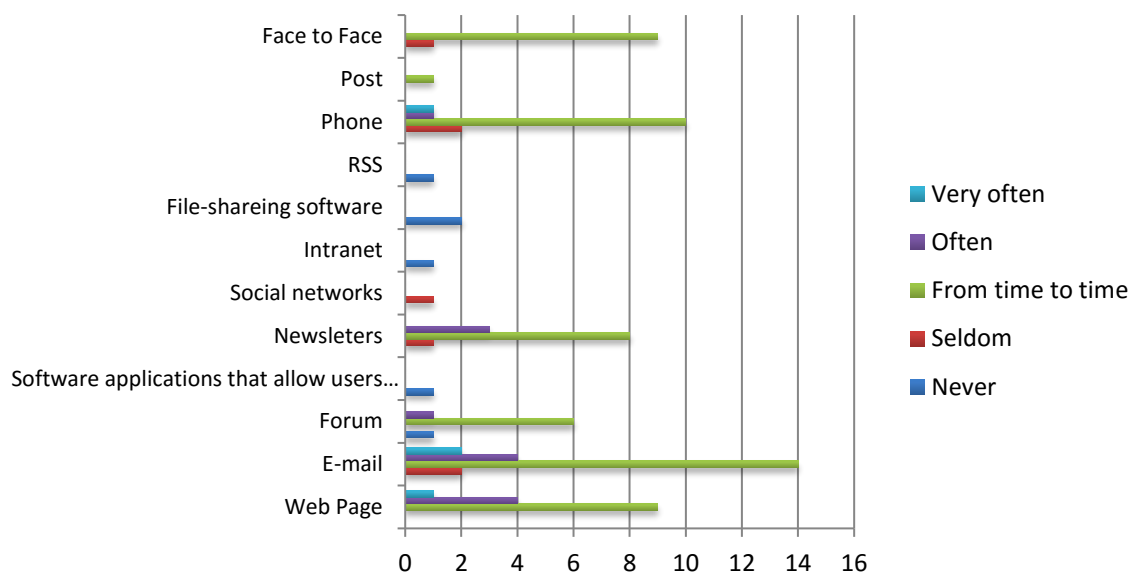


Figure 8. Frequency of usage of different communication channels used to get in touch with cluster coordinator represented by RIC Pro-Akademia.

Source: based on internet survey carried out by RIC Pro-Akademia.

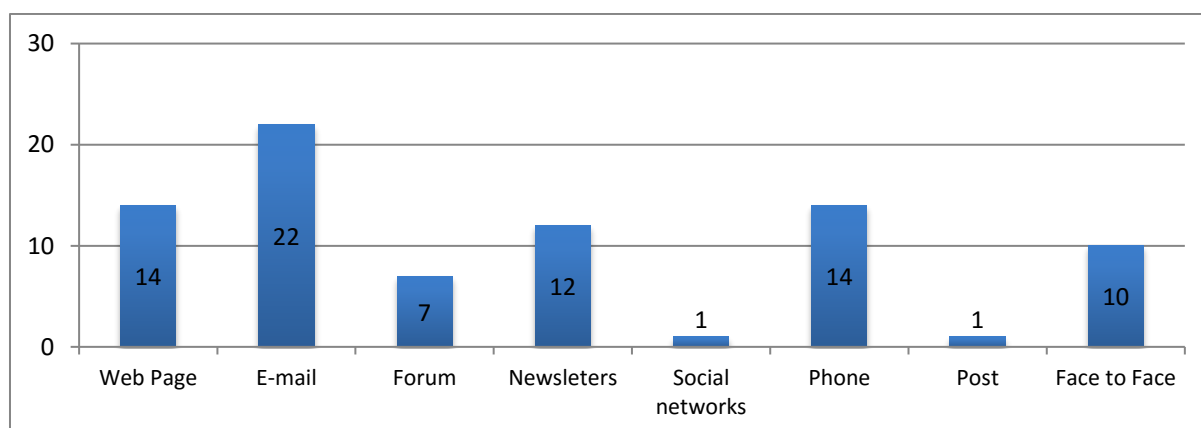


Figure 9. Most preferred methods of communication.

Source: based on internet survey carried out by RIC Pro-Akademia.

The above data show that the most popular method of communication is via e-mail (22 out of 30 respondents). Most members of the Bioenergy for the Region Cluster use this method from time to time (14 out of 30 respondents), often (4 out of 30 respondents), very often (2 out of 30 respondents) and seldom (2 out of 30 respondents). The other most popular methods of communication used by members of Bioenergy for the Region Cluster are phone and web-page (14 out of 30 respondents both), newsletters (12 out of 30 respondents), face to face meetings (10 out of 30 respondents) and forums (7 out of 30 respondents). Most of them are used from time to time 10, 9, 8, 9 and 6 out of 30 respondents, respectively. Moreover, despite members of Bioenergy for the Region Cluster being aware of the existence of such methods of communication such as RSS, Intranet, and software applications that allow users to make voice and video calls, they don't use them. It should be pointed out that social networks are used by only one member of the Bioenergy for the Region Cluster.

<sup>7</sup> H.S. Sullivan, *Interpersonal theory and psychotherapy*, Routledge, London 1996.

Another issue was not the usage, but rather the perception of efficiency of each communication method. The results were presented in the figure below.

