

## Cluster Interaction of Educational Institutions with Industry in Training

<sup>1</sup>Arsen A. Tatuev, <sup>2</sup>Violetta V. Rokotyanskaya, <sup>1</sup>Anzor H. Zhankaziev,

<sup>1</sup>Zalina N. Zhankazieva and <sup>3</sup>Nina R. Gukasova

<sup>1</sup>Kabardino-Balkarian State University,

Chernyshevskogo St., 173, Kabardino-Balkarian Republic, 360004 Nalchik, Russia

<sup>2</sup>Moscow State University of Food Production, Volokolamskoye sh., 11, 125080 Moscow, Russia

<sup>3</sup>The Russian Presidential Academy of National Economy and Public Administration,

Dunaevsky St., 5, Stavropol Region, 357502 Pyatigorsk, Russia

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**Abstract:** The relevance of the study is due to the need to improve the quality of training in the new socio-economic conditions of the labor market on the basis of the formation and development of cluster cooperation in the field of vocational education. In the “concept of formation and development of cluster cooperation in Russia” cluster cooperation in the sphere of labor is defined as a special type of social and labor relations inherent in a market economy providing on a basis of equal cooperation of employees and employers optimum balance and the realization of their fundamental interests. The main objective of the cluster interaction at work is the development, adoption and implementation of the socio-economic and labor policy based on the balance between the interests of society, employees and employers. The paper analyzes the genesis of the concept of “cluster” and “education cluster”, problems of modern vocational education, a number of conditions that can both facilitate and hinder the development of clusters are revealed. The main directions of the interaction model of the innovation cluster are identified as well as the model of interaction of institutions of higher and secondary vocational education and food industry is developed.

**Key words:** Cluster, educational cluster, industrial enterprise, region, education

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### INTRODUCTION

Modern society demands new strategic guidelines in the development of economics, politics, social and cultural sphere, increasing openness of society, its dynamism and rapid informatization cause a change in attitude of the state and society to education. In order to create the necessary conditions for achieving quality education key priority areas and a set of measures for the implementation of educational policies at all levels of government should be identified. The stability and the ability to upgrade the educational system are based primarily on the vocational competence of the administrators and teachers, the respective needs of the society.

### MATERIALS AND METHODS

Methods of investigation are based on the dialectical combination of theoretical and practical approaches. By theoretical methods used in the study we mean: the study of the philosophical, psychological, educational and

sociological literature, system-synergetic approach, analysis and synthesis, instructional design, modeling, forecasting.

**Empirical methods:** The study of the development problems in the existing practice, the creation and compilation of best pedagogical experience, the organization of research and experimental and methodical work, discussions, polls, surveys and testing of university professors, students, young vocationals, industrial workers, etc. Experimental work was carried out at the Moscow State University of Food Production.

### RESULTS

**Theoretical foundations of cluster cooperation at the regional level:** At the present stage for the Russian society education is one of the most important factors of sustainable development; enhance of its competitiveness and national security. There is a need for specialists qualitatively new type of competitive, enthusiastic, competent, enterprising, highly skilled, communication

skills, knowledge of foreign languages, ready to fully work with the first working day, easily adapting to change and quickly learn new techniques and technology of modern high-tech production, the ability to analyze complex situations and responsible decision-making, owning the new information technologies, interested in the continuous improvement of the level of education and skills.

This trend led to the following socio-economic reasons: the formation of understanding of the role of the Russian Federation in the global economic system; the formation of the type of economy post market corresponding relations and mechanisms in production and social spheres; restructuring of the productive sectors and social spatial economy; regionalization.

However, the current vocational education has a number of problems that affect the socio-economic situation in the country and require quick solutions:

- Inconsistency of the labor market and the education market
- Shortage of skilled workers, especially in high-tech and innovative areas
- Lack of partnership between the system of vocational education and business-community
- Stretched periods of training specialists
- Social vulnerability of graduates of educational institutions, the low prestige of working professions;
- Unequal access to higher education for orphans and children from poor and dysfunctional families, rural students
- Mismatch of teaching and material base of educational institutions with modern production technologies
- Receive vocational training in military occupational specialties young men of military age
- Undeveloped regulatory support relations between educational institutions and consumers of educational services (citizens and businesses)
- Insufficient state funding of the implementation of vocational training programs

One of the urgent problems of vocational education today-the absence or lack of connection with the production which exacerbates the problems existing in the labor market: the need to train highly skilled workers (4-6 categories); professionals able to serve the modern techniques and technologies and to develop the existing production. At conditions when vocational education cannot adequately carry out such training we face a situation of reducing the quality of vocational education and lack of demand; unprofitable investments in education; growth of demanded workers deficit.

