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Strengthening scientific and research capacity of the Institute of Economics, Zagreb as a cornerstone for Croatian socioeconomic growth through the implementation of Smart specialisation strategy

Survey on Croatian Wood Cluster
Summary of key findings

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Key Messages

About the survey and Croatian Wood Cluster

This report presents the findings of the online survey conducted among the members of a selected industrial cluster, Croatian Wood Cluster (CWC) that were disseminated through presentations to interested stakeholders and scientific papers. The survey was conducted in order to identify and analyse the perceptions and attitudes of members of Croatian Wood Cluster (CWC) regarding the performance of CWC; the strength of cooperation among cluster members and with the players outside the cluster; the effects of clustering on operational performance of the manufacturing SMEs (members of clusters); business and economic setting in Croatia, barriers for the work of CWC and the relevancy of government policy measures.

Croatian Wood Cluster was chosen, partly, because it is, according to experts and scholars opinion, one of the most important clusters in the Croatian wood and furniture industry and in the country (Kersan Škabić, 2014). In addition, wood sector[2] is one of the most important branches of the Croatian economy. This sector falls under manufacturing which largely contributes to the national economy. Forests cover nearly a half (47.0%) of the Croatian territory, the total forest area amounts to 2.7 million hectares and the total growing wood stock reached 398 million cubic meters (Hrvatske šume, 2017). Croatian wood sector provides 25,235 jobs (15,776 in wood and wood processing industry and 9,459 in furniture industry) directly accounting for 10.2% of the total Croatian employment in the manufacturing industry.

Croatian Wood Cluster was established in 2002 as the Centre for the Promotion and Development of the Wood industry. It was re-registered in 2010 as a private limited company, Drvni centar d.o.o., while since 2013 it has been operating as a professional association (under name Croatian Wood Cluster) with 2 employees. CWC is a group of connected companies in the field of forestry, wood processing, furniture production and similar activities (registered for the activities in C16 and C31 according to the statistical classification of economic activities in the European Community revision 2 (NACE Rev. 2). The main goal of CWC is to improve sustainable competitiveness of the wood processing sector, especially regarding the encouragement and promotion of inter-sectoral and trans-sectoral cooperation. The cluster has 61 members with 5,300 employees, accounting for 22.3% of the total wood-based industry employment. The cluster is “focused on applying innovations and strengthening impacts of different types of education, but it also has other functions that are of interest to the cluster members” (Hrvatski drvni klaster, 2014). Through these multiple activities, CWC integrates all sectors to work together and to cooperate and it strengthens joint operations.

[2] With regard to the definition provided by Croatian Wood Cluster, the wood sector consists of two subsectors: wood and wood products manufacturing (C16) and furniture manufacturing (C13).

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The survey was designed based on literature review and interviews with experts (presidents of CWC and its members). The survey was conducted online during the months of June and July 2017. Population (according to CWC database) included 61 active members of Croatian Wood Cluster, mainly small and medium size companies. The response rate was 55.74% as 34 questionnaires suitable for assessment were obtained.

Sample profile

The largest percentage of the respondents were managing directors (39.4%), followed by senior managers, such as heads of business units (27%). 18% of the respondents were presidents or members of supervisory or management boards, while only 6.1% of respondents were C-level executives such as chief executive officers (CEOs) (Figure 1). One third of companies in the sample were located in Primorje – Gorski Kotar County, which is not surprising since this county is a mountainous part of the Croatian mainland and it has a long tradition of forestry and wood processing industry, followed by Zagreb County and Sisak – Moslavina County (Figure 2). It should be noted that Primorje-Gorski Kotar County is among the most economically developed counties in Croatia, along with City of Zagreb and Istria County. The sample profile presented in Table 1 indicates that 82.3% of the total sample was mostly small and medium-sized companies. Only 5.9% (i.e. 2) of the companies participating in the research have more than 250 workers. Most of these companies (65.7%) have been operating for over 20 years, 51.4% of the companies are between 20 and 30 years old, 14.3% are more than 30 years old. Companies in the sample generated an average of 8 million euros of revenues annually between 2014 and 2016. 43.8% of respondents reported that their company average annual revenues from 2014 to 2016 were between 2 and 10 million euros, while about 34% of the companies recorded average annual revenues in the amount less than 2 million euros. At the same time, about 22% of the responding companies generated a revenue volume of between 10 and 50 million euros. Additionally, regarding the export activity, only 3 (8%) companies were not exporters. Even 50% of respondents, on average, indicated that 70% or more of their company annual revenue was achieved on the international market.