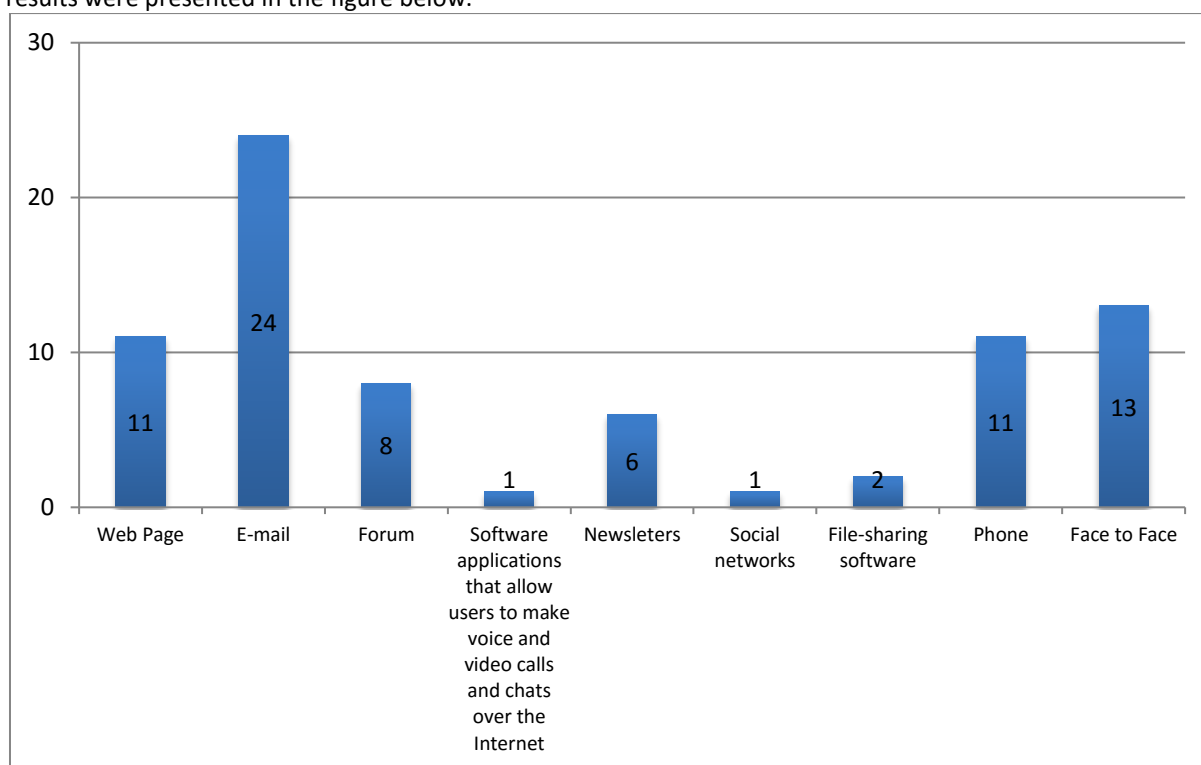


Figure 10. Most effective methods of communication with cluster coordinator.

Source: based on internet survey carried out by RIC Pro-Akademia.

Data show that method of communication that was at most appointed by respondents was electronic mail (24 out of 30 respondents), others such as face to face meetings, web page and phone also scored high, but below the average, pertaining to more than one third of total population (13, 11 and 11 out of 30 respondents respectively). Forums and newsletters were indicated by 8 and 6 out of 30 respondents. According to the Bioenergy for the Region Cluster, communication methods such as social networks, file-sharing software and applications that allow making voice and video calls are the least effective (1, 2 and 1 out of 30 respondents).

The relevance of the information is equally important, which was taken into consideration. The opinions of the respondents from the Bioenergy for the Region Cluster are presented in the chart below.

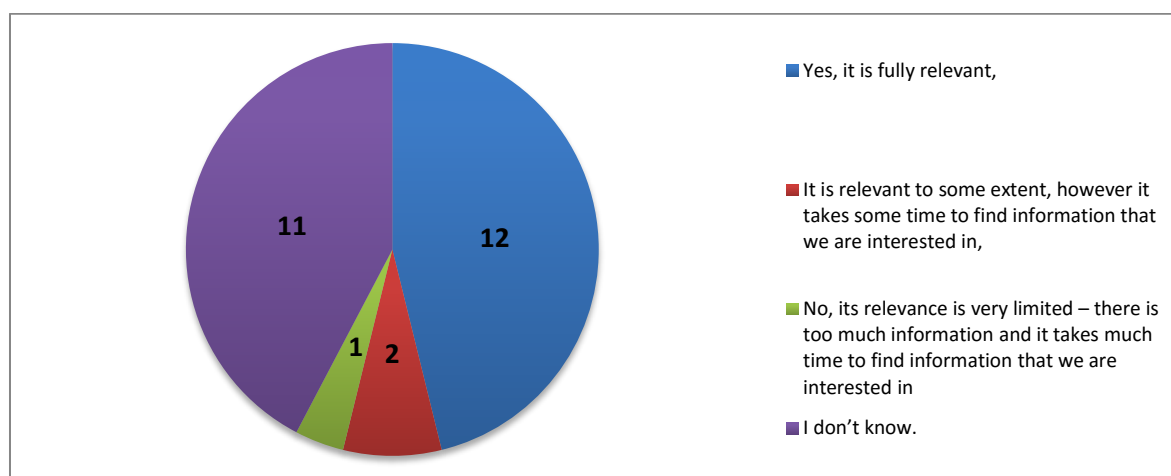


Figure 11. The opinions of Bioenergy for the Region Cluster members on information provided by RIC Pro-Akademia and its relevance.

Source: based on internet survey carried out by RIC Pro-Akademia.

It can be observed that according to members of the Bioenergy for the Region Cluster, information provided by RIC Pro-Akademia is fully relevant (12 out of 30 respondents) or it is relevant to some extent but not categorized (2 out of 30 respondents). The survey also revealed that many members of the cluster are not sure about information relevance (11 out of 30 respondents). Only one respondent stated that the relevance of information provided by RIC Pro-Akademia is very limited and that there is too much information and it takes much time to find information that we are interested in.