Modern reality dictates the need to develop industry cluster in vocational education as one of the main conditions for the development of the competitiveness of primary, secondary and higher vocational schools, based on the formation of a competent vocational.

The key base of problematical industry cluster is the gap between the continuing administrative and functional management style vocational education institutions from the directors on the one hand and the nature of modern activity-environment requires a fundamentally different position, namely forming, ahead of reflexive, meaningful management style. Expectant, the performing position of the majority of the directors in terms of reorganization does not allow the institutions to act as an active subject of social infrastructure and the labor market which in principle excludes the possibility, including the legitimacy of the system to build cooperation with the food industry.

As one of the manifestations of this basic discontinuity occurs a contradiction between the actually existing tendency of employers to cooperate with the agencies and the inability to find the last legitimate basis for such cooperation. That is why the educational institution in most cases is not considered as a potential counterparty of contractual relations as there is no upward trend in the interest of employers to cooperate with vocational education system. It is obvious that the employers themselves the problem of the legitimacy of co-operation with the system will not be solved and rightly attribute this to the prerogative of the system.

Also there is a gap between the content of training (including the low level of flexibility and adaptability of curricula) in the institutions of the system on the one hand and the increasingly stringent requirements for skilled imposed by employers. This applies both to the structure of produced specialties and a qualitative level of training. As a consequence, the activity of vocational education institutions as a rule is not perceived by the social partners as a service and therefore is not subject to targeted and sustained investment. In fact, employers and colleges are out of "line of sight" of each other and the object interaction in this case is difficult to determine.

One of the ways to solve the problem lies in the development of the cluster approach in vocational education.

Let us consider in more detail the concept of "cluster". The term "cluste" comes from the English "cluster"-a group, cluster, concentration, association. As the I.V. Pylypenko, "the first time the term "cluster" has entered into a scientific revolution in mathematics when at the end of the 1930s it was formulated by the unit of cluster analysis of multidimensional data". In inorganic chemistry cluster is the class of chemical compounds in

the composition of which is a different number of atoms of transition metals. The physics of clusters is one of the most dynamically developing areas of modern physical science.

Computational clusters of similar computers connected to a supervisory system are widely used in education and research to address labor-intensive computing tasks. It should be emphasized that the term “cluster” has been used by Soviet and Russian economic geographers A.P. Gorkin and L.V. Smirnyagin and Swedish business economists K. Fredriksson and Lindmark L. for definition of clusters for companies in the space back in the 1970s.

Currently there is no single, strict definition of the cluster which is caused by the dynamic nature of cluster theory. For the definition of a cluster, consider the opinions of various authors on the subject.

The founder of the cluster theory, the American economist Michael Porter defines a cluster as a geographically concentrated group of interconnected companies, specialized suppliers, service providers, firms in related industries as well as associated with their activities of organizations (universities, standardization agencies, trade associations), competing and at the same time-leading joint activities (Porter, 1993).

Tretiak argues that it is necessary to distinguish between clusters and enterprise networks, “the term” network “refers to the group of medium-sized firms which interact to achieve common objectives-complementing each other and specializing in order to overcome common problems, achieve collective efficiency and capture new markets”. And further: “the term” cluster “refers to the industrial and geographical concentration of enterprises that produce and sell a range of related or complementary products jointly”.

A.A. Mhramyan believes that the cluster is a concentration of the most effective and interconnected economic activities, i.e., a set of inter-related groups, successfully competing firms which form the “golden section” in the western interpretation of diamond” of the entire economic system of the state and provide a competitive edge in the industry, national and global markets.

Tsikhon T.V. gives this definition: “cluster is a community of firms, closely related industries, mutually contributing to the growth of competitiveness of each other”.

