



## CONNECTION AND COMMUNICATION IN THE CLUSTER OF BUILDINGS AND MECHANIZATIONS MAINTENANCE FOR THE REGIONAL COOPERATION

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**Abstract:** The paper discusses the possibility of information and communication links between activities related to maintenance in the construction sector in the Western Balkans. However, the precondition for this connection is the organization of clusters at the national level so that as many companies as possible are involved in regional cooperation. The development of information technologies enables local and regional connections. The common goal is to inform each other for the purpose of business development and competitiveness. In the regional sense, the areas of interest are parts of the Bosnia and Herzegovina, the Republic of Croatia and Republic of Serbia. In practical terms, an information and communication model of regional cooperation with clear objectives is proposed.

**Keywords:** information, cluster, maintenance, construction

### INTRODUCTION

In the global economic world, there is a tendency for information to connect different actors for the purpose of sustainable development and competitiveness. In this sense, groups already established in most European countries are known as clusters. On this occasion, the starting point of research is maintenance activities that have their place in all economic systems. In essence, these are economic activities, mainly technical occupations that deal with ensuring the functioning of various technical systems. This primarily refers to the maintenance of machinery and equipment, electrical appliances, installations and complex systems, agricultural machinery and machinery, buildings and machinery, and information hardware and software and other technical systems. In the teaching text, special attention will be paid to the maintenance of buildings. The reason for this starts from similarity of business problem and technical characteristics provide the conditions in construction, and thus in maintenance.

With the development of technique and technology, there is a need to improve maintenance activities. Such tendencies favor certain legal solutions in all European economies that enable groups of similar goals and problems, ie clusters. For now, there is no evidence of the existence of clusters from the maintenance business, so this is becoming an increasingly interesting area of research. Special emphasis should be placed on the fact that these activities are not competitive in a regional, non-national sense with regard to the market in different systems. In this case, it refers to the markets of Slavonia and Baranja – within the Republic of Croatia, the market

of Vojvodina within the RS and the northern part of Bosnia and Herzegovina. Namely, the companies that deal with maintenance are of a local character, so they are not in direct competitive relations, so there are no obstacles to cooperation in mutual information and development.

Research shows that the formation of clusters, especially in the Republic of Croatia and the RS, has reached a solid organizational and legal regulation, so there is a basic prerequisite for the formation of regional clusters in this case from technical maintenance. Of course, the goal should be in the organizational sense something absolutely of common interest, and that is certainly mutual information and development of activities. Therefore, this paper deals with maintenance activities and their specifics, information system and common information point where all economic entities are able to communicate and inform each other, and there are technical possibilities for this. Defining the organization and functioning of information and communication activities sets the technical and organizational solution for regional cooperation in the field of maintenance.

In the next part of this paper, special attention will be paid to the basic elements of maintenance of buildings and machinery, clusters as institutional aspects of regional cooperation and information system for joint relationships with clients and other business partners and all companies in maintenance. It is the common information system that can contribute to the intensification of research and application of new achievements in the development of techniques and technologies, as well as applications in the field of maintenance.

Different scientific methods have been used in the research and definition, and as a result, an information system is proposed that uses various development achievements in the field of information and communication sciences.

#### **SPECIAL MAINTENANCE FEATURES OF BUILDINGS**

The maintenance of buildings is regulated in all countries of the region by certain similar legal regulations, and in the Republic of Croatia, according to the Ordinance on maintenance, the maintenance of buildings includes:

- Regular inspections of the building or its parts, at intervals and in manner determined by project of building and a written statement of contractor on work performed and conditions of the building maintenance, this Ordinance and /or special regulations adopted in accordance with the Construction Act, devices and installations and other and with a service plan within the deadlines prescribed in the guarantees of the manufacturer of installed products,
- Extraordinary inspections of building or its parts after an extraordinary event or after an inspection,
- Performance of works by which the building or its part is retained or returned to the technical and / or functional condition determined by the project of the building or regulations and acts for construction in accordance with which the building was built,
- Keeping and keeping documentation on maintenance of the building: in the continuity of ordinal numbers listed and compiled on the day of creation records with attachments on regular and extraordinary inspections and work performed in order to preserve the designed basic requirements for construction, functionality and safety of the building in use [1].