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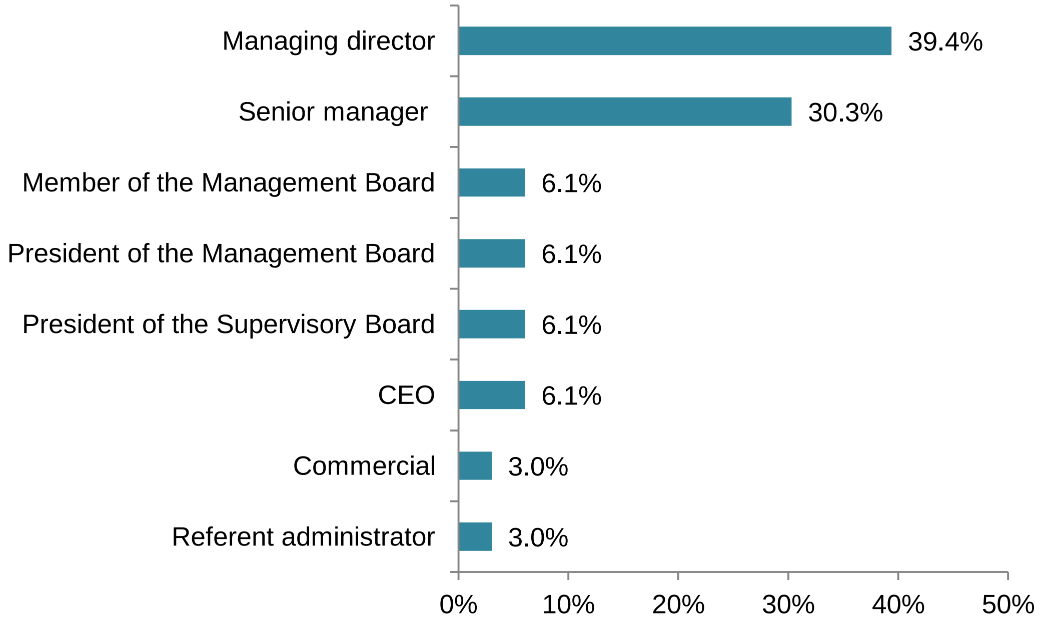
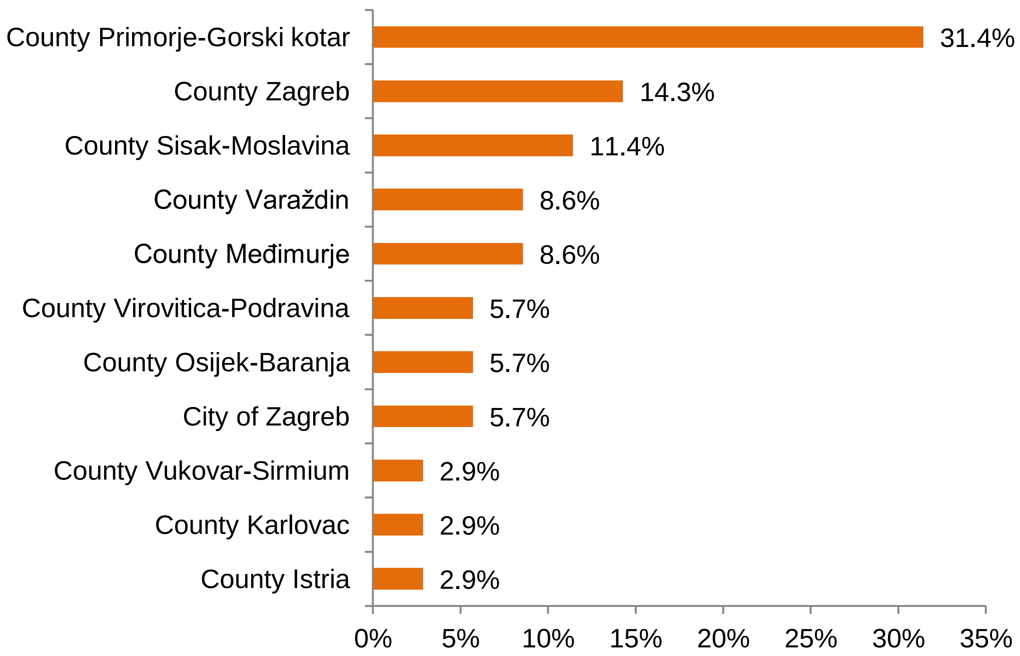
Figure 1 RESPONDENTS' PROFILE BY THE POSITION IN THE COMPANY, n=34



Source: author's calculation.