As we can see one of the main shortcomings of the term “cluster” is its unclear definition and the difficulty in identifying its borders in the space. T.V. Tsikhon tried to streamline the terminology used for all forms of cluster formations by dividing them into three broad groups of definitions of clusters:

- Regionally limited forms of economic activity in related sectors, usually tied to some scientific institutions (research institutes, universities and so on)
- Vertical production chains; narrowly defined sectors where the adjacent stages of the production process form the core of the cluster (for example, a chain of “supplier-producer-marketer-customer”). In the same category fall the network formed around the parent companies industry at a high level of aggregation (“food cluster”) or a plurality of sectors to a higher level of aggregation (“aerospace cluster”)

Analysis of the main approaches to the definition of clusters has shown that the authors of this concept are fixed in three points: the territorial concentration of enterprises, possession of competitive advantage and leading joint ventures. Thus, a cluster refers to interrelated activities of competing companies, localized in a certain area. I.V. Pylypenko distinguishes between regional and industrial clusters:

- Regional cluster is a geographically concentrated group of companies in a particular region (standort) from related industries. Producing similar or complementary products is characterized by the exchange of information between the member firms of the cluster and their employees, due to which increases the competitiveness of the cluster in the world economy
- Under industrial cluster a group of interrelated sectors of agriculture and services sector most successfully specialized in the international division of labor is meant

Companies that form a cluster have different directions: it can be industrial enterprises, service profile. In addition to companies producing basic products and business infrastructure in a cluster also includes suppliers of raw materials and equipment, associations and unions, educational institutions, transport companies, scientific-technical and consulting firms, etc. The effectiveness of such businesses is achieved through synergies.

Cluster leaders are most often a few large companies, the competition between them is maintained. That is why the cluster cannot be identified with various forms of enterprise integration. Clusters are closely related businesses and industries that contribute to the growth of competitiveness of each other.

Effective clusters are characterized by: the concentration of industries, specializing in certain areas;

skilled labor force which is prepared educational institutions within the cluster; implementation of research and development of scientific institutions for the purpose of enterprise clusters; access to financial resources (Borodin *et al.*, 2015). Currently, experts described the main characteristics of seven clusters (Tsikhan, 2003):

- Geographic: building spatial clusters of economic activity, ranging from purely local (e.g., horticulture in the Netherlands) to a truly global (aerospace cluster)
- Horizontal: a few branches may be included in a larger cluster (for example, the system of mega clusters in the economy of the Netherlands)
- Vertical: in clusters may be present adjacent stages of the production process. It is important which of the participants of the network is the initiator and executor of the end of innovation within the cluster
- Lateral: cluster together different sectors which can provide economies of scale, leading to new combinations (for example, a multimedia cluster)
- Technology: a set of industries that use the same technology (such as biotechnology cluster)
- Focus: a cluster of firms, centered around a single center: companies, research institutes or academic institution
- Quality: is essential not only to the question of whether the firms cooperate but also how they do it

In the scientific literature the following types of clusters are divided on the principle of sustainability of the competitive position:

- A strong cluster: its effective structure reflects the major stages of the production cycle. Active cooperation between the parties to create a sustainable competitive advantage
- Steady cluster: its structure is developing steadily, but is not currently accumulated a critical mass of productive capacity to produce significant benefits from agglomeration there is an active intra: cluster interaction
- Potential cluster: its structure is still very fragmented, but intensively
- The latency cluster: there are quiet some cluster structures, lacks communicative relationships

**Educational cluster:** Let us consider in more detail the concept of “educational cluster.” Education cluster is a collection of related vocational training institutions, united by industrial basis and partnerships with companies in the sector. An important feature of the

educational industry cluster are firstly to create conditions for the formation of vocational with different levels of vocational education and secondly, raising the prestige of high-skilled occupations, thirdly, the integration of education with science and industry. The pace of development of modern economy, science and information technologies bring to the fore the problem of finding new approaches to the organization of work in the field of training in order to increase the competitiveness of their specialists and demand in the labor market.

