

# The Construction Cluster - A Factor for Sustainable Development of the Construction Market and the Company

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**Abstract:** *In today's dynamic conditions, it is especially important to achieve synchrony and coordination of actions and interests between business, people (consumers) and society, which is a factor for sustainability. The problem of sustainable development and sustainable construction impose the need for strategic and flexible cooperation between the private and public sectors and creating a new model in which the government as an economic entity has an active role and creates conditions for cooperation between different companies, educational and research institutes or in short the creation of a cluster. The aim of the study is to analyze: 1) the role of the construction cluster for sustainable development of the construction market and the company, building competitive advantages and performance in the three dimensions, 2) the role of public institutions participating in the cluster for sustainable development on the construction market and the construction company, by developing a conceptual model to be empirically tested among managers of construction clusters and firms.*

**Keywords:** Competitive Advantages, Construction Cluster, Construction Company, Construction Market, Performance (Environmental, Social and Economic), Sustainable Development

## 1. Introduction

Sustainable development is defined as a way of using natural resources in which current human needs are met without affecting and disturbing the natural balance of the environment and impairing the ability of future generations to meet their needs [1].

It is impossible to talk about sustainable development and to make a decision to protect the environment, reduce its pollution without taking into account the economic and social consequences, and vice versa - every economic decision must take into account both the social consequences and the effect on the environment. Therefore, sustainability integrates three dimensions - environmental, social and economic and affects the interests of society, business and the environment at the same time.

Sustainable development also imposes the concept of a circular economy as an alternative economic model, calling into question the traditional linear economy (the "take, produce and discard" model). The aim of the circular model is to have a low impact on the environment, reduce the amount of waste and increase the efficiency of the resources used, by converting the products after their use into resources for other productions, through recycling and reuse. In other words, the circular economy is striving for recovery [2].

The construction market is usually identified as a sector that faces specific challenges and requires special attention in implementing the idea of sustainable development. The main reasons for this assessment are a result of the specifics of construction as an economic activity, the specifics of the construction product and the construction process, the

organization and management of the construction company, as well as the economic, social and ecological effect:

- 1) In terms of environmental impact, the for sustainable development most directly affect construction, because it is an activity with high resource intensity and related to the use of the most scarce resource - land [3].
- 2) In terms of economic impact, construction is a structural sector in any economy that affects overall economic development, both directly (through the high relative share of GDP, value added and the large number of construction companies that provide employment), and indirectly along the lines of intersectoral connections (high costs for the purchase of raw materials, electricity and other components used in the entire process of design, construction, maintenance and operation).
- 3) The construction market is also important in terms of the social effect on consumers. This effect is determined and depends on the ability of the final construction product (buildings, facilities, infrastructure) with its characteristics to provide the desired quality of life, comfort in all its aspects - visual, thermal, acoustic, healthy microclimate of the premises inhabited by people, freedom and convenience of movement that society wants.
- 4) The most worrying reason why construction is defined as the main industry creating problems for sustainable development is the bad reputation in terms of propensity and development of innovation, ie the lack of change (relative share of expenditure, which companies and the construction industry as a whole do for research and development in EU countries averages around 0.25%, which is quite low compared to other industries).

The first international conference on sustainable construction was held in 1994. In 1998 the International Council for Construction (now the International Council for

Research and Innovation in Building and Construction - CIB) defines Sustainable Construction as the need to create and maintain a healthy building environment based on the principles of efficient use of resources and ecology [4], and is later seen as a holistic process that aims to restore and maintain harmony between the natural and the built environment, and to create settlements that promote human dignity and economic justice [5].

Sustainable construction develops on the following seven principles:

- 1) Reduction of construction resources.
- 2) Resource reuse.
- 3) Use of recycled materials.
- 4) Protection of the natural environment.
- 5) Exclude the use of toxic materials.
- 6) Guaranteed low costs for maintenance of construction sites.
- 7) Emphasis on quality.

These principles are relevant to all stages of the life cycle of a building - design, construction, maintenance (operation, reconstruction), removal (demolition), recycling and reuse. They are applicable to the resources needed for construction - land, raw materials, water, energy and ecosystem, and are also leading in the management of construction processes.