Figure 2 RESPONDENTS' PROFILE BY COUNTIES, n=34



Source: author's calculation.

Table 1 COMPANIES' PROFILE, n=34

		Frequency	Percent (%)
Age of company (years)	less than 10	6	17.6
	between 10 and 20	6	17.6
	between 20 and 30	18	52.9
	over 30	4	11.8
	Total	*34*	*100.0*
Number of employees	less than 10	4	11.8
	between 10 and 50	15	44.1
	between 50 and 250	13	38.2
	more than 250	2	5.9
	Total	*34*	*100.0*
Revenue category	less than 2 m €	11	34.4
	between 2 and 10 m €	14	43.8
	between 10 and 50 m €	7	21.9
	Total	*32*	*100.0*
Export category (share of total export in total revenues, in %)	less than 10%	4	12.5
	between 10 and 30%	2	6.3
	between 30 and 50%	7	21.9
	between 50 and 70%	3	9.4
	70% and over	16	50.0
	Total	*32*	*100.0*
Market for purchasing inputs	Local/regional markets	9	27.3
	National markets	17	51.5
	International	7	21.2
	Total	*33*	*100.0*
Market for selling products	Local/regional markets	2	5.9
	National markets	8	23.5
	International	24	70.6
	Total	*34*	*100.0*

Source: author's calculation based on survey data.

Objectives of Croatian Wood Cluster

Since the objectives of CWC are set up in its Statue, in the survey, respondents were asked to rank the most important objectives defined by the Statute and the results are given in table 2. Responses suggest that enhancing the competitiveness of members of business cluster and the industry as well is considered a fundamental objective for CWC. The second highest ranked objective was „joint access to inputs“, the third „development and commercialization of innovations“, while the forth ranked objective was „enhancing the quality of products“. The objective „Promoting the transfer of knowledge among business subjects within and outside the Business Cluster, research centres and other actors“ was the fifth ranked objective.

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Table 2 RANKING THE OBJECTIVES OF THE CLUSTER ACCORDING TO THEIR IMPORTANCE, n=34

OBJECTIVES	RANK
Enhancing the competitiveness of members of Business cluster and the industry as well.	1st
Joint access to inputs and enhancing the quality of inputs.	2nd
Development and commercialization of innovations.	3rd
Enhancing the quality of products.	4th
Promoting the transfer of knowledge among business subjects within and outside the cluster, research centres and other actors.	5th
Enhancing the quality of human resources, building their competences and continuous investments in training of human resources.	-
Investments in the development of design, promotion and development of brands within the sector.	-
Stimulate faster development of small and medium enterprises within Business cluster.	-
Joint access to sales markets.	-

Note: The respondents were asked to assess the objectives defined in the Statue of CWC, by ranking them from 1 to 5, where 1 is the most important objective, and 5 the least important objective.
Source: author's calculation based on survey data.

It can be concluded that respondents are aware of the role of CWC in the development of the sector and think that CWC should put more emphasis on enhancing the competitiveness of the cluster members and the industry.

The importance of the activities that CWC carries out

Secondly, respondents were asked to assess the importance of the activities that CWC carries out. The most important activities according to the respondents' answers were: cooperation of the industry with suppliers of inputs; networking and promotion of cluster; lobbying for the sector by the Croatian Government (M=3.94; SD=±0.98); preparation of applications for EU projects and cooperation and exchange of experience with domestic and international partner clusters (M=3.76; SD=1.21).