Potential payments for the information is one of problems that is usually a barrier in the normal functioning of the cluster. For that reason, the respondents were asked if the information provided by RIC Pro-Akademia is free of charge. Results are presented on a chart below.

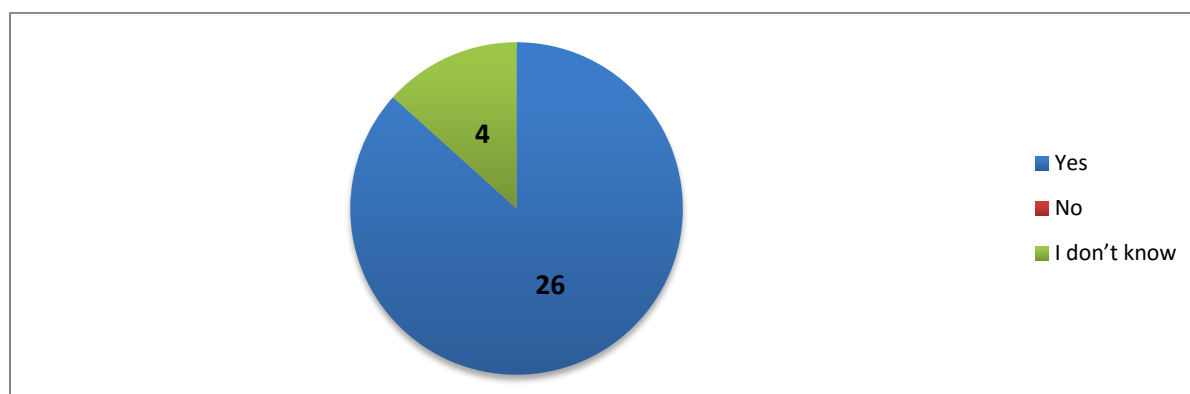


Figure 12. Opinion of Bioenergy for the Region Cluster members towards information provided by RIC Pro-Akademia – if it is free of charge.

Source: based on internet survey carried out by RIC Pro-Akademia.

Almost all surveyed members of the Bioenergy for the Region Cluster are aware that information provided by RIC Pro-Akademia is free of charge (26 out of 30 respondents). Four respondents were not able to assess if the information provided is free of charge.

The types of communication and the frequency of contact was also taken into consideration while describing the contacts between Cluster's members. The results are presented and analyzed below.

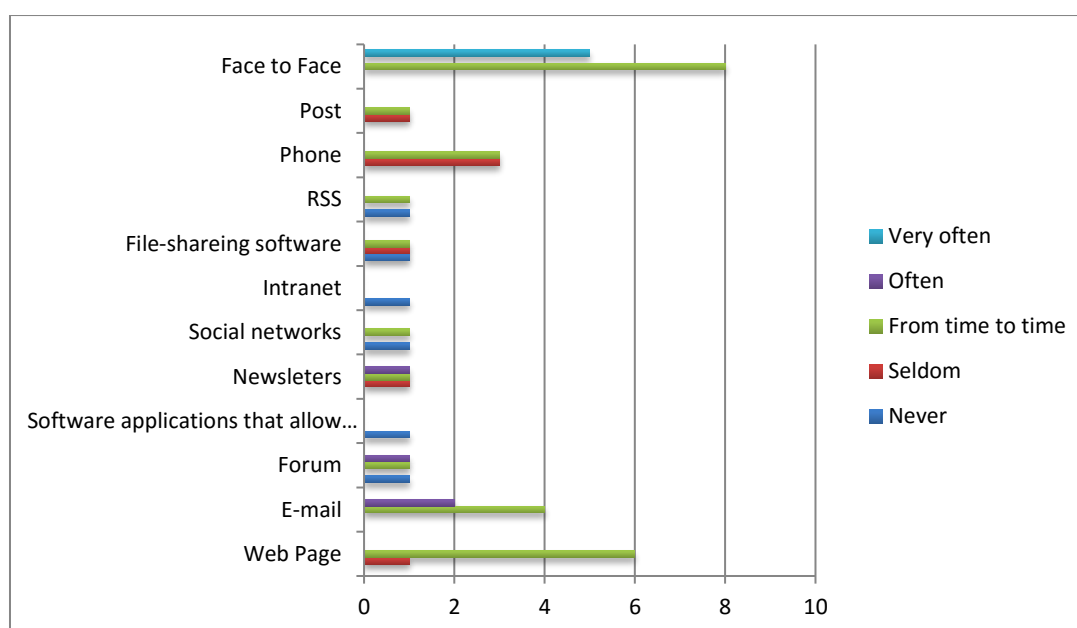


Figure 13. Usage frequency of different communication channels, used by members of the Bioenergy for the Region Cluster members to get in touch with universities.

Source: based on internet survey carried out by RIC Pro-Akademia.

