

INNOVATIVE INITIATIVES FOR CROSS-BORDER COOPERATION BETWEEN REPUBLIC OF MACEDONIA AND REPUBLIC OF BULGARIA IN THE FORESTRY DEPARTMENT

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Abstract: In this paper we will analyze the data acquired from the field survey of implementing innovative initiatives for cross-border cooperation of companies in the forestry department in: the north-east, east, and south-east planning region of the Republic of Macedonia and the Blagoevgrad and Kjustendil area in the Republic of Bulgaria. With the research we have observed the conditions in the department, as well as the levels of cooperation among the companies from both neighboring countries. Problems in the following segments of the companies' work have been noted: infrastructure, work force, old-fashioned technologies, low level of using information technologies, legislation, etc. From the results obtained, despite the big potential and possibilities, we have concluded that the level of cooperation among the companies from the both neighboring countries is very low.

With the field research we have detected possibilities for cooperation in: improving the infrastructure, implementing new technologies, development of competitiveness, implementing innovations, etc. The idea for establishing a virtual office has been assessed with a very positive rating, an office which would provide a detailed basis of data for all the interested subjects, as well as possibilities for communication among the subjects in order to exchange experiences and cooperation in business. This virtual office is also planned to offer an educational and consulting platform for the needs of the companies.

Keywords: cross-border cooperation, forestry, infrastructure, competitiveness, innovations, virtual office

1. INTRODUCTION

The innovation like devising and introducing a recency of working in the companies in the field of forestry can gain even greater significance in the cross-border cooperation.

Cross-border cooperation between the Republic of Macedonia and the Republic of Bulgaria enlarge the market, establishes cooperative relations with opportunities for exchange of experiences, opens possibilities for common accession on the external markets. On this problem worked (Dimitrov M. 2003), (Randall S. 2004) and (Huber P. 2003) and others.

The current situation of the forest management in the Republic of Macedonia does not satisfy the characteristics of organized and prospective forestry. One of the basic problems, according to the indication of some of the companies that were inquired, is the misgovern organization of the wood production in Public Enterprise Makedonski Sumi, as the dominant owner of the forests in the country. The small segmented quantities of wood that are given exclusively for an annual tender are a serious problem for ensuring stable and concentrated work. This way of organization does not allow contractors to introduce new technologies and techniques of work, that is modern mechanization with greater capacities and thriftiness in the work.

In the wood processing sector (sawmills) there is a problem with providing a sufficient quantity of technical wood mass with the compatible quality. In terms of secondary and final wood processing, there is a need for new technologies, marketing, as well as compatible design and quality that would enable an accession of new markets.

The problem in the whole sector is the deficit of skilled labour force, as well as the frequent migration of workers and emigration abroad.

Exceeding the situation in the sector is expected to happen by introducing the innovation in operations and enlarge of the competitiveness. The experience of companies from the Republic of Bulgaria as a member state of the European Union, as well as the use of EU funds for cross-border cooperation are only a small motivation in that direction (Joachim B. 2000). In order to determine the exact requirements of the sector, we applied the methodology of the field inquire to as many companies as possible.

Most inquired companies gladly accepted the survey and expect positive results from the project. There are a few examples of the current cooperation between companies from the both countries, so the cooperation is on a high

professional level. Most of the companies see opportunities for cooperation in the future if conditions are created. There is no case that is noted any antagonism, distrust or intolerance between businessmen from the border belt of the two neighbouring countries. From the supplied data from the survey, the possibilities for introducing innovations in many segments of the working have been identified.

Innovation in the work will be also the virtual office itself, which should provide a detailed database for all interested subjects, as well as opportunities for communication between the entities (Gerald E. 2012). Also, the virtual office is planning to offer an educational and consulting platform.

2. METHOD OF WORK

The methodology in this paper is based on a field inquire conducted in the period from 22.05.2017 until 12.07.2017. The survey is part of a project of the Macedonian Academy of Sciences and Arts and the Bulgarian Academy of Sciences. The survey was mostly carried out by direct poll of representatives of companies or electronically by electronic fill-in of the questionnaires by the respondents. The survey was of a mixed type with open and closed questions. Some of the closed questions were answered with affirmation or negation, while some of the questions asked for a solution in the form of solutions. At the beginning of the survey, demographic questions are asked. Most of the issues that deal with the researched issues are direct. In the end, the respondents, independent of the survey, left personal data for registering in the virtual office.