In the context of integration of education, science and the production educational cluster should develop on the basis of the following rules (Tatuev *et al.*, 2015):

- Interest of each of the cooperating parties in the search for optimal ways, methods, forms of organization of educational process and scientific research activities
- Constructive cooperation in order to overcome the most important problems of democracy which allows each party to take the initiative to the fullest, to justify its position; compliance by the parties and their representatives, laws and other legal acts that can be the key to the rule of law in relations of education cluster; adoption of voluntary commitments by the parties to express the essence of the educational cluster
- Community of values that are put into the bottom of the integrative mechanisms of social interaction between education, science and industry and hierarchically in accordance with the role played by the participants of the educational cluster
- Information interaction with the organization of connections and relationships

Today, vocational education must take into account the international community increasing trends: globalization, covering economy, politics, ecology and culture integration processes in a united Europe.

All of these forms provide, first, the formation of generalized intellectual and creative space of life of vocational schools; second, the development of continuous interaction between employers and the education community to organize the monitoring of the regional labor market and educational services, vocational management of filling niches in the labor market; third, the mechanisms to encourage employers to invest in educational institutions, ensuring the integration of science, industry and education, spreading positive experience of employer participation in the financing and management of institutions of vocational education.

Analysis of literature enabled us to identify a number of conditions that can both facilitate and hinder the development of clusters. The positive conditions conducive to the development of clusters include the following:

**The existence of the technological and scientific infrastructure (D.A. Yalov):** In modern conditions when Russia and its regions add up market relations and the country is included in the global market and administrative mechanisms for managing the economy and other sectors can no longer provide the necessary overall efficiency. Dramatically increasing the role of competitiveness this is becoming a crucial basis for selection decisions in all areas of activity. Among widely discussed new approaches an important place is given to the integration of science, education and innovation as one of the decisive factors in the development of economy and society based on knowledge. The development of university research and the major research and education centers is becoming a priority.

**Psychological readiness of the population to cooperate (D.A. Yalov, V.P. Tretyak):** Co-operation (from the latin cooperation-cooperation) is one of the main forms of organization of interpersonal interaction which is characterized by combining the efforts of the participants to achieve the joint objectives at the same time the division between functions, roles, responsibilities. Experts identify several types of cooperation) automatically exists on instinctive biological levels associated with schooling organization, the struggle for survival and security of the offspring, sexual behavior, etc.) traditional, guided generations of traditions, rituals, historically established social norms).

**Spontaneous:** based on a relationship of friendship, sympathy, love and situational defined conditions) legislative characteristic of military organizations, certain forms of business where the determining condition for the existence of the group is the lack of voluntary participation) contract where the individual interests of the participants are united on the basis of formal or informal agreements between them. Experts note that the inclusion of individuals in the cooperative interaction stimulates the development of attractions (from the latin attrahere-draw, attract) between members of the group contributes to providing mutual assistance, the increasing interdependence of the participants. Considering the problems of creation and development of clusters, V.P. Tretyak writes that a key element in the creation of the network is the availability of a sufficient level of confidence among its participants. Cooperative activity is a kind of joint venture, based on the group ownership of

the means of production and the final product of labor and characterized by the following socio-psychological manifestations: excess activity of its members, high aspirations, motivation and interest in the results of their labor, collective decision-making, important to work together, willing to perceive and innovation, focusing on the establishment of multiple inter-group contacts. As part of the cooperative activities economic factors of labor activity acquire a significant role in individual and intergroup behavior of its members.

**Presence of a sustainable regional development strategy of the clusters:** In the development of a regional strategy should take into account what are the key points of growth exist in the region and that they can make various interest groups for their development. This requires a consensus between the business and administrative elites of the region on the need to cluster development. Regional socio-economic development based on stimulating clusters requires initiative and joint efforts of business and administrations. The roles to be played by the administration and business in the development of industrial clusters are different but complementary. The role of the administration may be to support and initiate the process of activation clusters through various programs. The role of business organizations can consist in charity, grant support of social programs, labor market development, formation of task orders for services of a vocational education. According to D.A. Yalov, a cluster provides the following advantages: “for governments: increasing the number of taxpayers and the tax base (control centers for small and medium-sized businesses as a rule are located in the same area as the business itself as opposed to vertical corporations) there is a handy tool for interaction with business, reduced dependence on individual business groups there are grounds for the diversification of the economic development of the territory. For business: improving human resources infrastructure; It appears infrastructure for research and development; reduced costs; there are opportunities to better access to international markets”. The same position is shared by V.P. Tretyak: “successful operation of the cluster is a guarantee of jobs for people working in small businesses”, specifying further: “this means that there is a preservation of the tax base in addition it involves reducing unemployment benefits.”