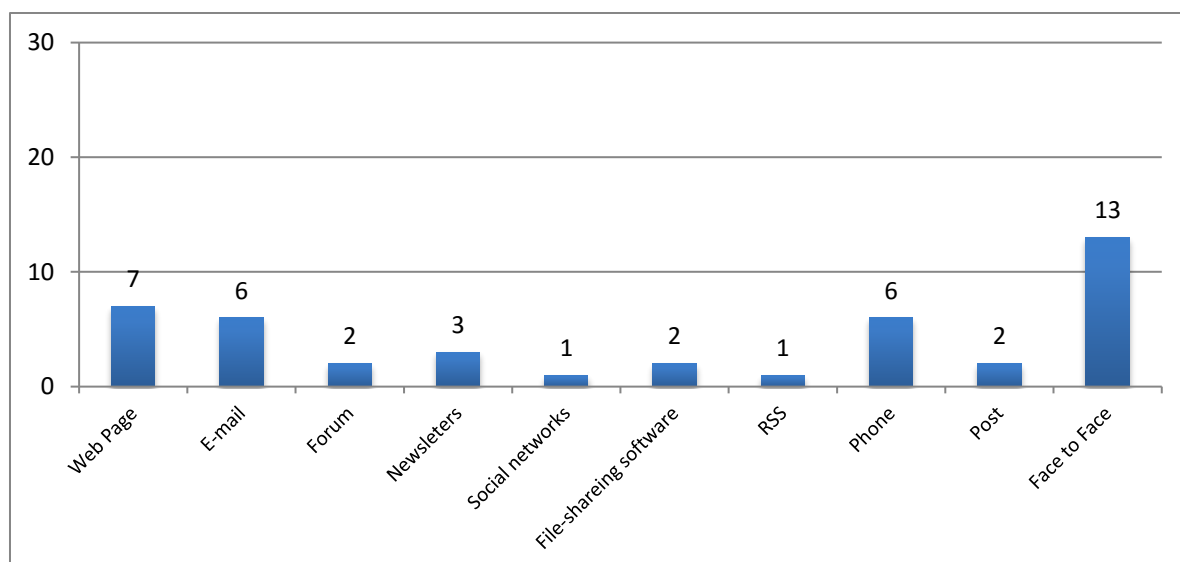


Figure 14. Most preferable methods of communication chosen by members of Bioenergy for the Region Cluster in order to get in touch with Universities.

Source: based on internet survey carried out by RIC Pro-Akademia.

Data shows that the most popular method of communication with universities among members of the Bioenergy for the Region Cluster is face to face contact (13 out of 30 respondents). It is used from time to time and very often by 8 and 5 respondents out of 30, respectively. Another fairly used method appears to be communication via web page (7 out of 30 respondents), with frequencies of from time to time and seldom (6 and 1 respondents respectively). Contact via E-mail and phone is also used (6 out of 30 respondents both). From those two, e-mail contact is more frequent. Other methods are not that popular (less than 4 out of 30 respondents).

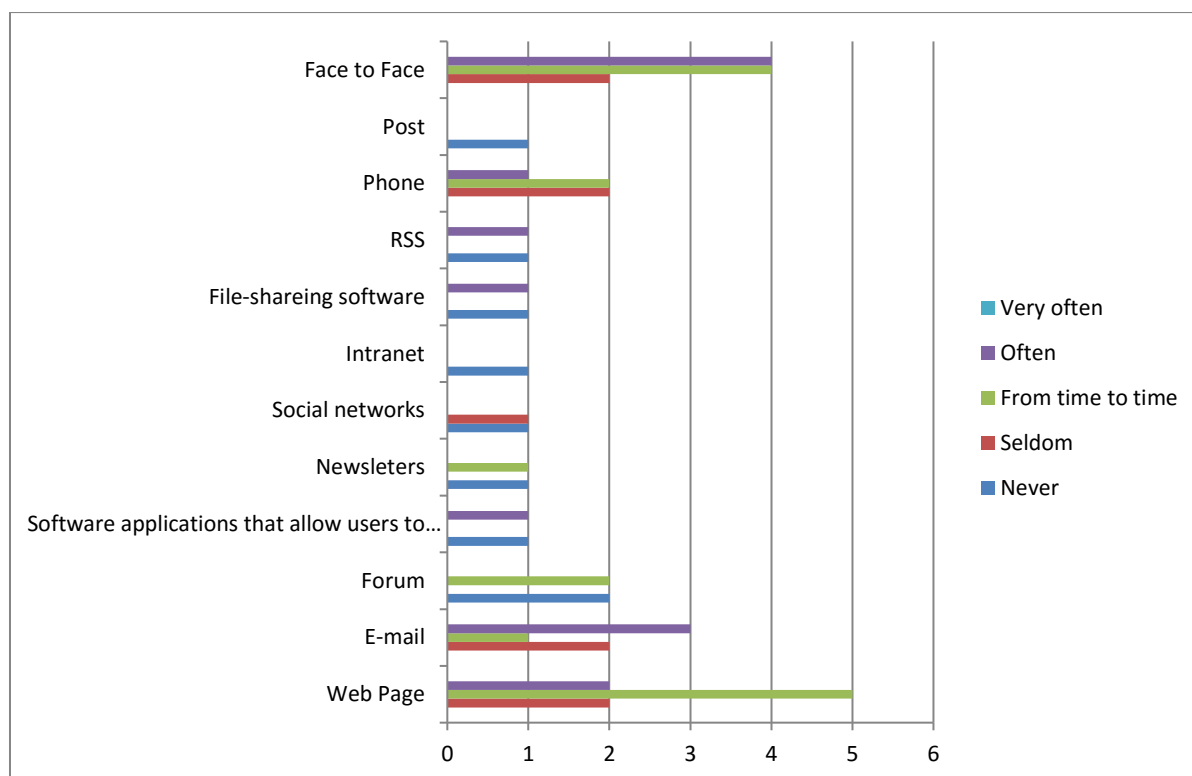


Figure 15. Usage frequency of different communication channels that are used by members of Bioenergy for the Region Cluster members in order to get in touch with Universities.

Source: based on internet survey carried out by RIC Pro-Akademia.