However, the projects and the realized sites, which meet these standards are rare and there is still no widespread application of the principles of sustainability in the construction market. There are barriers that prevent sustainable construction from becoming a dominant trend in the industry. The reasons are related to not very strong interest from investors, lack of training and knowledge about sustainable development and sustainable construction, the inherent conservatism in the education of architects and civil engineers, inadequate funding for research in this area. In addition, there is a lack of a well-defined set of sustainable construction practices that can be used in projects. Information on procedures related to the inclusion of environmental, economic, social aspects in construction is limited and formally structured.

The absence of an adopted uniform standard, developed adequate legal norms, guidelines and instructions for work on design, construction and maintenance of sustainable construction sites does not allow effective cooperation of all participants in the vertical chain of construction activities and leads to demotivation of investor, owner, user, designer, builder, manager.

Sustainable construction requires a holistic approach (from the stage of design, construction, operation and demolition of a building, recycling and reuse) and significant changes in the overall organization of construction, both at market and company level, with the active role of public institutions. Solving the problem is primarily related to the development of internal resources, innovation, introduction of new technologies, access to capital, skilled labor, long-term relationships with suppliers, distributors, staff motivation, but also efficient use of external resources [6]. The new dynamic conditions require the development of a new model in which public institutions play an active role and create

conditions for cooperation between different companies, educational and research institutes. The logical result is - a combination of efforts, potential, resources of the private and public sector for joint work and recognition of the priority scientific and research activities or in short, the creation of a cluster.

The aim of the study is to analyze: 1) the role of the construction cluster for sustainable development of the construction market and the company, building competitive advantages and performance in the three dimensions, 2) the role of public institutions participating in the cluster for sustainable development on the construction market and the construction company, by developing a conceptual model to be empirically tested among managers of construction clusters and firms.

## 2. Theoretical framework for research of the construction cluster as a factor for sustainable development of the construction market and company

The concept of sustainable development presents each company with new challenges and new social, ethical, economic and environmental problems, but at the same time it is the new driving force. It is a long-term process that requires organizational and managerial changes, the development of strategies and policies aimed at creating, offering and realizing additional economic, social and environmental value for the client, stakeholders and society as a whole, and building competitive advantages. Building a cluster facilitates this process because it creates a link between external and internal resources of the company with the organization and management, synchronization and coordination of actions and interests between business, people (consumers) and society, which is a factor for sustainable development.

The cluster is a geographically concentrated voluntary association that includes interconnected companies, specialized suppliers of components, equipment and services, as well as specialized infrastructure, intermediaries, government and other institutions (universities, think tanks, agencies, trade associations), which provide specialized training, education, information, research, technical support and whose activity is based on competition and cooperation [7].

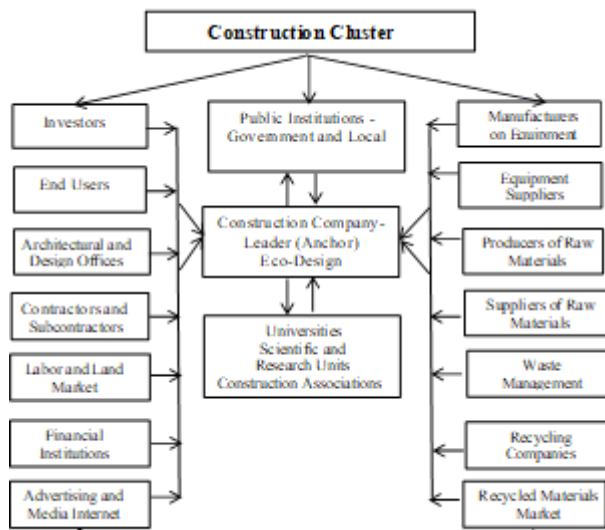
The geographical scope of the cluster varies from one region, country, or even one city, and may cover neighboring cities, regions, countries, as borders are constantly evolving (new companies and markets are emerging, and others are shrinking or dying out).

