

# THE SUSTAINABLE DEVELOPMENT OF AN INDUSTRIAL CLUSTER IN THE CONTEXT OF CORPORATE SOCIAL RESPONSIBILITY – A NEW CHALLENGE FOR CLUSTER MANAGEMENT

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## Abstract

In the present article, clusters are treated as a form of contemporary organisation, which is created as a result of reciprocal interactions, formal and informal, horizontal and vertical relations between geographically concentrated heterogeneous subjects specialised in a particular area, which represent the environment of: business, science, business support and local public administration. The author assumed that the condition for the achievement of the determined strategic goals of sustainable development within an industrial cluster is, inter alia, its endogenic ability to create eco-innovations. Moreover, he indicated that the realisation of the assumptions of the concept of sustainable development is an integral element of CSR philosophy. Taking into consideration the significance as well as the internal and external dimensions of CSR, the author enumerated multitudinous benefits that ensue from socially responsible cluster management. He emphasised that socially responsible activity of an industrial cluster, which is consistent with the assumptions of sustainable development, can contribute to the permanent improvement of a society's quality of life, without considerable negative changes in natural environment and loss of socio-cultural values. Hence, it is necessary to prepare and include proper rules of sustainable, socially responsible development in the contents of strategic documents, including the declaration of missions and visions and their constant observance in every area of activity, in internal and external environment.

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**Keywords:** Cluster, ecosystem, sustainable development, corporate social responsibility

## Introduction

Dynamic socio-economic changes connected, inter alia, to globalisation processes, including growing expectations and the power of key stakeholders, require cluster coordinators to seek efficient ways that enable long term development. A considerable challenge within this scope is the implementation of the assumptions of the concept of sustainable development, including social responsibility, which assumes the balance of the three areas of cluster activity, i.e. economic, social and ecological.

The concept of business sustainable development, including clusters, is a significant element of EU economic policy, comprised in the priorities of the strategy "Europe 2020". This new strategy assumes, among others, that cluster members and coordinators have to show complete understanding of the concept of sustainable development and its practical usage to the degree that ensures the fulfilment of the requirements of the market and the environment. Particularly in the mature clusters that are orientated towards long term development, one can observe the growth in the interest in this concept, the proof of which can be seen in the declarations of clusters' missions, including their multitudinous socio-economic undertakings.

The implementation of the assumptions of sustainable development in the process of cluster management is presently treated as one of the indicators of strategic thinking and action. It is a long term and laborious process. As a result, cluster's sustainable development has a dual nature since it can be orientated towards the realisation of various aims of ecological, economic and social balance within a certain strategy, on the other hand, however, it can refer to effective, gradual implementation of the changes that enable continuous development of cluster members and the cluster as a whole (Buhl and Meier zu Köcker, 2010, p. 17).

Most frequently, the concept of sustainable development is the object of interest on a macroeconomic scale, however, to a small degree it is analysed from the viewpoint of managing cluster development. In the literature on the subject, this issue is still new, therefore, according to the author, it requires continuous, in-depth research and analyses.

The article aims to characterise the assumptions of the concept of sustainable development, which is followed in industrial clusters, and which enables a complex approach to the problem of socio-economic development of a cluster and the development of its competitiveness. What has been found significant is also the determination of the fundamental factors influencing cluster's sustainable development. The consideration the keynote of which was the hypothesis according to which the realisation of the concept of sustainable development in a cluster requires pro-environmental and pro-social orientation towards cluster management, has been made on the basis of the research results of secondary sources.

### **The industrial cluster as an innovation ecosystem:**

In the literature on the subject clusters have many diversified definitions, however, frequently, certain chief attributes are comprised in the majority of them. These are inter alia: geographical and sectoral concentration, specialisation, common development trajectory, Triple Helix Model, interactivity and co-opetition. Industrial clusters have emerged as a special form of spatial organization in economics theory, regarding organizations' efficiency, productivity, competitiveness based on their geographic concentration of interconnected businesses, networks and relations with key different stakeholders (Boja, 2011, p. 184). Thus, they are defined as a high geographic concentrations of related firms within a given industry, which can be related – both – vertically and horizontally (Madsen, et al., 2003, p. 5).