Assuming that this matter is regulated by appropriate regulations in Serbia and Bosnia and Herzegovina, similar problems arise in the maintenance of buildings as well as types of work. In addition, the maintenance of buildings is usually organized either independently or with the help of a company that is at a shorter geographical distance. In addition, such companies in the region are not burdened with mutual competition, so this creates opportunities for communication and information in order to develop and increase quality. In this sense, it is necessary to set up an organization of information and communication system through which to communicate. This communication would have two basic common goals. This primarily refers to mutual communication for the presentation of new maintenance methods, the use of new technologies in terms of means of work, equipment and materials. Another extremely valuable activity is public relations in order to inform users in the region about all innovation achievements in the region. In the era of high level of informatization, a common way of informing and

communicating should be devised, i.e. the organization of the information and communication system of the cluster should be set up.

#### **CLUSTERS–RESEARCHED EXPERIENCES**

A cluster is a form of strategic alliance or group of related companies or associations of producers from one branch, including producers of raw materials, as well as governmental and NGO and scientific and educational institutions that solve common problems and improve business above-average competitiveness and promotion at home and abroad [2]. Analysing the above definition, it can be concluded that the following reasons for the formation of the cluster are:

- affinity of the company in terms of type of activity.
- solving common problems.
- improving business through innovation.
- increasing competitiveness.
- promotion through information and communication relations, especially in relations with the rest of the public.

Analysing the stated reasons for formation of cluster, goals of participants in cluster can be identified, such as increasing competitiveness and better use of own resources. Support for companies by scientific and educational institutions and links with development finance funds should also be added. Given this cluster formation is a strategic move oriented to the global market. In order to consider a topic, it is necessary to explore certain experiences related to clusters in the region to which this applies. In this sense, there are already some regional experiences. According to information from a specialized conference held on the island of Brač clusters are tools through which small and medium-sized companies become more competitive in foreign markets [3]. At the conference, participants from the region (Croatia, Serbia and Bosnia and Herzegovina) presented a number of interesting analyses, criticisms and proposals, highlighting the following:

- Tomislav Radoš, Vice President of the Croatian Chamber of Commerce for Industry and Information Technology, believes that the main problem in Croatian clusters is poor communication and noted that the establishment of 13 clusters has just been launched in order to increase competitiveness.
- Danka Milojković, director of the Cluster House from Niš, pointed out that the sustainability of the cluster depends on; sustainability of members, managerial management and public sector support, but also on national economic strategy.
- Marko Šantić, President of the Chamber of Commerce of Bosnia and Herzegovina, says that there are no clear state strategic documents there in order to organize and support clusters.

■ Jacques Viseur Communication Manager from the Laboreuropean Cluster Collaboration Platform stressed the importance of clusters in national economies but also the need for international communication and cooperation for development and competitiveness.

In other countries of the wider region there is some experience in organizing clusters, such as in Slovenia it is the approach of "dynamic concentric circles" or grouping smaller companies around large companies. Similar gatherings are taking place in Hungary around the world's multinational companies. Slovakia's goal is to explore the possibilities of local connections of related smaller companies. In Poland, a special goal and interest is to connect with world high-tech centres for the purpose of developing products and services [4].

From the previous information it is evident that there is a desire and need for cluster organization and their international connection, especially when there is a high degree of similarity in product type, organization and the need for mutual information for development and competitiveness. Therefore, on this occasion, the activity of maintenance of buildings was chosen, especially for group housing and other infrastructural activities. Such buildings in the region have similar maintenance problems and can exchange knowledge and experience through information and communication links in order to increase the quality of activities. The common interest of construction maintenance activities is certainly mutual information and communication. This means that an information and communication system should be set up, and a common approach to the relations between clusters and their partners should be built on that.

#### **INFORMATION AND COMMUNICATION SYSTEM OF CLUSTERS FOR MAINTENANCE OF BUILDINGS**

Maintenance of buildings in particular is an activity that has a tendency to long-term cooperation with customers or clients. This stems from the need for the maintainer of the facility to be well acquainted with all its characteristics, because only in this way can an efficient service be provided. In order for each maintainer to be able to communicate effectively and permanently with clients, he must establish a minimum information system or organize an information process with his business environment. In modern conditions, Figure 1 shows one possibility of a communication system that is suitable for the maintenance of buildings. A developed web or portal is the main starting point from which the user starts when connecting to the Internet, so opening a web portal is the minimum that every entrepreneur should do [5]. Once the market segment or group of clients with whom it will cooperate in the long term is determined, we move on to personalizing the website. This means that information important to each other will be delivered to each important client. Once the clients for long-term

cooperation have been defined, a blog is opened that enables constant asynchronous information with relevant information. Modern dynamic blogs are interactive that allow visitors to leave their comments [6]