The main factor ensuring the effective functioning of the cluster is the presence of a core, leading company (often called an anchor), well-developed infrastructure, access to markets, raw materials, social services and financial resources.

The construction cluster as a factor for sustainable construction must include interconnected companies

entities involved in the vertical value chain - construction company with strong positions - leader, investors, end users, architectural and design offices, contractors and subcontractors (with access to the experience of the large, leading company, to "good practices"), manufacturers and suppliers of equipment and raw materials, waste management, recycling companies and creating a market for recycled materials, government and local public institutions, universities, research units, construction organizations, each with well-defined rights and obligations.

An important starting point in the activity of the cluster is the eco-design of production processes and products so that they can be used longer, repaired, modernized, recycled, instead of being discarded[8]. In this way, the desired circular process can be carried out, which includes all stages of the product life cycle: raw materials, resources → product design → production → consumption → reuse → waste management → recycling → creation of new raw materials and resources for others production (figure 1).



**Figure 1.** Structure and organization of the construction cluster - a factor for sustainable development of the construction market and company, building competitive advantages and performance in the three dimensions

The creation of the construction cluster enables entrepreneurs to take advantage of potentially new product and territorial markets, to provide the necessary skills base on the labor market, and consumers to make rational choices through better information on the environmentally friendly characteristics of different products, which defines:

*H1: The building of the construction cluster has a positive impact on the sustainable development of the construction market and the construction company, building competitive advantages and performance in the three dimensions.*

In the conditions of a dynamic external environment in the cluster conditions are created for building new connections between interconnected companies and markets, multidisciplinary teams, improving the level of communication between the participating companies, developing partnerships, whether formally through agreements or informal relations. In practice, this means creating integrated vertical management chain, which covers

the whole circular process and all involved build connections - up and down. The cluster facilitates the process of integration and cooperation between all actors in the vertical chain (customers, companies, suppliers, etc.) and the creation of "open innovations".

*H1a: The creation of an integrated vertical management chain in the cluster has a positive impact on the sustainable development of the construction market and the construction company (building competitive advantages and performance in the three dimensions).*

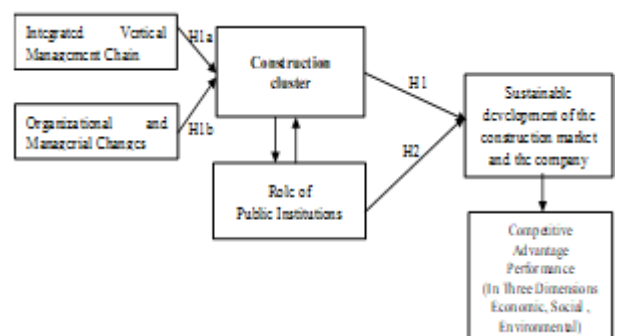
Sustainable development requires a radical change in the strategic behavior, organization and management of the companies included in the cluster (and the cluster as a whole) and the creation of a new, sustainable business model that allows the creation and realization of additional economic, social and environmental value for the customer, stakeholders and society as a whole and building company competitive advantage.

*H1b: Organizational and managerial changes in the cluster have a positive impact on the sustainable development of the construction market and the construction company (building competitive advantages and performance in the three dimensions).*

The cluster brings together the efforts, potential, resources of the private and public sectors to work together. Public institutions play the role of a mediator between the participating private companies, an initiator of programs and specific implementation plans, a listener of the problems that need to be quickly mastered and resolved. Particularly important for the success of the cluster is the availability of a highly skilled workforce, proximity to research, universities, entrepreneurial spirit and culture that values education and knowledge. These services must be provided by public institutions, which determines:

*H2: The public institutions participating in the cluster have a positive impact on the sustainable development of the construction market and the construction company (building competitive advantages and performance in the three dimensions).*

The indicated connections and dependencies between the characteristics of the construction cluster and the sustainable development of the construction market and the construction company are summarized in Figure 2: Conceptual Model And Research Hypotheses.