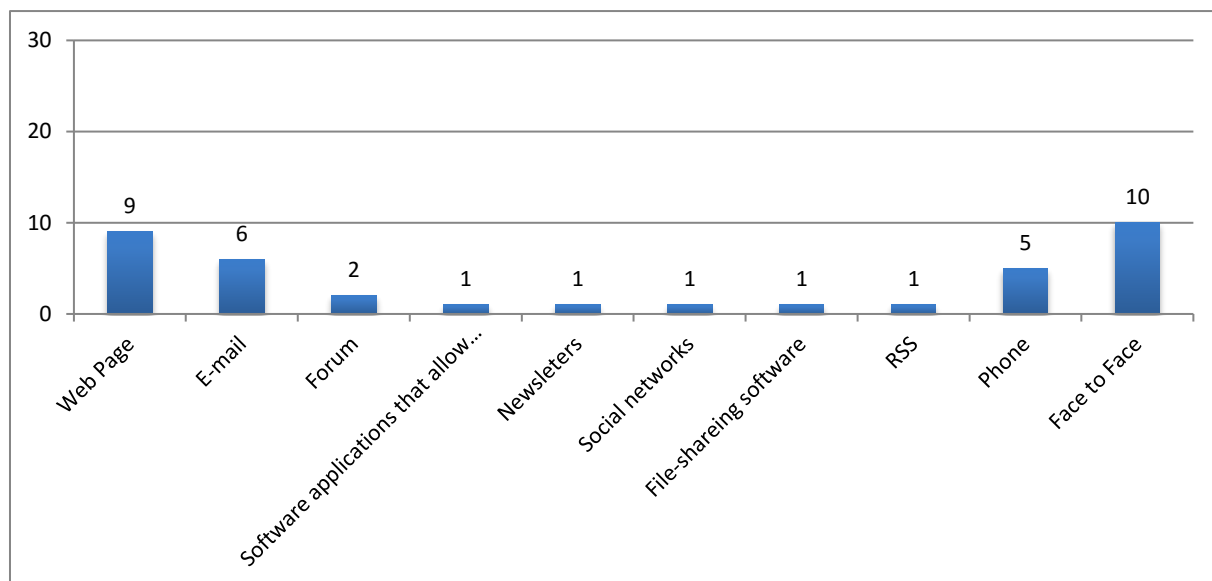


Figure 16. Communication methods preferred by members of Bioenergy for the Region Cluster in order to get in touch with R&D institutes.

Source: based on internet survey carried out by RIC Pro-Akademia.

Result shows that the most popular method of communication among members of the Bioenergy for the Region Cluster with R&D institutes is face to face contact (10 out of 30 respondents) with frequencies of often, from time to time and seldom (4, 4 and 2 out of 30 respondents, respectively). Cluster members also communicate with R&D institutes using web pages (9 out of 30 respondents), using them often, from time to time and seldom (2, 5 and 2 respondents out of 30, respectively), E-mail (6 out of 30 respondents) using it often, from time to time and seldom (3, 1 and 2 out of 30 respondents respectively) and phone (5 out of 30 respondents) using it often, from time to time and seldom (1, 2 and 2 respondents out of 30 respectively). Other methods are not that popular (less than 4 out of 30 respondents).

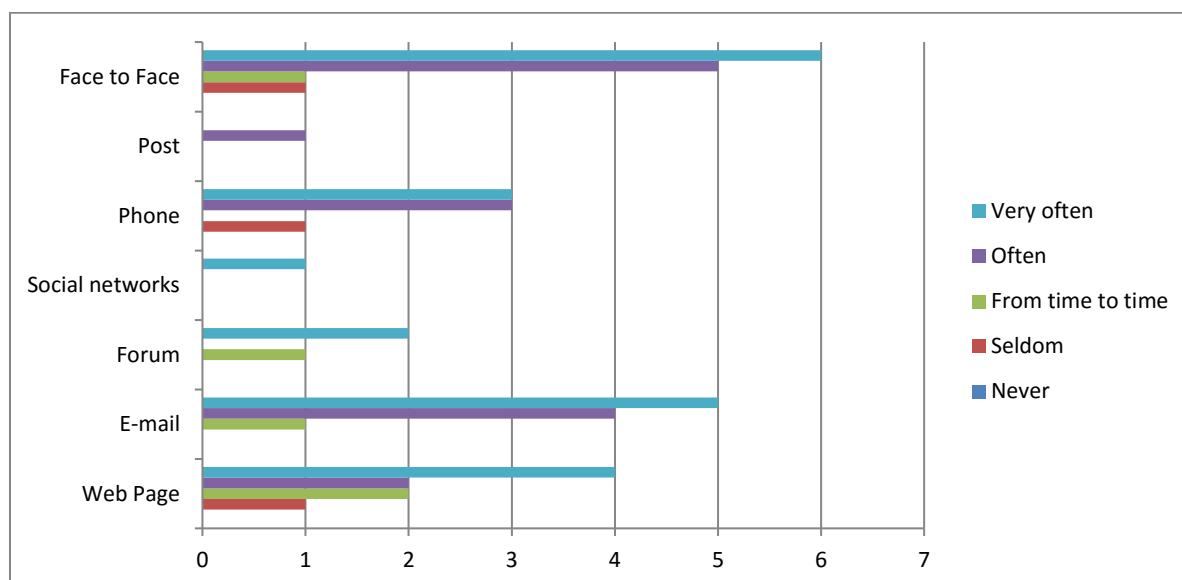


Figure 17. Usage frequency of different communication channels, used by members of Bioenergy for the Region Cluster members to get in touch with enterprises.

Source: based on internet survey carried out by RIC Pro-Akademia.