Table 3 THE IMPORTANCE OF THE ACTIVITIES THAT CWC CARRIES OUT, n=34

ACTIVITIES	Mean	Mode	Min	Max
Cooperation of the industry with suppliers of inputs	4.09	4 and 5	2	5
Networking and promotion of cluster (e.g. organization of conferences, participation on fair trades, updating Web page, joint advertising in media, membership in leading associations, etc.)	3.94	5	1	5
Lobbying for the sector by the Croatian Government	3.94	4	2	5
Preparation of applications for EU projects	3.76	5	1	5
Cooperation and exchange of experience with domestic and international partner clusters	3.76	3	1	5
Membership and participation in National Cluster of Competitiveness	3.75	4	1	5
Making proposals and lobbying for laws at the Croatian Govern	3.71	3 and 5	1	5
Development of the industry through developing databases, publishing of own professional journals, collection and analysis of statistical data, investigation and	3.7	4	1	5

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analysis of sectoral trends				
Training of cluster managers and its members (e.g. study visits)	3.53	4	1	5

Note: The respondents were asked to assess the importance of the activities that CWC carries out on the scale from 1 (totally unimportant activity) to 5 (extremely important activity), n=34.
Source: author's calculation based on survey data

On the other hand, according to the surveyed firms, the most important activities which CWC should coordinate are the following: providing information on export markets; promoting shared marketing and joint export activities; joint purchase of raw materials, components; promoting export from cluster; bundling of products and services from several firms and joint branding.

Table 4 THE IMPORTANCE OF THE ACTIVITIES WHICH CWC SHOULD CARRY OUT, n=34

	Mean	Mode	Min	Max
Provide information on export markets	4.27	5	1	5
Promote shared marketing and joint export activities	4.15	5	1	5
Joint branding	3.85	5	1	5
Promote export from cluster	3.84	4	1	5
Bundling of products and services from several firms	3.79	4	1	5
Joint purchase of raw materials, components	3.65	4.5	1	5
Joint selling activities	3.64	3	1	5
Management training	3.62	4	1	5
Technological survey	3.56	3	1	5
R&D: Applied R&D	3.56	3.4	1	5
Other education or training	3.42	3	1	5
Joint production	3.35	3	1	5
R&D: Basic research	3.32	3	1	5
Co-ordinating public-private investments	3.21	3	1	5
Joint warehousing	2.76	3	1	5
Joint transportation	2.73	3	1	5

Note: The respondents were asked to assess the importance of the activities that CWC carries out on the scale from 1 (totally unimportant activity) to 5 (extremely important activity), n=34.
Source: author's calculation based on survey data

Cooperation and networking

Although, in general, survey results indicate that the cooperation among the cluster members is satisfactory, there is a significant room for improvement. There is general consensus among respondents that the cluster readily accepts new members to its network of exchange partners in the cluster and that the cluster members are connected to a range of companies,