**Figure 2:** Conceptual Model and Research Hypotheses

### 3. Application of the conceptual model and analysis of the construction cluster as a factor for sustainable development of the construction market and company

#### 3.1 Method and restrictive conditions of the study

The testing of the formulated hypotheses was carried out through an empirical study, which included 50 construction companies selected at random. They operate in different market segments (civil engineering market and building construction market) in Bulgaria and have different specialization, history, territorial localization, business model and participate in various cluster associations. Most of them have been working in a cluster for more than 10 years and have sufficient experience, while others have less than 5 years and still have significant problems with stabilizing their position.

The information was collected through an online survey among managers at the cluster level and managers of individual companies participating in the cluster, or a total of 70 managers surveyed. The questionnaire included a total of 40 questions constructed as wordings to which the respondents referred, noting their answers from 1 to 5 on the Likert scale (where 1 stands for "I fully disagree" and 5 stands for "I fully agree").

Since the purpose of the study is to determine the relationship between building a cluster and sustainable development of the construction market and the construction company, building competitive advantages and performance (in the three dimensions), the questions are divided into four parts, each with ten questions. The first part includes questions related to the overall assessment of the respondents of the opportunities for sustainable development of the construction market and the construction company as a function of the created cluster (the first hypothesis). The other three parts include issues related to the analyzed characteristics of the construction cluster (creation of an integrated vertical management chain, organizational and managerial changes, role of public institutions) and their impact (as independent variables) on the sustainable development of the construction market and construction company (dependent variable). One part of the questions is related to the legislative problems of sustainable development (access to information, knowledge, standards, norms, practices, training opportunities, etc.) and another part to the specific actions that need to be taken in order to answer the challenge.

The implementation of the principles of sustainable construction in the cluster as a factor for sustainable development of the construction market and the construction company (and building competitive advantages and achieving company goals in the three dimensions) is assessed by respondents through opportunities to create and maintain a healthy building environment, efficient use of resources, application of the principles of sustainable construction in the activity and the need for a complete change in the organization of the construction activity (H1). The creation of an integrated vertical chain of management

in the cluster and the sustainable development of the construction market and the company is studied on the basis of managerial assessment of competencies for product life cycle management, building long-term partnerships, training and generating new knowledge (H1a), and assessment of the need for change, reconfiguration of key activities and resources, coordination, integration of all participants, which in practice will allow the creation of a circular process and sustainability (H1b). The role of public institutions (government and local) in the cluster for sustainable development of the construction market and the company (H2) is assessed through their ability to create conditions for strategic partnership, development of standards, norms, access to sustainable practices, coordination and funding of various programs and projects, maintenance of the necessary infrastructure (transport, social and educational).

The study also used information collected and processed from workshops, shared opinions, evaluations, experience of managers, employees in the surveyed clusters, annual reports, publications and analyzes in specialized publications.

#### 3.2. Main results of the research

The final results of the study were obtained by first calculating the average values of the answers given by the online survey and on this basis the Pearson's correlation coefficient (R) for the whole sample was calculated. Thus, the correlation between the studied variables is determined - the building of the construction cluster, the individual characteristics of the cluster (integrated vertical chain, organizational and managerial changes and the role of public institutions) and the sustainable development of the construction market and the construction company, building competitive advantages and performance (in the three dimensions). To add more explanatory power to the empirical results, the analysis also used a coefficient of determination/certainty (%) -  $R^2$ , which gives a more accurate estimate and shows what percentage of changes in the independent variable will lead to changes in the dependent (the remaining percentages up to 100 define the uncertainty coefficient) (Table 1).

**Table 1:** Correlation between the construction cluster, its characteristics and the sustainable development of the construction market and the company

		Sustainable development of the construction market and the company
Construction cluster	Pearson Correlation – R Coefficient of Determination (%) - $R^2$ N=70	0.795 63.20
Integrated Vertical Management Chain	Pearson Correlation – R Coefficient of Determination (%) - $R^2$ N=70	0.683 46.64
Organizational and Managerial Changes	Pearson Correlation – R Coefficient of Determination (%) - $R^2$ N=70	0.567 32.14
Role of	Pearson Correlation – R	0.512



Public Institutions	Coefficient of Determination (%) - $R^2$ N=70	26.21
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Correlation is significant at the 0.01 level (1-tailed).