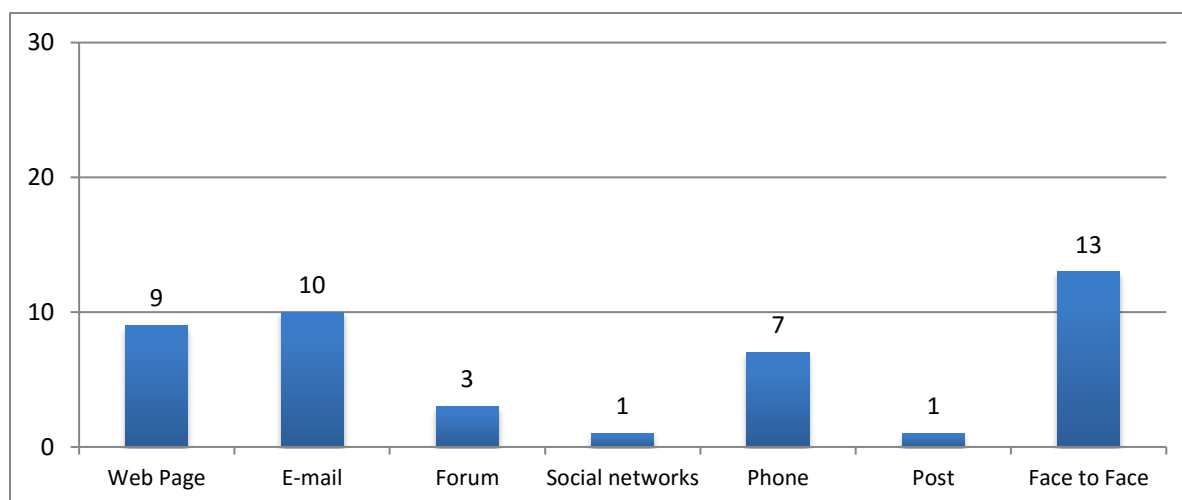


Figure 18. Usage of communication channels, used by members of Bioenergy for the Region Cluster members to get in touch with enterprises.

Source: based on internet survey carried out by RIC Pro-Akademia.

Data shows that the most popular method of communication with enterprises according to members of the Bioenergy for the Region Cluster is face to face contact (13 out of 30 respondents). It is used very often, often, from time to time and seldom (6, 5, 1 and 1 respondents out of 30 respectively). The second most popular method is E-mail (10 out of 30 respondents). It is used very often, often and from time to time (5, 4 and 1 respondents respectively). The third most popular method of communication is via web pages (9 out of 30 respondents), which is used very often, often, from time to time and seldom (4, 2, 2 and 1 respondents out of 30 respectively). The fourth most popular method of communication is via phone (7 out of 30 respondents), which is used very often, often and seldom (3, 3 and 1 respondents out of 30 respectively). Other methods are not that popular (less than 4 out of 30 respondents).

In general, members of the Bioenergy for the Region Cluster visit RIC Pro-Akademia's website after receiving information via e-mail or a newsletter.

Respondents await the specific information which, on the one hand, is formulated in a comprehensive manner and on the other, is applicable. They prefer interactive forms of information, like video casts or flash presentations. The companies surveyed showed interest in taking part in on-line conferences and seminars, with the possibility of asking questions via online chat.

Respondents expect information mainly on actual funding sources, possibilities of establishing cooperation with foreign partners, and examples of the newest global solutions. It was pointed out that an interactive list of firms could be a useful element of the website and that it would facilitate the research of information about products, services and possible forms of cooperation. Despite positive opinions, respondents prefer receiving a newsletter when relevant information appears rather than regularly. The graphic form seems to be satisfactory due to its simplicity and legibility. Nevertheless, the respondents agree that it could be more diversified, which would result in the improvement of its attractiveness. It was also suggested that newsletters should be divided by their subjects and sent to the appropriate groups represented by interested companies. The proposition of presenting newsletters in a multimedia form (e.g. flash animations) had positive opinions. A phone call and direct contact are the most acceptable form of feedback. The written form is the least popular, but short answers are tolerable.

Workshops made by the coordinator of the Cluster are highly evaluated, both in matters of logistics and substance. It appears from the interviews that the workshops combined with study tours are the most expected. Cluster members prefer one-day long or modular workshops in regular time intervals. Significant matters during the organization of workshops are the possibility of individual consultations with specialists and the opportunity of having an open discussion and exchanging information or experiences with others. The respondents also valued workshops referring to practical aspects.

The most valued conferences are the ones during which the subject area is presented in an interdisciplinary and practical approach. Conferences with very experienced speakers who combine theory with practice and those

with foreign guests presenting knowledge and examples that are not yet known in Poland are considered to be the most interesting. From the point of view of the respondents, the possibilities of open discussions with leading specialists, both in the group and in private, are very important. The surveyed companies indicated that the most suitable frequency of organizing conferences is once per quarter, accounting for the dynamics of business.

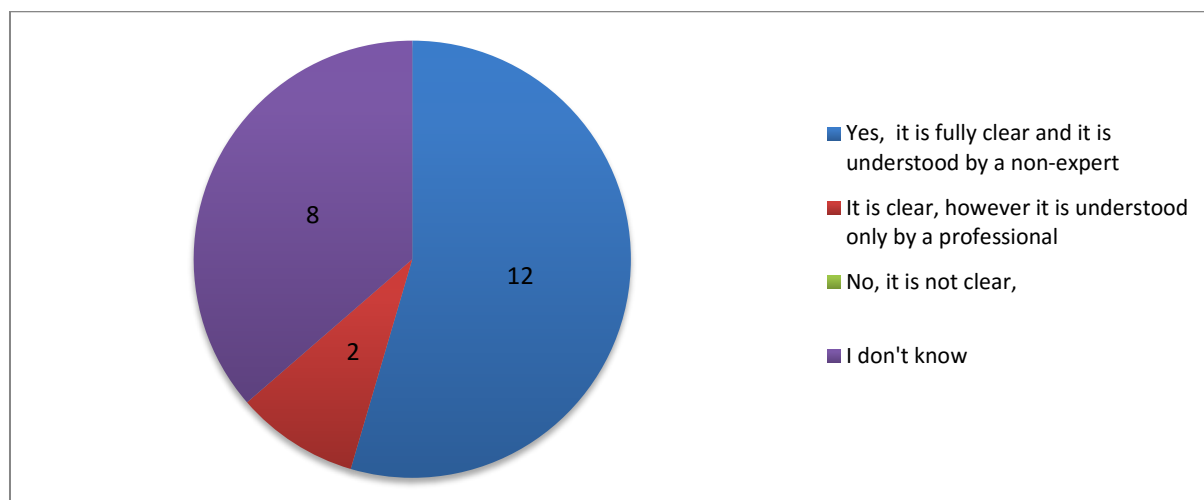


Figure 19. Opinion of Bioenergy for the Region Cluster members towards information provided by RIC Pro-Akademia and its clarity.