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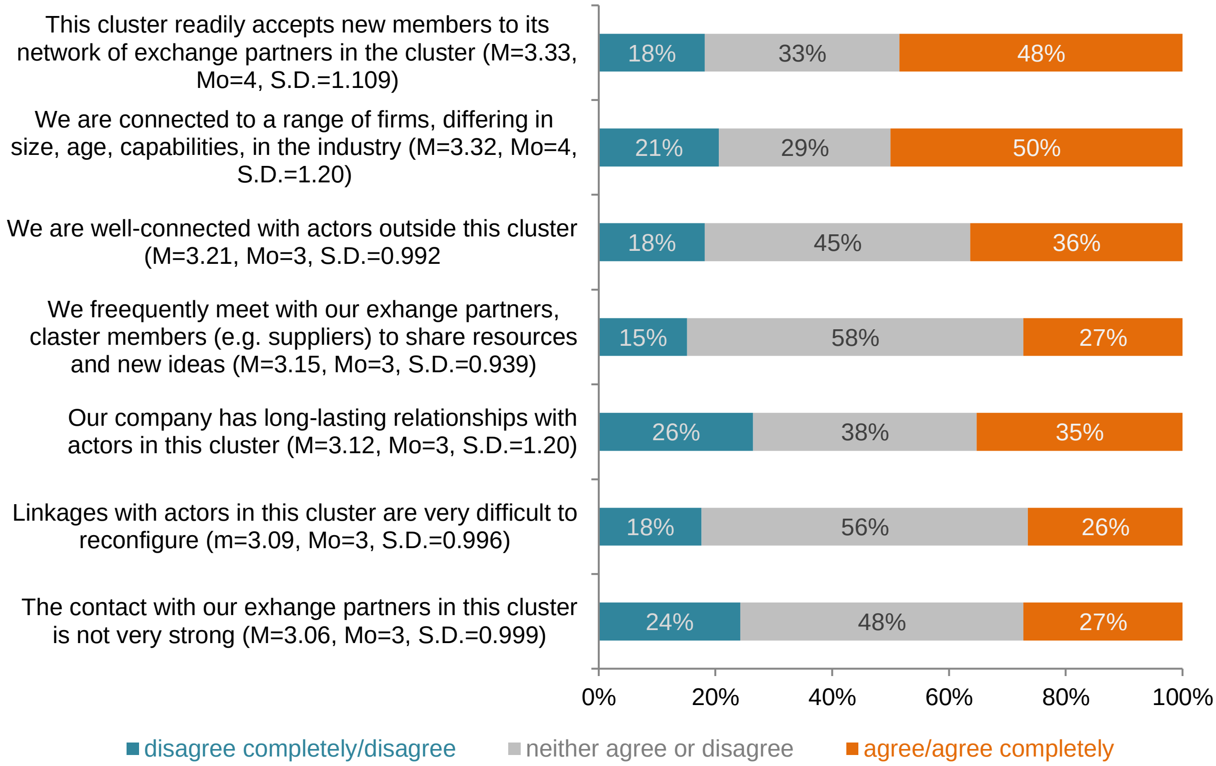
differing in size, age, capabilities, in the industry. However, the results indicate that a significant number of respondents chose to be indifferent.

Figure 3 ASSESSING COOPERATION AND COLLABORATION WITHIN THE CLUSTER



Note: The respondents were asked to assess the agreement on the scale from 1 (disagree completely) to 5 (agree completely) n=34.
Source: author’s calculation based on survey data

Regarding the strength of cooperation with companies and other players outside the cluster, the strongest cooperation is indicated with the suppliers of capital equipment and with the suppliers of components (Figure 4). On the other hand, majority of respondents indicated the weakest cooperation with public authorities, financial institutions and competitors.

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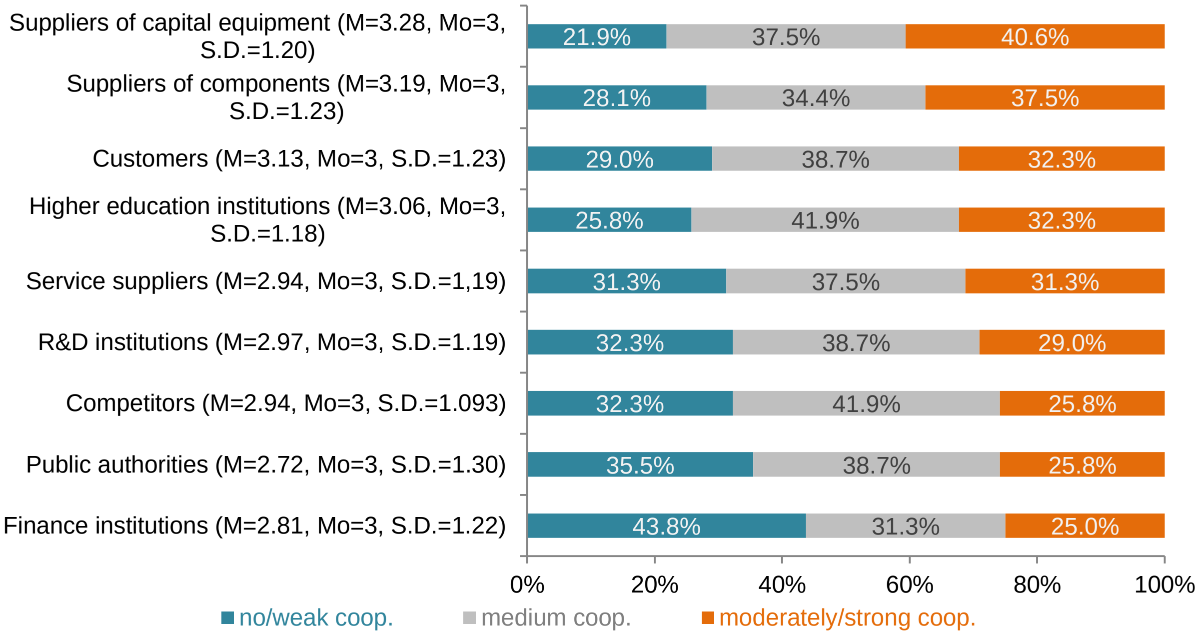
Figure 4 ASSESSING COOPERATION AND COLLABORATION WITH COMPANIES AND OTHER PLAYERS OUTSIDE THE CLUSTER