They may also be understood in terms of a group of organizations producing similar products or services that are located within a region, since they are the most visible and often most publicized features of organizational activity in a region (Romanelli and Khessina, 2005, p. 346). Perry (2005, p. 14) argues that the key attributes of the most successful clusters are: the mix of enterprise types; managers' expectations from cluster participation; business relationships between cluster participants. Generally, clusters are driven by two dominant factors (Zadek, et al., 2003, p. 4):

- the 'legitimacy' effect: clustering is most likely to arise where the potential is greatest for making social and environmental aspects of the value-chain of tangible concern to stakeholders who count;
- the 'productivity' effect: clustering is most likely to arise where the potential is greatest for translating social and environmental enhancements in the value chain into labour and resource efficiency, and productivity gains.

The economic externalities arise from the presence of a critical mass of firms, suppliers and a skilled labour pool within the confines of the industry cluster as well as through flows of information, knowledge, technology and skills within the cluster (Lund-Thomsen and Nadvi, 2010, p. 205). Members of the cluster exchange and create knowledge

through face-to-face interactions and with the creation of common languages and institutions (Boari, 2001, p. 2). Anbumozhi, Thangavelu, and Visvanathan (2013, p. 10) identify the key benefits of activity industrial clusters:

- promotion of national and regional economic development, as industrial clusters strengthen the capacity to generate employment and local quality life;
- poverty alleviation, as industrial clusters may empower specific oppressed groups in society, leading to a more equitable distribution of income;
- transition to a market economy by reinforcing the influence of the private sector and promotion of privatization;
- promotion of good governance, as industrial clusters encourage broad participation from the private sector, knowledge institutes, and local communities in the economic, political, and social activities of a country;
- promotion of a more flexible, innovative, and competitive economic structure, as industrial clusters can easily adapt and adjust to market changes.

Every industrial cluster functions and runs business activity within certain localisation, obtaining and distributing certain resources to the environment. A part of them is also a subject of activity distinguished from the environment in a legal and organisational sense. In Poland, likewise in many other EU countries, as a result of the growing expectations of public policy makers, there occurred the institutionalisation of a part of clusters through their formalization according to the organizational and legal models of running business activity adopted in a given country, or through partner agreements or others. The prime motive of this type of activities was and still is the need for public support of their development, including the financing from EU funds. Presently, the formalisation of clusters has been gradually substituted with the formalisation of cluster coordinators (cluster organisation), i.e. entities acting for the benefit of cluster development. It is cluster coordinators that frequently employ professional management which manage cluster structures on their behalf.

Rosenfeld (2005, p. 8) argues that clusters are eco-systems, not associations. Industrial clusters, particularly technological and innovative ones, owing to their nature, not only create the environment that is conducive to innovation development but also they themselves are its element. Basing on the achievements of the science within the scope of the theory of economy or the theory of organisation and management, it was agreed that such an environment should be called the ecosystem of innovations. From the viewpoint of economy, this ecosystem is treated as a set of various stakeholders, whose individual and group activities are connected to the creation, development and the transfer of broadly understood innovations. Innovation ecosystems can be defined in multiple ways - for example, as (Adner and Kapoor, 2010, p. 307; Xiaoren, et al., 2014, p. 53; Engler and Kusiak, 2011, p. 57; Jansen, et al., 2006, p. 1661):

- a hybrid of different networks or systems;
- a set of innovation entities (e.g., small businesses, corporations, universities, governments), which operate in a dynamic environment;
- a permanent or temporary system of interaction and exchange among an environment of various actors that enables the cross-pollination of ideas and facilitates innovation;
- expansion system formed by mutual support organizations, including core producer, customers, suppliers, service providers, industry associations and government departments;
- the collaborative arrangements through which firms combine their individual offerings into a coherent, customer-facing solution;
- a network which includes not only big firms as the core innovator, but also its upstream suppliers, and its downstream buyers and complementors,

- a network system of value creation and co-evolution achieved by suppliers, users, partner, and other groups of stakeholders;
- a loosely interconnected network of companies and other entities that co-evolve capabilities around a new knowledge, innovation or technology platform and thus depend on one another for their overall effectiveness and survival;
- a network structure with vague boundary, an open system of the existing dynamic interaction between each symbiotic enterprise or between the system and the surrounding environment, a system built around the core enterprise, and members presented diversity.