These surveys define the areas that are subject to border cooperation, so the Republic of Macedonia covers the northeast, east and south-eastern planning region, while the Blagoevgrad and Kyustendil areas are covered by the Republic of Bulgaria.

The companies covered with this survey are targeted in cooperation with Public Enterprise Macedonian Forests and 12 subsidiaries (forest holdings) that manage the state forests in the border regions. 52 companies have been targeted for performing expert forestry works (felling, delivery, transport). Companies that perform primary wood processing (sawmills) have 48 large companies that manufacture furniture and 20 for interior and a larger number of small legal entities in this area.

From the targeted companies, 89 companies were surveyed, in total. There were with different size in terms of: number of employees, economic power, as well as various activities.

By processing the survey data, a database was created for the surveyed companies, as well as a large database that relates to the situation and needs of the companies in order to achieve the set goals of the survey.

3. RESULTS

The sector of forestry and wood processing is determined as a potential in which a lot can be achieved with regard to cross-border cooperation by introducing innovations in the following areas: logistics in the existing market, finding new markets, training and training for the employees, introduction of new technologies at work, increasing competitiveness and order.

The potential of the forestry sector is large and significant for the region and for the European Union, especially if it is known that the production of wood is a sustainable source of energy and is categorized in the so-called green energies. Hence, it is very important to know the potential of forests and production that we have in the region.

The most significant data on forests and forest infrastructure in the border region of the Macedonian side are shown in Table 1.

| Forest parameters | | East region | North-East region | South-east region | Suma border region | Republic Macedonia |
|--------------------------------------|----------|-------------|-------------------|-------------------|--------------------|--------------------|
| Forest area (ha) | | 122.665 | 55.697 | 142.016 | 320.378 | 871.081 |
| Growing stock (m ³) | | 16.085.309 | 6.044.097 | 10.822.880 | 32.952.286 | 87.779.890 |
| Annual yield (m ³) | | 305.534 | 128.299 | 240.976 | 674.809 | 1.723.362 |
| Allowed annual cut (m ³) | | 196.764 | 65.269 | 167.343 | 429.376 | 1.194.879 |
| Actual annual | firewood | 115.125 | 72.141 | 97.735 | 285.001 | 658.803 |
| | logs | 23.430 | 1.737 | 22.200 | 47.367 | 90.963 |

| | | | | | | |
|------------------------------|------------|---------|--------|---------|---------|---------|
| cut (m ³) | total 2015 | 138.555 | 73.878 | 119.935 | 332.368 | 749.766 |
| Ene. values of firewood (TJ) | | 1056 | 662 | 897 | 2615 | 6045 |
| Forest road (m/ha) | | 12,62 | 13,87 | 13,50 | 13,21 | 12,70 |

Table 1. Basic parameters for forests in the border region of R. Macedonia towards R. Bulgaria

The total area under the forest in the surveyed region is 320,378 ha, with a total wood reserve of 32,952 286 m³ or 103 m³ / ha. Annually, 332.368 m³ are cut, of which technical wood 47 360 m³ and firewood 285.001 m³, according to the research from (Z. Trajanov 2014). The trimmed firewood has a total calorific value of 2,615 TJ. The forests in this region are open with forest roads of 13.21 m / ha, which represents insufficient openness of the forest, as the average optimal roads density for these forests is 22.01 m/ha. Problem is also the poor road structure because roads with an earthen roadway are dominated. That means that operating in winter conditions and during precipitation, is very difficult according to (Z. Trajanov 2015).

The situation of public transport in the region is not satisfactory. Also there is no railway to the Republic of Bulgaria. The surveyed companies see the possibility of improving the overall infrastructure in: maintenance of existing roads 39%, extension of existing roads 36%, contract for new roads 19%, improvement of access to rail 6% and improvement of access to nearby airports 1% of respondents.

The main emphasis on these researches is the introduction of innovations. In order to determine the need for introducing innovative initiatives and to improve the competitiveness of companies in the operation, a large field survey was conducted.

The surveyed firms have their countryseat in different cities in the border region towards the Republic of Bulgaria. The persons surveyed are mostly managers of companies, which are mans 82%, with faculty degree or high school education. Firms are mostly privately owned, with the exception of Public Enterprise Macedonian Forests.