The information process can be extended through an application known as a forum. Forums perform a function similar to that in bulletin board systems, which were first created in the late 1970s. Early web forums date back to 1994; so many alternatives have been created. A sense of virtual community often develops around forums that have regular users with a large number of topics. [7] This enables the exchange of written information between each entrepreneur and his clients as well as the general public. This is followed by a video conference that connects individuals and groups through telecommunications networks and video technology so that people have the impression of attending meetings simultaneously in the form of a live video link on a computer monitor. [8] Defining video conferencing enables discussion with several participants, and with the help of social networks, the information and communication process is professionally developed in accordance with the needs of clients. As the highest level of communication and management with clients, a set of methods and business processes called CRM (Customer Relationship Management). [9] In technical terms, this is done through the organization of a single contact centre that has the following functions: [9]

- Providing marketing information and answering inquiries.
- Receiving requests for services.
- Receiving problem reports, complaints and customer complaints.
- Providing insight into the status of customer orders.

In order to better connect with their clients and the rest of the public, every entrepreneur-maintainer can open one of the social networks. In that sense, Facebook, as the most downloaded mobile application of the decade, from 2010 to 2019, enables better connection of immediate participants in maintenance. [10] In addition, opening Instagram can help promote commercial products and services. It can be distinguished from other social media platforms by its focus on visual communication. Instagram marketing is an effective way to advertise a product, given that an image is said to speak a thousand words. The platform can also help commercial entities save on branding costs, as it can be used for free even for commercial purposes. [11] There is also specialized software for this kind of professional communication – e.g. Trello (Figure 1).

Given that there are information and technical possibilities for connecting contact centres in the region, regional information and communication cooperation can be achieved. Figure 2 shows three contact centres that can

connect three companies or three or more national clusters. A higher level of integration is the harmonization of national regulations and the formation of an interregional cluster (Figure 2).

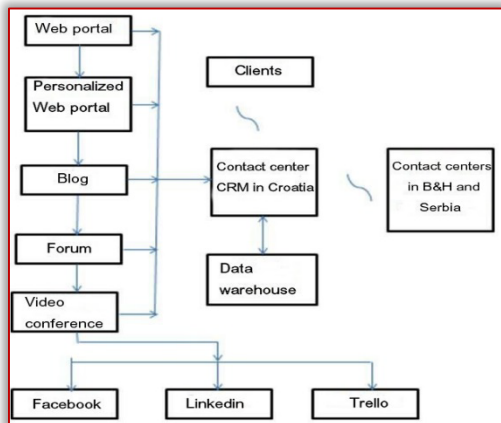


Figure 1. Cluster—public relations

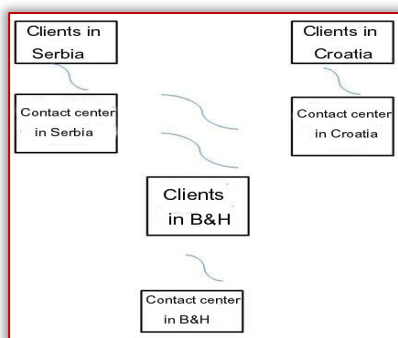


Figure 2. Contact centre

There are no obstacles to regional cooperation, given that companies in the field of maintenance of construction facilities are of a local character and are not in direct competition. The main reasons for such regional cooperation are the following:

- Mutual information on all innovations in terms of new tools, materials and working methods of common interest.
- Increasing labor productivity and quality levels.
- Harmonization of national regulations with international regulations in the field of maintenance.
- Analysis and harmonization of working conditions of related companies in the region.
- Mutual exchange of other relevant information related to the wishes and problems of clients in the region.

### CONCLUSIONS

Previous considerations show that there is a need but also technical possibilities for connecting economic entities in the region. In order to increase the representation, it is proposed to first form a cluster for the maintenance of buildings, because these are companies that are local type and are not in conflict with strong competition. After such grouping, the next phase is to connect clusters in the region (Croatia, RS and BiH) and their common interest is to inform and develop activities. Given the possibilities of

the mentioned CRM, there are no obstacles to regional cooperation. Thus, all companies retain legal personality as well as clusters in individual countries, but the possibility of cooperation opens up where topics of common interest are discussed. In this way, interregional cooperation is achieved, which can make a certain economic contribution and a small political and regional incentive for cooperation.

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