The nature and extent of these dependencies in networks, common goals, and shared capabilities vary and give rise to different types or contrasting forms of innovation ecosystems e.g.: based on the nature of governance (centralized/decentralized), the extent of openness of the boundaries (open/closed), the structure of the problem space (well-defined/emergent), the nature of the innovation pursued (incremental/radical), etc (Nambisan and Baron, 2013, p. 1074). The members of this kind of networks usually work cooperatively and competitively to develop new products and services based on a shared set of technologies, knowledge, or skills (e.g., marketing) that comprise an open innovation platform (Zahra and Nambisan, 2011, p. 6). Zahra and Nambisan (2011, p. 10) consider that in an innovation ecosystem, it is relatively easy to recognize the existence of three different new venture types:

- breeders, new ventures that create new ideas that radically transform the knowledge base of an ecosystem;
- feeders, new ventures that carry out a disproportionate rate of invention and discovery in the ecosystem;
- niche players, specialized new ventures that carve out a niche within an ecosystem and develop it.

While analysing the concept of innovation ecosystems, Adner (2006, p. 100) states that they allow firms to create value that no single firm could have created alone, however, they are characterized by three fundamental types of risk: initiative risks – the familiar uncertainties of managing a project; interdependence risks – the uncertainties of coordinating with complementary innovators; and integration risks – the uncertainties presented by the adoption process across the value chain. The above mentioned types of risk should be taken into consideration while making decisions concerning cluster development. Comprehensive knowledge of the characteristics and the scope of the present or potential risk enables making rational decisions, owing to which it is possible to maximize the occurring chances and minimize the influence of the threats. Hence, the process of risk identification ensuing from the functioning of a cluster in a given innovation ecosystem should be complex and continuous.

### **The impact of sustainable development on cluster management**

The concept of sustainable development has been enjoying widespread support on the international stage for a few years as it creates real possibilities of reducing negative effects of industrial development, including the changes of the so-far unsustainable consumption and production trends. According to Anbumozhi, Thangavelu, and Visvanathan (2013, p. 2), industrial clusters lend themselves to sustainable development – directly through economic development, incomes, and well-being generated for the working people; and indirectly, through their wider impact on the local economy and environmental conservation.

The concept of sustainable development, as a contemporary philosophy of development and a global and long-term challenge, has been shaped by a set of integrated elements of a number of scientific disciplines, including natural sciences, economics and social sciences. Sustainability refers to organization's activities, typically considered

voluntary, which demonstrate the inclusion of social and environmental concerns in business operations and in the interactions with stakeholders (D' Amato, et al., 2009, p. 1). In economic literature, the notion of sustainable development has a number of meanings – it can denote (Hall, et al., 2010, p. 440; Pirnea, et al., 2011, p. 40):

- the development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs;
- the concept, which assumes that renewable resources should be used wherever possible and that non-renewable resources should be husbanded (e.g., reduced and recycled) to extend their viability for generations to come;
- the idea of development, which stress continuing commitment by business to behave ethically and contribute to economic development while improving the quality of life of the work force and their families as well as a local community and society at large;
- the development, which encompasses strategies and practices that aim to meet the needs of the stakeholders today, while seeking to protect, support, and enhance human and natural resources that will be needed in the future.

Hui and Yang (2008, p. 553) stress that industrial cluster will sustainable develop when the profit which is made by the way of enterprise cooperation is beyond the profit decrease which is caused by intense enterprise' competition of the resources such as land, market, intellectual, capital, technique and service. Sustainable development of a cluster implies permanence of action, which means that it requires the optimal use of resources, minimizing the negative economic, socio-cultural and ecological impact, maximizing benefits of local communities, national economies and conservation of nature (Mazilu, 2013, p. 24). The aim of sustainable development of industrial clusters is to minimize the environmental impacts of these clusters and improve the effective share of resources by facilitating and strengthening interrelationships between the components and the elements of industrial and natural systems (Anbumozhi, et al., 2013, p. 11).