Source: based on internet survey carried out by RIC Pro-Akademia.

Data shows that twelve of the surveyed members of Bioenergy for the Region Cluster think that information provided by Pro-Akademia is clear and able to be understood by non-experts. On the other hand, two members think that the information is clear but only understood by a professional. Eight respondents were not able to assess the clarity of the information provided by RIC Pro-Akademia.

#### Abstract

The respondents consider direct meetings as the most effective form of cooperation. Study tours are also highly valued, not only because they lead to the acquisition of knowledge about new solutions or to meetings with members of the Cluster, but also because they help establishing contact with foreign partners. Tools such as Intranet or RSS are not used and, therefore, the respondents could not evaluate their utility. The surveyed members of the Cluster are particularly interested in the newest technological solutions, and the possibilities of obtaining financial and legal support. Respondents believe that the website's functionality can be improved by introducing links to the social networks that will contribute to the popularization of information. They also suggested creating a multimedia database in which entrepreneurs could create their profiles with information about their company, the needed solutions and the areas of possible cooperation.

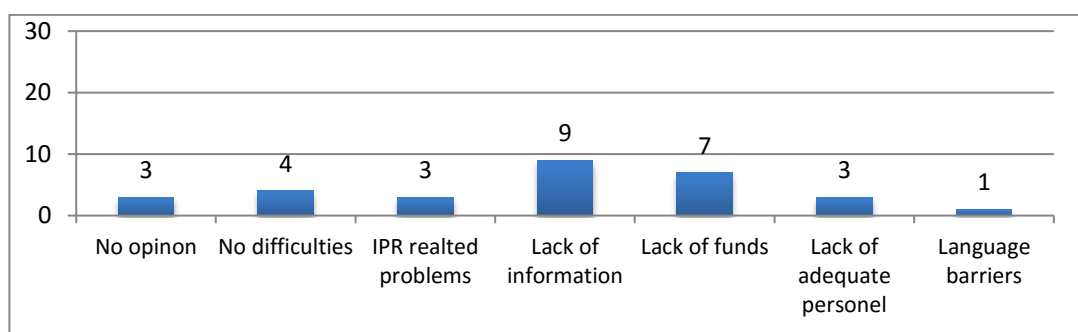


Figure 20. Most common problems that members of Bioenergy for the Region Cluster deal with to implement innovative solutions.

Source: based on internet survey carried out by RIC Pro-Akademia.

The most common problem is a lack of proper information (9 out of 30 respondents). This problem concerns finding certain information, its interpretation, and the high prices that must be paid to acquire such information. The second problem refers to a lack of funds (7 out of 30 respondents). This problem refers to the high costs of

new technologies, licenses and IPR rights. Some members do not have any problems with finding and implementing innovative solutions (4 out of 30 respondents). This might be related to the fact that they represent medium and large enterprises that have bigger resources. Other problems identified include a lack of adequate personnel and problems related to intellectual property rights (3 out of 30 respondents in both instances). Language barriers also threaten the implementation of new solutions (1 out of 30 respondents). Three respondents had no opinion on the matter.

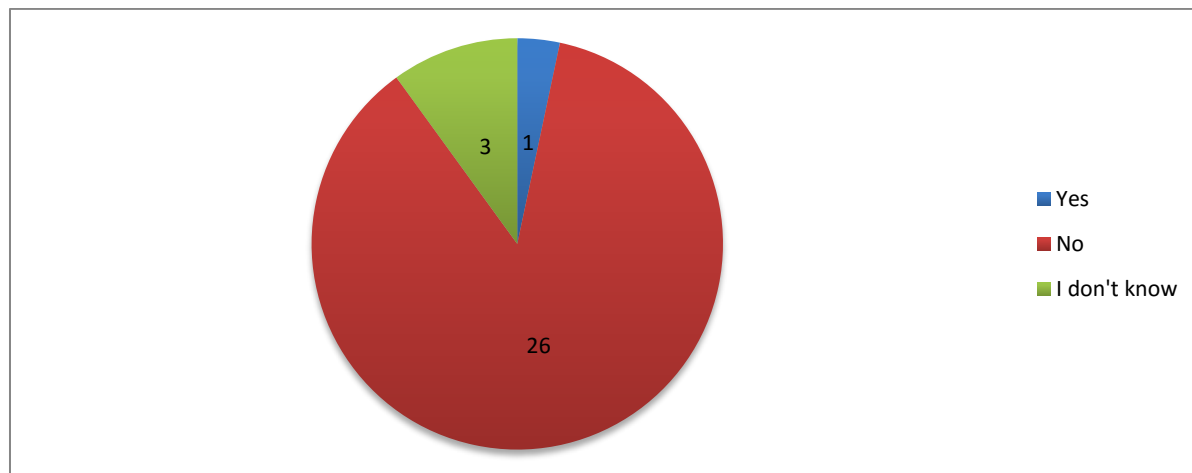


Figure 21. Cooperation of members of Bioenergy for the Region Cluster with other innovation networks.

Source: based on internet survey carried out by RIC Pro-Akademia.

Data shows that 26 respondents do not cooperate with other innovation networks. Three respondents can't assess if their institution cooperates with other innovative networks. Only one respondent said that the institution he is representing has cooperated with other innovation networks.