Regarding the cooperation of the surveyed companies from the Republic of Macedonia with companies from the Republic of Bulgaria it can be concluded that it is very small and does not cooperate with the possibilities and potential of the region. Only 10% of Macedonian firms have clients from the Republic of Bulgaria while only 15% of the surveyed firms have suppliers. At the same time, suppliers from the Republic of Bulgaria are engaged in various activities in the forestry sector.

Of the surveyed companies 48% introduced technologically new or improved products in the work from 2014 to 2016. Of them 43%, made the novelties with their own resources. In the last three years only 36% of companies have introduced new or improved products. The others did not follow this trend or did not answer the question.

Organizational changes or new management techniques in companies are introduced in the following positions: management techniques positively answered 25% of the polled companies, exchange of electronic data 26%, planing of a system “right on time” or similar 26%, using electronic mail 54%, internet use 64% responded positively, personnel investment 37%, systems for quality of management and/or standards 15% and introduction of trademark of your company 19%. The remaining percentage of answers are negative or an answer is not provided at all on the made question.

The company's priorities in introducing technological innovations are different. The responses of the validity for a particular activity are given in Chart 1.

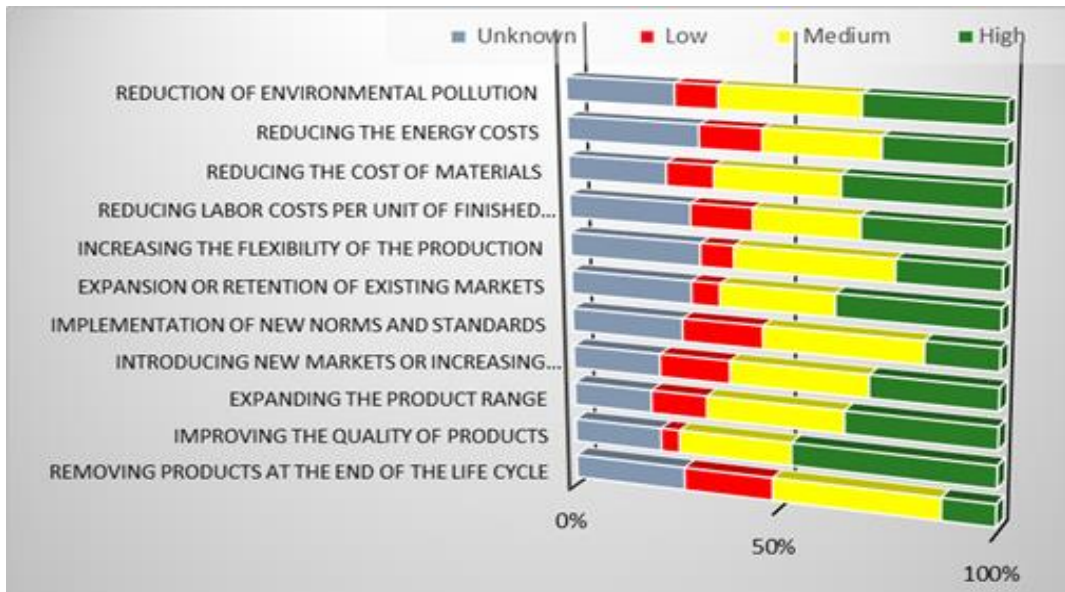


Chart 1. Priorities for the introduction of technological innovations

In all the questions that were asked, the dominant response is medium and high priority, while a much lower percentage of responses refer to a low priority when introducing technological innovations.

In the question: does your company invest in innovative activities, the answers given in Chart 2, have been received in the period 2014-2016.