The fulfilment of the principles of cluster's sustainable development is achieved, inter alia, by the implementation of not-standardised activities (e.g. cleaner production and technologies, eco-innovations) and standardised solutions (e.g. EMAS, ISO standards, Environmental Management Systems) not only at the level of cluster's coordinator but also its particular members. Orientation towards eco-innovativeness in a cluster aims at: building pro-ecological consumer attitudes, supporting environmentally friendly products and expanding markets for them, as well as the decrease in the outlays of resources and energy and simultaneous improvement of the quality of the processes and functions being realized, manufactured goods and provided services. Decision-making in the scope of the execution of eco-innovations by the cluster members and cluster managers takes into consideration the changes in the surroundings, the necessity of improving the condition of the company, increasing competitiveness, the need for diversification of activities or changes in the scope of technology and manufacturing methods, which are all translated into the generated costs (Zaba-Nieroda, 2011, p. 177).

While analysing particular declaration of cluster's missions, it is easy to state that what is most significant for those organisations is the principle of sustainable development, which concerns the prevention of the creation of pollutions and other environmental burdens in the course of running business activity, at every stage of production processes. It refers to: lowering the cost of reducing pollutions in technological processes; recycling; waste utilization, segregation; installation of innovative protective devices that capture and neutralize pollutions; reduces landfill space (Mukhopadhyay and Pandit, 2014, p. 47).

On the basis of the research on the nature of cluster sustainable development, Brouder and Berry (2004, p. 8) emphasise that sustainable business clusters offer the same economic benefits as traditional clusters but with the added value of long-term social and environmental

benefits. Moreover, the members of an industrial cluster working together on sustainable development measures not only save time and money but also they are effective in pushing agendas further, have a high level of innovation potential and a better corporate image (Brouder and Berry, 2004, p. 9).

Hence, it can be assumed that the shape of the final decisions in clusters concerning the implementation of the concept of sustainable development is influenced by strictly economic factors (the possibility of reducing the cost in a particular domain of activity) as well as social ones (cluster's organisational culture, social capital). Moreover, not insignificant are also continuous changes in the scope of the functioning and the development of industrial sector, or the changes of industrial and environmental policy in a given country.

### **Corporate social responsibility in cluster sustainable management:**

The idea of corporate social responsibility (CSR) as one of the dynamically developing management concepts bases, inter alia, on the assumptions of the concept of sustainable development. Industrial clusters are more and more frequently pressured by numerous key stakeholders to engage in social and environmental responsibility. Hohnen indicates that CSR is understood to be the way firms integrate social, environmental and economic concerns into their values, culture, decision making, strategy and operations in a transparent and accountable manner and thereby establish better practices within the firm, create wealth and improve society (Hohnen, 2007, p. 4). Amaeshi, Osuji and Nnodim (2008, p. 223) define CSR as an organisation's commitment to operate in an economically and environmentally sustainable manner while recognising the interests of its stakeholders.

This concept is about how a business is run; values and beliefs become real in working environment, when they are lived every day and no amount of corporate rhetoric can substitute for direct evidence of management's sincere and meaningful dedication to a consistent set of values (Del-Baldo, 2014, p. 26). Those indicated definitions include the elements that are generally included in theoretical and empirical publications on CSR, such as the community, the environment, human rights, and the treatment of employees (Servaes and Tamayo, 2013, p. 1047). Thus, they indicate the need for maintaining in economic practice a harmony between the three fundamental CSR elements: economy, ecology and ethics – as a condition necessary for efficient cooperation with the environment.

Some researchers argue that CSR can be seen as either an integral part of the business strategy and corporate identity, or it can be used as a defensive policy, with the latter being used more often by companies targeted by activists (D' Amato, et al., 2009, p. 4). Many economic publications stress that building on a base of compliance with legislation and regulations, CSR typically includes "beyond law" commitments and activities pertaining to: corporate governance and ethics; sustainable development; conditions of work (including safety and health, hours of work, wages); industrial relations; community involvement, development and investment; involvement of and respect for diverse cultures and disadvantaged peoples; corporate philanthropy and employee volunteering; customer satisfaction and adherence to principles of fair competition; anti-bribery and anti-corruption measures; accountability, transparency and performance reporting; supplier relations, for both domestic and international supply chains (Hohnen, 2007, p. 4).