**The ability to successfully implement the method of project management:** This is especially true in cases of provision of innovative programs. The method of project management allows you to create consistent with the objectives of a specific project team from the local community, united by a common goal, a common corporate culture, ensure their positive impact on the

management of the enterprise. The optimal composition of such teams it is senior managers-project managers, specialists in logistics, quality control, marketing, budgeting, implementation of international quality standards, etc. The term “design” comes from the latin «projectus-broshenny forward; this process of creating a prototype, the inverse image of the alleged or possible object of state; specific activity, the result of which is a scientific, theoretical and practical definition of informed options forecasted and planned development of new processes and phenomena. According to experts, the design the type of research activities to create, improve the project, stage of socio-cycle management. Experts identify different types of design: technical in which is the solution of problems in the development of design and estimate documentation; social as problematic thinking organization, activity. The method of project management-is a kind of social creativity, aimed at creating the optimal organization of collective relations, taking into account the objective conditions of life and different social groups for a certain period of time. The subject of the method of project management can be both individuals and organizations, labor groups, social institutions and the like whose aim is an organized, purposeful transformation of social reality.

**The development of information technologies for the exchange of information between the actors on the cluster needs of engineering and technology:** In modern literature information (Lat. «information» clarification, presentation, knowledge) is regarded as one of the most common concepts of science, indicating some information, the collection of any data, knowledge, etc. The term “information” may be used in a broad and narrow meaning. In a broad sense, information is considered within the boundaries of system-cybernetic approach in the context of the three fundamental aspects of any cybernetic system:

- Informational aspect, related to the implementation of the system in a certain set of processes reflection of the external world and the internal environment of the system through the collection, storage and processing of the respective signals
- The management aspect that takes into account the processes of the system, the direction of its movement under the influence of the information received and the degree of achievement of their objectives
- Organizational aspect characterizes the device and the degree of perfection of the management system in terms of its reliability, survivability, completeness implemented functions of perfection of structure and cost-effectiveness of the implementation of management processes in the system

Using the concept of “information” in a broad sense, the researchers in our view put it on a par with such fundamental concepts as matter and energy.

In the narrow sense, the term “information” may have many definitions, depending on the subject of research: identification of content obtained from the outside world in the process of adapting to it; negation of entropy; communication and communication in the process that eliminates the uncertainty; transmission diversity; a measure of the complexity of structures; probability of selection and others. In our opinion, each of these definitions reveals one or another facet of the multidimensional concept of “information” as a measure of inhomogeneous distribution of matter and energy in space and time and measures changes in that accompanies all the processes occurring in the world. On the basis of the object of our study we propose to consider the information as meaningful, substantial aspect of social interaction, influence decisions.

Among the factors that facilitate the flow of information A.A. Mhramyan allocated the following: personal relationships, developed in a joint study, military service, work; communications occurring in scientific communities, vocational associations; communications associated with geographic proximity; industry associations that serve clusters; family relations; common ownership within the industry group; equity participation in the joint-stock property; the interaction between the director of the company; national patriotism. That is the catalyst of information processes, according to A.A. Mhramyan are social networks.

Among the factors hindering the development of clusters include: the poor quality of the business climate; low level of associative structures (chambers of commerce, industry associations) which are not-cope with the task of developing and promoting the interests and priorities of regional businesses; short-term planning horizon as the real benefits of cluster development appear only after 5-7 years. The latter fact draws attention to the question of the scale of regional development management. If the scale of the control is limited to 4 years (election cycle) then talk about a long-term strategy is difficult. Successful implementation of projects under the special promotion of clusters is only possible with the regional strategy. Develop a cluster apart from the development of the region as a whole is inefficient. Therefore in a number of countries in recent decades and have acquired such an importance to the effective “cluster strategies” which are based on the centers of business activity has proven its strength and competitiveness in the global market.