Source: Own calculations

The obtained results prove the existence of a significant positive correlation between the following variables (Pearson's correlation coefficient - R is statistically significant, or there is a strong relationship between the two studied variables if  $R = 1$  or  $R = -1$ ):

- The building of the construction cluster and sustainable development of the construction market and construction company (H1) -  $R=0.795$ .
- The creation of an integrated vertical management chain in the cluster and sustainable development of the construction market and construction company (H1a) -  $R=0.683$ .
- Organizational and managerial changes in the cluster and sustainable development of the construction market and construction company (H1b) -  $R=0.567$ .
- Role of public institutions in the cluster and sustainable development of the construction market and construction company (H2) -  $R=0.512$ .

First of all, it is especially important to note that the obtained results fully support the idea that there is a significant positive correlation ( $R = 0.795$ ) between the two variables - construction cluster as a factor for sustainable development of the construction market and company, which confirms the first hypothesis (H1). Since the correlation coefficient is significantly greater than zero, this by definition allows the rejection of the null independence hypothesis. The studied variables have not only a very strong correlation, but also a high coefficient of variation - 63.20%. The coefficient of certainty is relatively high between the integrated vertical chain, organizational and managerial changes and the sustainable development of the construction market and construction company. There is not a particularly high coefficient of variation in the assessment of the role of public institutions in the cluster for sustainable development of the construction market and construction company, which however, does not rule out a causal link between them.

### 3.3. Results analysis

Respondents are unanimous that the sustainable development of the company and the market can be the result of creating a sustainable construction product, which is a major factor in building competitive advantages - economic (high consumer rating), social (more healthy living, better working atmosphere) and environmental (reducing the negative impact on the environment).

In practice, this requires above all a comprehensive approach to construction, which integrates a wide range of design, construction, organizational, management, maintenance practices, recycling, reuse, waste management and can easily be implemented in the construction cluster. The cluster creates internal pressure to improve the company's operations, facilitates the implementation of "good practices" and decision-making that takes into account the economic, social consequences, impact on the

environment and allow the creation and realization of competitive advantages. This is a condition that creates sustainability for each company and the market in which it operates and increases the benefits for both business and society as a whole (H1).

The construction cluster expands the opportunities for building new connections between interconnected companies and markets, dissemination of new technologies, skills, knowledge and information. This facilitates the creation and management of an integrated vertical chain of links and relationships based on competition, which covers the entire construction process (from investment, eco-design, production and supply of materials, creation of the final product, its realization by the end user, recycling and reuse), which is a major factor for sustainable construction (H1a).

Each participant in this chain depends on the other participant and requires active cooperation through long-term contracts, long-term relationships, connections, continuity of collaboration and exchange of information, which provides maximum benefit for all participants [9]. Standard construction practices, guided by short-term economic goals, often show little concern for the economic, social or environmental impact of the built-up area. Building the cluster allows the development and application of integrated design principles - the approach to complete construction systems.

The final construction products that are sought after by consumers are a complex system of different elements, components, details with strong functional dependence, which largely determines the need for unification independent companies in cluster. In view of the good end result, the active participation of the suppliers of construction materials is necessary.

In the ecological assessment of the impact of construction on the environment, the assessment of the produced and used construction materials occupies a particularly important place, because the characteristics of the final construction product are a function of them. Building materials that ensure sustainable construction are characterized by low energy costs for production, high durability and insignificant costs for their maintenance. In addition, they must contain a relatively large amount of recycled materials, and they themselves must be produced in a way that allows them to be fully recycled and reused. In practice, this means applying the principle of circular economy and circular construction - design and construction of buildings and facilities in which resources and materials are invested, with a high relative share of recycled ones, the source of which is the waste generated in the operation of the created construction. In this way, sustainability of the construction market and the company's activity, building competitive advantages and the desired economic, social and environmental effect is realized.