The concept of CSR, thereby, embraces a wide range of behaviours, such as being employee-friendly, environmentally friendly, mindful of ethics, respectful of communities where the firm's plants are located, and even investor-friendly (Benabou and Tirole, 2010, p. 2). Many researchers of this issue suggest that the key issues regarding the frameworks, measurement and the empirical methods of social responsibility and sustainability have not yet been resolved as the existing research has been too fragmented or focused only on the

organizational level of analysis, while ignoring individuals or groups (Orlitzky, Siegel, et al., 2011, p. 12).

The idea of CSR is not particularly new as it was created in 1960s in the US, and it was there where it was practiced actively in particular (Brønn and Vrioni, 2001, p. 208). From the standpoint of the European Commission concerning the principles of ethics, it ensues clearly that this concept should become an integral part of management and should be present in industrial practice. It is very important since, as it is emphasised by D' Amato, Henderson and Florence (2009, p. 6) – CSR can be a way of matching corporate operations with societal values at a time when these parameters are changing rapidly. Simultaneously, Lund-Thomsen and Nadvi (2010, p. 205) indicate that still little attention has been paid to whether and how local cluster-based actors might negotiate the norms and values codified within the CSR requirements of global leading firms. It is a significant problem as in many types of industrial clusters it is big foreign corporations that constitute the foundation for the development of the entire cluster.

The potential and value of corporate responsibility clusters is expressed creating competitive advantage within one or several sectors arising through interactions between the business community, labour organisations and wider civil society, and the public sector focused on the enhancement of corporate responsibility (Zadek, et al., 2003, p. 24). Battaglia and Bianchi, et al. (2010, p. 137) on the basis of the results of the research conducted in industrial clusters in Tuscany (Italy) indicated the importance of developing CSR practices within the policies and strategies of these clusters.

Owing to the dynamic socio-economic changes, CSR concept enjoys more and more interest of clusters' management. Cluster managers, while beginning the process of devising and implementing the development strategy of their organisations, perceive the need for taking into consideration economic, ecological and social dimensions equally. This process most frequently takes place in the conditions of incessant dialogue with stakeholders, according to the principle of continuous improvement. The activities undertaken by managers are similar to the concept of "environment-serving organizations" (ESOs), presented by Ansoff, which was created on the basis of Chandlers's relational paradigm (Candy and Gordon, 2011, p. 74).

The fundamental CSR's principle is building partner, ethic, valuably efficient relationships with various groups of stakeholders, which ensue from internal engagement, sense of missions' and values' realisation. Ethic responsibility is connected, in this case, to such behaviour that joins not only thoroughness and honesty but also anticipation and tenacity of purpose to achieve the result that is compliant with the principles of business ethics. Cluster's social responsibility is treated as a process within the scope of which not only particular members of this structure but above all cluster coordinators manage relationships with internal and external key stakeholders on behalf of the cluster, preserving reciprocal responsibility. The management of stakeholder relationships lies at the core of CSR and entails establishment of a sound/functioning two-way communication with stakeholder groups, i.e. understanding the type of support needed from each group, as well as learning their expectations of business and what they are willing to pay for having their expectations met (Brønn and Vrioni, 2001, p. 218).

The diversity of the group of stakeholders ensues, inter alia, from the nature of the resources and the competence available at the disposal, activities that are undertaken to realise personal goals and the force of influencing the processes realised by a cluster. The foundation of the relation cluster-stakeholders can be: an agreement, generally binding law, more or less formalised principles of cooperation owing to which the relations can be of various nature, e.g. contract, quasi-contract, non-contract, partner, competitive and cooperative. The

continuousness of cooperation to a considerable extent depends on positive relations, which can thrive owing to “organisational learning” and reciprocal responsibility.

The awareness of cluster managers that the work is ineffective when relations with stakeholders lack trust (including intra-organizational relations in clusters) is more and more increasing. To build this trust, it is significant to take into account the system of values, principles, standards, transparent procedures and good communication. However, owing to the high turbulence of the environment, it is not possible to create a close circle of stakeholders. As a result of the changes occurring in the market, there still appear new “strategic supporters” with diverse expectations, who determine enterprise’s activity. The focus on improper group of stakeholders, inter alia, on marginal stakeholders or wrongly understood expectations of this group can lead to making wrong decisions. According to this view, all CSR activities fall under the remit of stakeholder management (Servaes and Tamayo, 2013, p. 1046).