The analysis of literature shows that the formation and development of clusters based on the following pattern:

- Prospective competitive advantages are not in foreign and domestic markets (Porter). Porter developed a system of determinants of competitive advantage of countries, known as “competitive diamond” (or “diamond”). They include:
  - Factor conditions: human and natural resources, scientific and information potential, capital, infrastructure including factors such as quality of life
  - Terms of domestic demand: the quality of the demand, trends of development of demand in the global market, the development of total demand
  - Related and service industries (clusters of industries) the scope of income and use of raw materials, semi finished products and equipment
  - Strategy and structure of companies, intra competition: the objectives, strategies, methods of organization, management companies, intersectoral competition

In addition, according to M. Porter there are two additional variables to a large extent influence the situation in the country. This random events (those that management companies cannot control) and public policy (Porter, 1993).

A key aspect of the education cluster is the market mechanism “profitability” closer cooperation of the located in the same area organizations. This pattern is due to a decrease in costs and the emergence of a number of positive feedbacks, providing intensive development of all the organizations related to relationships within the cluster. In our country, the cluster approach is primarily used in the development of programs for regional development and analysis of the competitiveness of the industry. Based on the research of experts may be noted that the cluster approach is based on the account of the positive synergies of regional agglomeration, proximity of the consumer and producer, network effects and the diffusion of knowledge and skills due to the migration of staff and the allocation of business.

The cluster approach allows you to remove the boundaries between the factors and activities and to consider them in the relationship, particularly at the regional level. The system of additional vocational training is a chaotic set of educational services, regulated only super liberal licensing regulations. Big problems accumulated in the in-house training system: each company trains for themselves, developing their programs, methods what is spent considerable funds. The lack of uniformity makes it difficult to determine whether the received specialist vocational knowledge standards of

qualification requirements by occupation. As a result, the labor market fall frames with low skill category, the weak theoretical and practical training.

The state should return to the system of additional vocational training but not for direct control and for market-based regulation. Under these conditions, the cluster approach could be considered as one of the innovations in the management of socio-economic development of society, including education. The main thing that allowed the clusters is a business opportunity for the region to develop not out of inertia. The regional development reflects all aspects of social life: the economics, social structure, political system, spiritual culture, the reproduction of the human community that is education. The notion of “region” due to the territorial organization of society is described as a complex, hierarchical system. The term “territorial organization of society” in fact acts as general scientific, interdisciplinary concepts.

Diversification and innovation clusters, based on his links with research institutions. A number of clusters was originally built on a priori existing scientific potential, i.e., backbone element of the cluster is a growing source of innovation. Most successful clusters are formed where carried out or is expected “breakthrough” in the field of engineering and technology of production followed by access to the new “market niches”. There are four basic forms of state innovation policy:

- Direct budget support for the development and implementation of new technologies and products
- Indirect support through tax policy and administrative regulation
- Investments in the education system
- Support the critical elements of economic infrastructure needed for rapid advancement of innovations (Porter, 1993)

Let’s consider the example of the formation of clusters of the Netherlands. The entire economy of the country is divided into 10 “mega clusters”: the assembly, the chemical industry; energy; agribusiness; building; mass media; health; industry, serving businesses; industry, serving non-profit organizations; transport. Analysis of the “flows of knowledge” between clusters revealed that 3 clusters (assembly industries; industries serving businesses, chemical industry) are ‘net exporters’ knowledge in other clusters. At the same time the first 2 export knowledge in all the other clusters. Health and industry, serving non-profit organizations (in which there are large institutions of industry knowledge) also is a net exporter of knowledge, although to a lesser degree. Two clusters are net importers of knowledge: the construction

and the media. Three clusters (agriculture, energy and transport) have a rather “self-sufficient” in nature and produce knowledge primarily for themselves. Such an analysis is not only possible to obtain an overall picture of the development of innovative processes but also identified the main priorities of the state innovation policy (Oleinikova, 2000).