Information provided by RIC Pro-Akademia in general fits that which was expected by members of the Bioenergy for the Region Cluster. Nevertheless, to meet the expectations of cluster members, more information regarding technology, new products and methodologies is needed.

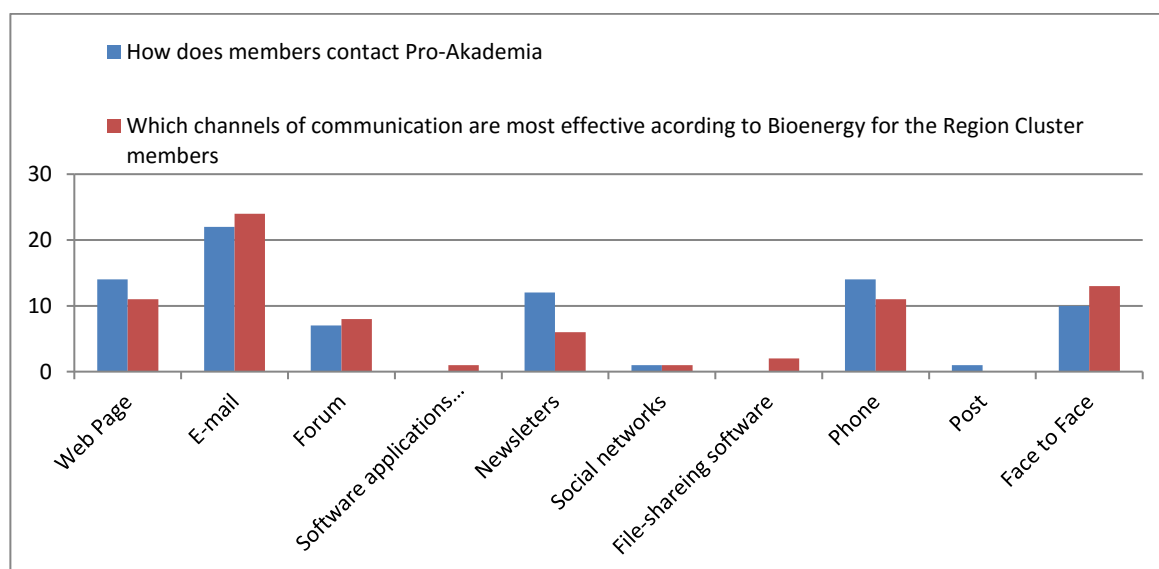


Figure 22. Most popular communication channels used by RIC Pro-Akademia and those that are most effective according to members of Bioenergy for the Region Cluster.

Source: based on internet survey carried out by RIC Pro-Akademia.

As Figure 20 shows, communication channels that are mostly used by RIC Pro-Akademia strongly overlap with those thought to be most efficient according to members of Bioenergy for the Region Cluster. There are some



major differences regarding the newsletter method that is commonly used by RIC Pro-Akademia, and where respondents think that this method is less effective.

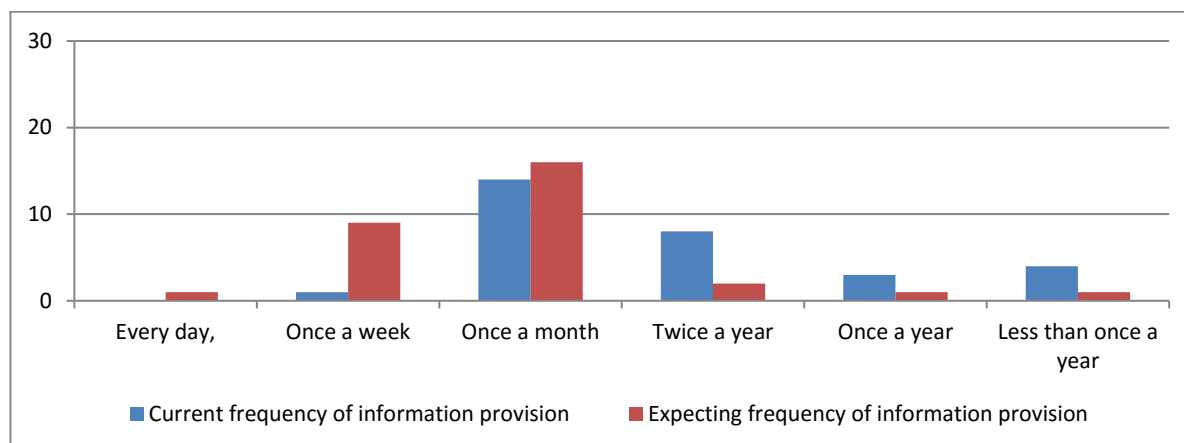


Figure 23. Frequency of information provision by RIC Pro-Akademia and expected frequency of information provision by members of Bioenergy for the Region Cluster.

Source: based on internet survey carried out by RIC Pro-Akademia.

Data show that sending information once a month is the most expected and desirable frequency. This situation seems to fit the needs of the respondents since RIC Pro-Akademia is sending a monthly newsletter.

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### AKTUALNY STAN ROZWOJU ŚRODOWISKA OTWARTYCH INNOWACJI W REGIONIE ŁÓDZKIM

#### ABSTRAKT

W województwie łódzkim idea otwartych innowacji (open innovation) rozwija się powoli, jednak jest już istotnym aspektem polityki regionalnej, jako jeden z warunków rozwoju inicjatyw kooperacyjnych i gospodarczego kapitału społecznego. Głównym celem artykułu jest przedstawienie wyników pogłębionej analizy stanu wdrożenia podejścia otwartych innowacji w województwie łódzkim na przykładzie Klastra Bioenergia dla Regionu.

#### SŁOWA KLUCZOWE

klastry, efektywność komunikacji, bioenergia dla regionu, otwarte innowacje