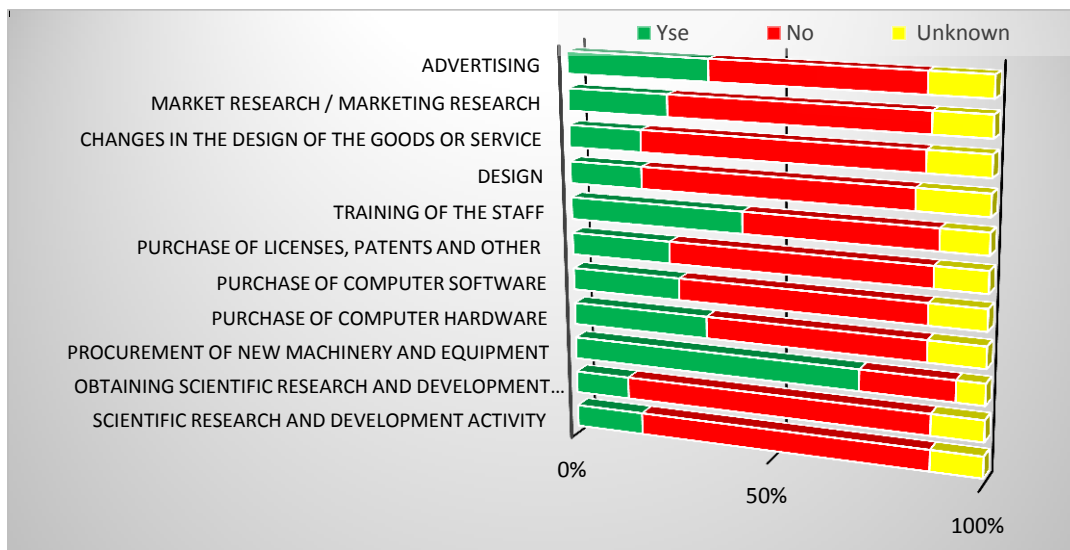


Chart 2. Investments in innovative activities

From the results it is concluded that the most was invested in the procurement of machines 71%, trainings for the employees 43%, advertising 35% and others. There is large percentage of firms that do not invest in the mentioned innovative activities.

In the three-year period from 2014 to 2016, the obstacles in the realization of the innovative activities in the companies are located in several factors. The results are given in Chart 3.

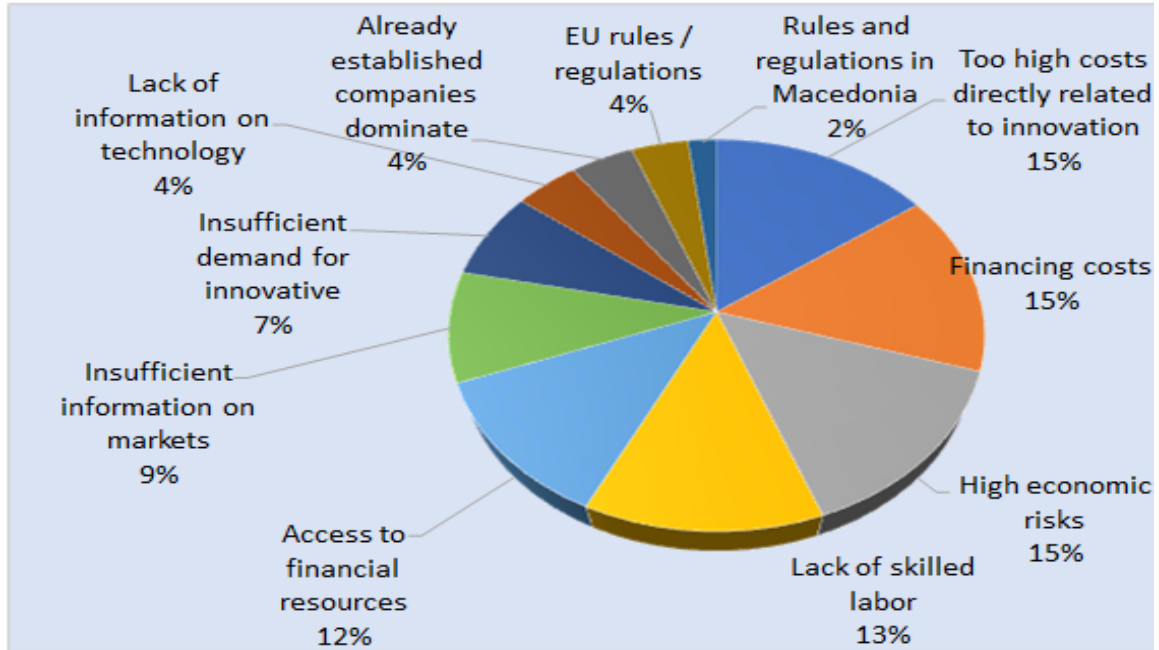
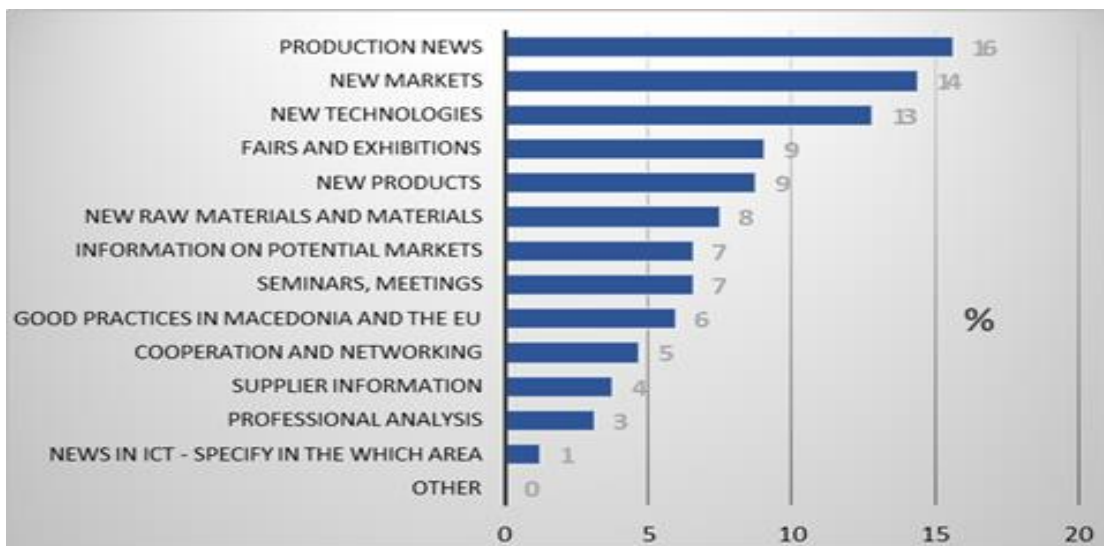