The building and effective management of the construction cluster is an important factor for stimulating innovation, especially "open innovation", reducing the asymmetry of information and transaction costs, increasing specialization, development of technologies inside and outside the

company[10] and their application in creating a sustainable construction product. Today, most innovations are complementary, the result of a chain reaction caused by the emergence of an innovation and the existence and development of complementary, specific assets in different activities or different companies, where each such specific asset is the result of another such specific asset and not it can fulfill its purpose on its own. The interdependence of specific assets implies the creation of a package of complementary products (goods and/or services) that increase the satisfaction of the end customer. The cluster creates conditions for strategic integration and cooperation, as each company specializes its assets and uses them more efficiently through a new combination and joint use with other specialized assets from other companies, which is a factor for achieving economies of scale and offering integrated solution for customers.

Sustainable construction requires responsible engagement of all participants in the process (investors and clients, architects, designers, construction companies, contractors, subcontractors, suppliers of raw materials, administrative authorities, researchers), which in practice means significant changes in the organization, coordination and management of the construction company at all levels and cluster in whole (H1b).

Organizational changes should be aimed at creating a decentralized structure and development of specialization. In the conditions of constant changes in the environment in which they work, the exit from the accepted schemes and models of behavior would allow the managers to be able to find a new interpretation of the ongoing processes, events, facts and on this basis to predict and outline new directions for development.

The centralized structure of the cluster presupposes isolation of the managers at the highest level from the other lower units. The main tool for sustainable development is the construction of a multi-division structure, which requires modern organization of simultaneous teamwork, rather than consistent development and implementation of innovation, decentralization of collection rights, analysis of information and decision-making, flexible distribution of responsibilities and tasks, development an effective system of incentives to achieve the desired results, etc.

In a dynamic environment, management changes should be aimed at improving the links and relationships between managers and all company units, the active participation of all entities and units in the cluster "bottom-up", which ensures adaptation and coordination of internal resources and competencies to external changes, development of intangible assets, which in turn have a reverse effect and develop tangible assets. The efforts of managers should be aimed at creating high customer loyalty and maintaining the cluster's and company's reputation by analyzing the constant flow of information from the market for changes in demand, preference of consumers, positions of competitors, suppliers, and on this basis processing of data and rapid feedback. The role of the leader in making quality management decisions, motivation and creating incentives for employees

in the company in order to achieve the goals is extremely important.

Sustainable development requires a radical change in the strategic behavior and development and implementation of a new sustainable business model. It is a model that includes actions and decisions of the company which allow the realization of a sustainable strategy, through the efficient use and reconfiguration of the company's tangible and intangible resources, interaction between all participants in the vertical chain from the beginning to the end of the production process, creating a new product on a circular economy principle, offering and realizing additional economic, social and environmental value for the client, stakeholders and society in general, and building firm competitive advantage.

The companies in cluster provide the necessary conditions for prosperity, but they themselves need better services and support [11]. There is a need to share responsibility between business and the public sector (H2).

The public sector is a major player in the construction market (especially in the civil engineering market), which must create conditions for an optimal combination of input resources and efficient use of technology to reduce losses and increase benefits for society. In addition, as a major customer in the construction market with its requirements can make the greatest progress in the implementation of the program for sustainable development and sustainable construction, because it is responsible for the construction of public buildings and infrastructure (a large part of the construction contracts come from one source - the government and municipalities).

The main task for the government as an economic entity is the creation of the necessary state standards and requirements for sustainable construction, as well as mechanisms, models for renovation, guarantee funds, regulations, fiscal incentives for investors and consumers of products of sustainable construction. The main goal of the government as a major player in the construction market should be the introduction of a mandatory requirement for the use of Building Information Modeling (BIM) in the development and implementation of all projects/sites that it buys in the public sector.

It is essential to accelerate the building certification process based on established methods for assessing sustainable construction, which are an internationally recognized certification system applied throughout the life cycle of buildings. This is an important factor in attracting international investors who know these standards as an established brand and want to work everywhere according to known rules and a familiar scheme.

The implementation of a unified policy for the construction of "eco-settlements" is particularly effective. If a household decides to make its home "sustainable", the funds it will invest will return after a certain number of years. If the government stimulates such initiatives through the construction cluster, the efficiency will increase many times over.