The involvement of the decision-makers and particular cluster members in the realisation of the assumptions of CSR concept can bring to this organisation a number of measurable benefits, not only external (concerning external environment) but also internal ones (referring to internal environment). A cluster has, inter alia, the possibility of building permanent relations with the environment and being a trustworthy partner in activities. Moreover, as a result of running socially responsible cluster business, there take place (Carroll and Shabana, 2010, p. 92): the increase in the level of organisational culture, the improvement of the level and the quality of intellectual capital, the obtainment and the maintenance of the best employees, the increase in client’s loyalty, the reduction of the cases of internal corruption, frauds or other abuses, the reduction of interest conflicts, the increase in effectiveness and productivity, the creation of values for the key stakeholders.

Significant benefits that can ensue from efficient realisation of CSR assumptions are also: facilitated knowledge (technology) transfer, increase in innovativeness, stimulation of economic development and the contribution to the increase in the wealth of local society. CSR activities may help a cluster to strengthen its legitimacy and reputation by demonstrating that it can meet the competing needs of its stakeholders and at the same time operate profitably (Carroll and Shabana, 2010, p. 101). According to Hammond and Slocum (1996, p. 160) developed measurement of organization reputations reflecting social responsibility includes four attributes of the organization’s relations with key stakeholders:

- quality of products and services, representing relations with customers;
- ability to attract, develop and retain talented people, representing partnership relations with employees;
- community and environmental responsibility, representing relations with the environment in which the organization operates;
- quality of management, representing management of relations with stakeholders, awareness of and pro-activity to changes in the business environment.

Moreover, the promotion of CSR policies and actions at the industrial cluster level can improve the image of the cluster brand and, consequently, the competitive capability of many members located in the same territory (Battaglia, Bianchi, et al., 2010, p. 138). In investors’ opinion, particularly the foreign ones, obeying CSR rules is a sign of cluster’s efficient management and reduces investment risk owing to adequate regulation mechanisms. The activity of contemporary clusters, including their members, is orientated towards permanent improvement of the process of implementing the concept of socially responsible business.

Hence, it decides on particular readiness and ability not only to reply to rapid changes but also to anticipate these changes and prevent their possible negative effects and also enables sustainable development in the conditions of dynamic environmental changes.



Moreover, the application of ethical principles in business proves an adequate approach in running business activity. Industrial clusters build their competitiveness caring for social interest, developing relations with various environmental groups and basing them on dialogue and mutual trust.

## **Conclusion**

Owing to the fact that the concept of sustainable development creates a real possibility of building a solid foundation for solving a number of problems within a cluster, its practical implementation in this type of organisations stimulates the interest amidst decision-makers. The implementation of this concept in industrial clusters assumes the necessity of maintaining balance between its three elementary dimensions, i.e. ecological, social and economic, including the running of a business activity in such a way that while the environmental standards, rational use of energy and other resources and possibly little pressure on natural environment are taken into account, the goods being produced are of high quality. What is also significant is constant improvement in the area of production techniques and technologies, in a manner that is conducive to the efficient functioning of cluster members and simultaneously preserves a high level of natural environment protection and social justice.

Dynamically increasing stakeholder's expectations require from cluster coordinators to undertake and realise in practice also the idea of social responsibility. The realisation of these assumptions through the conduct of social dialogue can contribute to permanent growth of the competitiveness of a given cluster at local as well as global level. Thus, decision makers must be able to determine how their clusters can become more socially responsible, ecologically sustainable, and economically competitive.

Industrial clusters that choose to implement a sustainable approach should note that this will involve a dynamic learning process, because sustainable development and CSR are moving targets that cannot be fully "achieved" by one-time activities and decisions (Hohnen, 2007, p. 1). There is no "one-size-fits-all" method for pursuing a CSR approach, because each cluster has unique attributes, environment, organizational culture and circumstances that will affect how it views its operational context and defines social responsibilities (Hohnen, 2007, p. 18). Thus, decision-makers in industrial clusters, while preparing its strategy of sustainable development and business social responsibility, should take into consideration the heterogeneity of this structure's member group and remember to enable their involvement in the realisation. What is significant in the course of the entire process is the development of the knowledge, the awareness of all cluster members within the scope of good and bad practices of the integration of common economic, ecologic and social aims.

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