Chart 3. Obstacles in the realization of the innovative activities in the companies

The most important reasons for achieving innovation are: too high cost directly related to innovation 15%, financing costs 15%, high economic risks 15%, lock of skilled labor 13% and other. From the results it can be seen that there is no big percentage difference in terms of the offered answers that speaks of a wide range of obstacles in the work.

The idea of introducing innovations into practice should significantly revive the creation of a virtual office for cross-border cooperation of companies in the forestry sector. Access to the office would be available to all interested companies and other subjects (faculties, vocational schools, equipment manufacturers, etc.) that would find their interest.

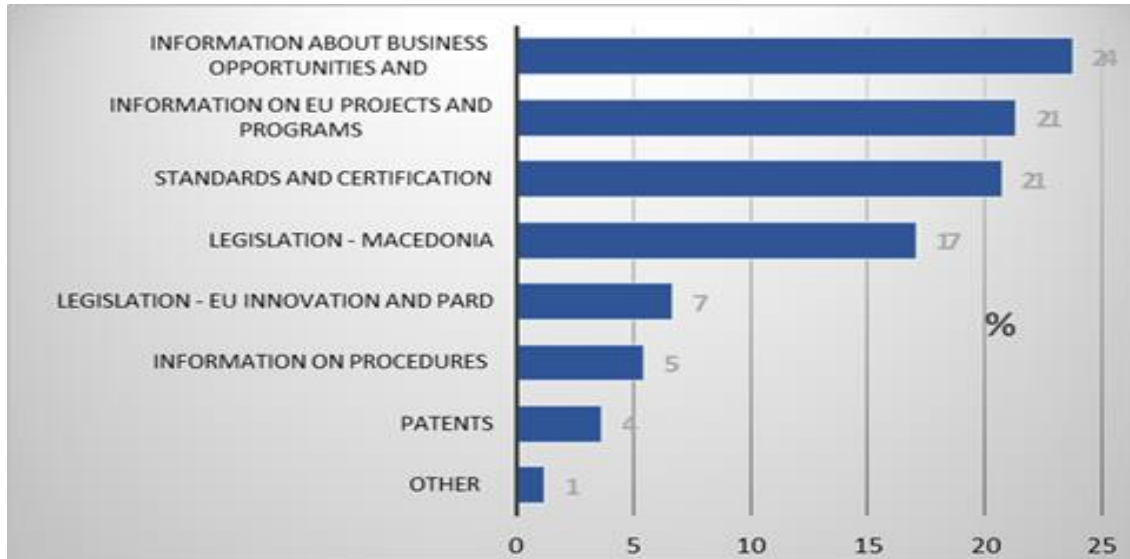
The Office is designed to function on the base of an educational and consulting platform. The companies from the virtual educational platform require a wide range of activities, the results are given in Graph 4.