In the created construction cluster, the public sector develops the main policies, programs on issues that directly and indirectly affect construction, but at the same time they go beyond the industry, such as energy efficiency, waste management and climate change. It is particularly important to ensure the coordination of the different programs and the financing of the interconnected activities, and not of individual activities and projects that are isolated from each other. The institutions must ensure cooperation, interaction and equality of all interested companies and conditions for strategic partnership.

The new realities set new requirements for public institutions for the mechanism by which they can support and stimulate construction companies and the development of the construction cluster. Fiscal and monetary measures are usually temporary and aim to mitigate the impact of cyclical fluctuations in the construction market by stimulating private and investment demand and enabling the private sector to return to the market quickly as a major player. In the new dynamic conditions, however, the more complex problem is to what extent these actions will be an incentive for supply changes aimed at developing sustainable construction. There is a need for a more active role and intervention of public institutions in this market in a completely new, different aspect.

The most important direction should be the development of knowledge and training, as well as the promotion of technological change through legislative changes, increasing government spending on research, support for venture capital in small innovative companies, building effective infrastructure (transport, social, educational) and improving the quality and qualification of the workforce. The development and coordination of various programs in these areas, combined with an effective strategic public-private partnership in the cluster, can provide the desired cumulative effect, which is ultimately a strong factor for sustainable development of the construction market and the company.

#### **4. Conclusion**

In today's dynamic environment, every company faces serious challenges related to the growing scarcity of resources used and the need to accelerate the implementing the principles of sustainable development. It is a process that requires organizational and managerial changes, the development of strategies and policies that allow the creation, offering and realization of additional economic, social and environmental value for the client, stakeholders and society as a whole, and building competitive advantages.

The construction market is usually identified as the first sector that requires special attention in implementing the idea of sustainable development. The main reasons for this assessment lie in the specifics of construction such as economic activity, the specifics of the construction product, the construction process, organization and management of the construction company and the economic, social and environmental effect of it.

The problem of sustainable development and sustainable construction necessitates strategic and flexible cooperation

between the private and public sectors and the development of a new model in which the government as an economic entity has an active role and creates conditions for cooperation between different companies, educational and research institutes at different levels of management or in short, creating a construction cluster.

In the study the author aims to analyze the role of the construction cluster and public institutions involved in the cluster as a factor for sustainable development of the market and the company and building competitive advantages and performance in three dimensions. A conceptual model has been developed and hypotheses have been defined, which have been empirically tested through an online survey of 70 respondents participating in construction clusters. Statistical and correlation analysis is applied in processing the results, which confirms the defined hypotheses and at the same time outlines the problems, the need for expert and financial support at all levels, as well as accelerating the process of digitalization in this market.

The study clearly proves the positive relationship between the building of the construction cluster and sustainable development of the market and the company, as well as between the different characteristics of the cluster (creation of an integrated vertical management chain, organizational and managerial changes, role of public institutions) and sustainable market development and the company, building competitive advantages and performance in the three dimensions (environmental, social and economic).

The possibility for accelerated assimilation and exchange of information and knowledge, training, development and use of intangible assets in the cluster increases the opportunities for building competitive advantages by creating, offering and realizing a product with higher economic, environmental and social added value and creates sustainability for each company and the market in which it operates. Public institutions play the role of an intermediary between the participating private companies, the role of initiator of programs and specific implementation plans, a listener of the problems that need to be quickly mastered and resolved. The unification of different companies from different industries in the cluster creates a "synergistic effect" and has a stronger influence on the decisions of public institutions on the directions of development and funding for research and development, the necessary changes in legislation and education system, for infrastructure development, etc.

Sustainable construction is a long-term goal that requires a high degree of knowledge, competencies and interaction between all participants in the construction process, which can be easily realized in the construction cluster. The study proves the need for a unified, complex approach to building a cluster. The simultaneous process of creating an integrated vertical management chain, sustainable business model, development of innovations, active cooperation with public institutions at state and local level can allow the realization of the principles of the circular process and sustainable construction. The expected results are increased resource efficiency, waste reduction, use of recycled materials, sustainable production and consumption.

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