Note: The respondents were asked to assess the agreement with the on the scale from 1 (no cooperation) to 5 (strong cooperation), n=34.
Source: author’s calculation based on survey data.

Threats to the development of business clusters in Croatia

Since in reality there are barriers of many kinds that influence the work of the cluster, the respondents were asked to indicate the main barriers for the work of Croatian Wood Cluster. The most common barriers indicated by the respondents are the following: current government measures are not relevant, lack of financial resource and lack of capacity of business cluster (Table 5).

Table 5 MAIN BARRIERS FOR THE WORK OF THE CLUSTER, from 1 (factor is not a barrier) - 5 (factor is important barrier), n=34

	not a barrier	slightly barrier	somewhat of a barrier	moderate barrier	important barrier
Lack of mutual trust among actors in the cluster	6.3%	18.8%	37.5%	31.3%	6.3%
Actors in the cluster are competitors to each other and there is a conflict of interests	6.3%	28.1%	46.9%	12.5%	6.3%
Lack of financial resources	6.3%	15.6%	43.8%	21.9%	12.5%
Poor management	9.4%	43.8%	28.1%	12.5%	6.3%
Activities that are performed by cluster are not relevant	15.6%	21.9%	46.9%	12.5%	3.1%
Current government measures are not relevant	6.3%	15.6%	40.6%	21.9%	15.6%
Lack of capacity of business cluster	3.1%	18.8%	53.1%	18.8%	6.3%

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Source: author's calculation based on survey data

Recommendations for public policy-makers

The respondents were asked to rate the importance of recommendations for public policy-makers for improving the performance of business clusters. The most important recommendations are: stimulating the development of new innovative products; improvement of regulatory policies; application of advanced technologies (KET) in the sector and lobbying by the Croatian government for the development of infrastructure and related institutions (Table 6).

Table 6 RECOMMENDATIONS FOR PUBLIC POLICY-MAKERS FOR IMPROVING THE PERFORMANCE OF BUSINESS CLUSTERS, n=34

	Mean	Mode	S.D.	Min	Max
Stimulating the development of new innovative products	4.1	4&5	0.93	1	5
Improvement of regulatory policies	4.0	4	1.05	1	5
Application of advanced technologies (KET) in the sector	3.9	4&5	1.01	1	5
Lobbying by the Croatian government for the development of infrastructure and related institutions	3.9	4	0.89	1	5
Stimulation of modernization of factories through robotisation, automatization, and inclusion of innovative communication technologies (3D printers) and sophisticated electronic components in the production processes of the sector	3.8	4	0.98	1	5
Enhance and enable transfer of best practices from European clusters to overcome the lack of experience in running cluster programmes and improve efficiency in cluster governance	3.8	5	1.17	1	5
Inclusion in the international global value chains	3.8	4	0.96	1	5
Stimulating cooperation among public, private sector and academic community through both business clusters and clusters of competitiveness	3.8	4	1.05	1	5
Speed up the actions within SMART policy to support the development of new products and services through R&D (IRI)	3.7	4	1.00	1	5
Support to the development of education programs within Centres of competence that stimulate lifelong learning	3.6	3	1.04	1	5
Speed up the programme of Centres of Competence (CEKOM)	3.5	4	0.94	1	5

Note: The respondents were asked to assess the importance of the following measures, where 1 (totally unimportant measure) - 5 (extremely important measure).
Source: author's calculation based on survey data.

Relevance of government policies for cluster development

As far as the relevance of government policies for cluster development is concerned, the companies studied in this research think that the most important government policies are: financial support to individual companies' projects, providing information on different fields, support of infrastructure (both physical and know-how infrastructure), providing information on export market, support to research programs (Table 7).