Graph 4. Information required for a virtual educational office

Most desired contents in the educational platform is: production innovation 16%, new markets 14%, new technologies 13% and other.

The results for the desired content of the virtual consulting platform are given in Chart 5.



Graph 5. Information required for a virtual consulting office

If there existed a virtual consulting office, the inquired companies would request the following information from it: information for the possibilities for business and foreign markets 24%, information for EU projects and programs 21%, standards and certification 21%, legislature and other.

All projected activities should contribute to increasing the competitiveness of companies.

Especially if we know the fact that the companies assess their own competitiveness as not strong – not weak 42%. The current level of competitiveness according to the surveyed is due to: cheap labor force 19%, qualitative production 14%, popularity of the company 13%, cheap transport 11%, unique production processes 9%, well trained experts 9%, cheap natural resources 7%, well developed transport network 7%, popularity 7% and other 3%.

In the future, the companies are favoring the following proposals that would lead to increasing of the competitiveness of companies from the forest sector in a regional plan. Chart 6.

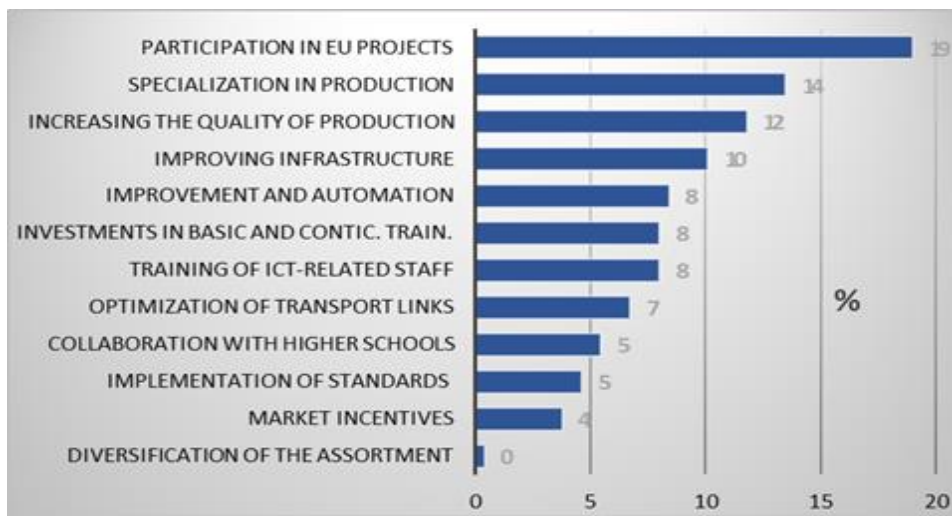


Chart 6. Proposals for increasing the competitiveness of companies from the forest sector in the cross-border region

The obtained results show that the companies would improve their competitiveness with the following activities: membership in EU projects and programs 17%, specialized in production 14%, increasing the quality of production 12%, improvement of the infrastructure 10%, training of the IT personnel 9%, investments in basic and continued training 9% and other projects that could be additional content to the virtual office.

4. DISCUSSION AND CONCLUSION

The companies in the border region of the Republic of Macedonia have a great interest in cooperation with the Republic of Bulgaria because of the opportunities offered by the region and the forestry sector, opportunities for sharing experiences and positive practices, possibilities for common appearance on the domestic and foreign markets, etc.

The survey created a huge database of the situation and needs of the companies in the direction of: improving the infrastructure, introducing innovations in the operation, the need to create a virtual office with a platform for consultations and a platform for education, data for increasing competitiveness and other.

Considering that the survey includes companies from the forestry sector with: different activity, different size, structure and organizational setup, it is normal for companies to have different needs from innovations and innovation activities, which would become modern and progressive companies.

Firms positively see the need for introducing a virtual office that will have a consulting and educational platform. From these platforms, a wide range of offers is required, because the companies have different needs and priorities for their more successful work

All activities are in function of increasing the competitiveness, hence in the future, different activities must be worked in order to improve the situation with the competitiveness in the forestry and wood industry sector.

This type of research is done by the Bulgarian Academy of science, in the future the results can be compared and common conclusions will be established.

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