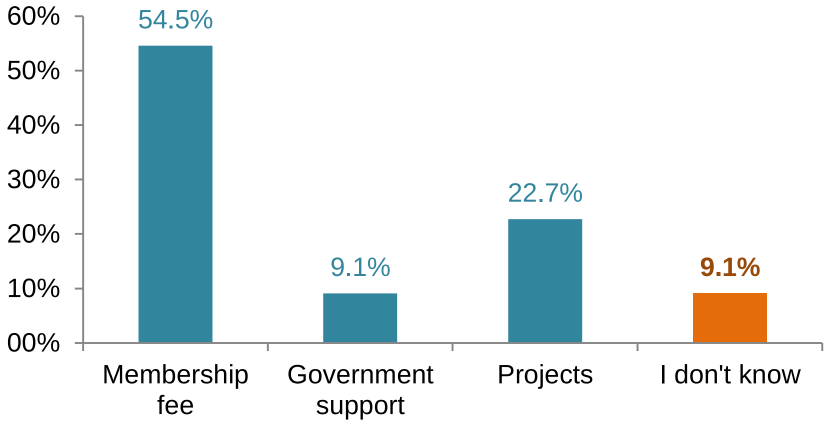
Table 7 RELEVANCE OF GOVERNMENT POLICIES FOR CLUSTER DEVELOPMENT, n=34

	Mean	Mode	S.D.	Min	Max
Financial support of firms' projects	4.25	5	0.984	1	5
Provide information on general business fields	4.06	5	1.059	1	5
Investment in knowledge infrastructure (education institutions)	4.03	5	1.015	1	5
Provide information on export market	4	5	1.146	1	5
Support to education and training programs	4	4	1.031	1	5
Support to research projects/programs	3.97	4	0.951	1	5
Advice and consulting for individual firms	3.85	4	1.093	1	5
Provide information on technological fields	3.85	4	1.149	1	5
Policies to attract outside firms to the cluster	3.64	4	0.929	1	5
Support to physical infrastructure	3.64	4	0.895	1	5
Support to networking and collaboration	3.61	4	0.933	1	5
Support to mobility schemes	3.55	4	0.833	1	5
Foster social interaction	3.48	3	0.906	1	5

Note: The respondents were asked to assess the importance of the following measures, where 1 (totally unimportant measure) - 5 (extremely important measure).
Source: author's calculation based on survey data.

According to the respondents Croatian Wood Cluster should rely less on the state budget and should find new sources of financing, which implies perhaps membership fees or EU/international funding. On the other hand, at the moment the most important source for financing CWC is membership fee, followed by projects and state support.

Figure 5 THE MOST IMPORTANT SOURCES FOR FINANCING OF CROATIAN WOOD CLUSTER, n=34



Source: author's calculation based on survey data.

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KEY FINDINGS RELEVANT FOR CWC MANAGEMENT AND PUBLIC POLICY MAKERS

Survey results suggest that “enhancing the competitiveness of members of the cluster and the industry as well” is considered a fundamental objective for CWC. The most important activities according to the respondents' answers were: cooperation of the industry with suppliers of inputs; networking and promotion of cluster; lobbying for the sector by the Croatian government; preparation of applications for EU projects and cooperation and exchange of experience with domestic and international partner clusters. According to the surveyed firms, the most important activities which CWC should coordinate are the following: provide information on export markets; promote shared marketing and joint export activities; joint branding; promote export from cluster; bundling of products and services from several firms; joint purchase of raw materials, components. The most common barriers indicated by the respondents are: current government measures, lack of financial resources and capacity of business cluster. The most important measures for improving the performance of the cluster are the following: stimulating the development of innovative products; improvement of regulatory policies; application of advanced technologies (KET) in the sector and lobbying by the Croatian government for the development of infrastructure and related institutions. The most important government policies are found in four areas: financial support to individual firms’ projects, providing information on different fields, support of infrastructure (both physical and knowledge infrastructure), providing information on export market, support to research programs. Majority of the respondents (70%) think that Croatian Wood Cluster does not have sufficient budget for implementation of important projects. Most important sources should be projects, followed by government support and membership fees. However, today the most important sources for financing the business cluster are membership fees, followed by projects and government support.

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