Pooling of resources in promising, high-tech area of economic activity while maintaining the incentive mechanisms of development. According to M. Porter, clusters of activity helps to improve the business climate, increase exports and attract investments (Porter, 1993). The presence of this pattern is confirmed T.V. Tsihan and A.A. Mihranyan, noting that the development of clusters reduces transaction costs; increase the efficiency of production specialization due to the concentration of competitors, customers and suppliers in a single economic space; synthesis of synergies based on the universal standards of production, economies of scale and innovative nature of the cluster approach (based on the construction of the most developing clusters are high-tech innovations); reduction in the total cost of the development and introduction of innovations (Tsikhan, 2003; Zuev and Novikov, 2000). In the literature under the transaction it's meant to understand human activity in the form of alienation and appropriation of property rights and freedoms adopted by the society which are carried out in the planning, adaptation and monitoring of the implementation of commitments (or commitments issued) (Lapygin and Koretsky, 2006). The fundamental relationships in the production and distribution of wealth are two types of relations: balanced and unbalanced. The first type of relationship occurs in the transaction in which the possible compliance with the symmetry of relations between the parties. This transaction is the transaction, according to V.L. Tambovtsev it is a significant moment in the elected symmetrical exchange. Hallmarks of transaction according to George Commons are not production but transfer of wealth from hand to hand. The assessment of this feature depends on the recognition or non-recognition performance benefits of the exchange which is directly, linked it with this form of transaction. The essence of these processes is the exchange of property rights on the basis of a voluntary agreement between the exchanging parties as a consequence of the symmetry of the legal relationship in which the data are economic agents.

The second type of relationship occurs in transactions management. This kind of transactions exists in-house relations, bureaucratic organizations more broadly-in vnutriierarhicheskikh relations (typical examples of management transactions is the behavior of the slave

and slave owner, workers and foremen, superior and subordinate). If the object of the transaction are transactions of goods exchanged on the right (exchange facility), the object of the transaction management is one of the parties ratio (Lapygin and Koretsky, 2006). Another type of transaction which appear asymmetrical relationship is rationing transaction (Lapygin and Koretsky, 2006). The transaction rationing takes place the management side of a collective body performing a function of the specifications rights (relations). For example, the development strategy and its implementation is a transaction are rationing because the subject does not have the right to determine the actions of economic entities, but using incentives (for example, the issuance of grants, tax benefits and methods of state regulation, etc.) is able to indirectly influence on decisions. Through the transaction rationing according to George Commons empowering wealth of an economic agent is performed. However as already noted, the latter implies the implementation of specific procedures for handling which is virtually eliminated in the transaction management. Unlike the transaction by transaction, they (the talks) are carried out in the form of arguments nomination filing petitions, eloquence (Lapygin and Koretsky, 2006).

The formation and development of clusters are based on the following regularities: promising competitive advantages are not in foreign and domestic markets; diversification and innovation clusters, based on its links with research institutes; the pooling of resources in promising, high-tech area of economic activity, while maintaining the incentive mechanisms of development.

Based on the analysis we can conclude that the cluster approach is a powerful tool of the strategy to stimulate the development of vocational education which eventually sold in: appeal to young people in a continuous access to education; fast adaptation of graduates of vocational schools to the conditions of production; increasing the sustainability and competitiveness of regional education.

**Development of a model of educational cooperation as an instrument cluster of institutions of higher and secondary vocational education and food industry in Moscow:** Investigating the peculiarities of Moscow, the researcher concludes that the development and support of educational clusters is a key strategic element of social and economic policy of the city. The results of the implementation of development programs should be the priority clusters: the formation of a cluster of knowledge as new long-term competitive advantages of Moscow; specialty of the city at the forefront and intellectual



activities: high technology, competitive education and health services; increasing the concentration of a highly skilled workforce with specialized vocational knowledge (Rokotyanskaya, 2013).

In 2011 in order to consolidate efforts to ensure high vocational level of graduates' training, integration of universities in the international educational and scientific information space as well as improve the material and technical base and the creation in the future of the National Research University by the decision of the Academic Council merged the three Moscow universities: SEI HPE "Moscow State University of Food Production", SEI HPE "Moscow State University of Applied Biotechnology" and FSBEI APE "State Academy of Innovations" which ensured the creation on the basis MGUPP Russia's largest educational and scientific complex meets the requirements of today. From the combination of accumulated knowledge MGUPP is a leading center for research and education to ensure refining agricultural industries of Russia.

Moscow State University of Food Production prepares specialists for the food enterprises of Moscow. According to experts and heads of departments of food companies in the region the level of preparation of graduates of the university considered high as specialists are in demand at the enterprises of the sector in the region and beyond.

Moscow State University of Food Production supports long-term creative relationships with such open source software as FSBEI VE College of services number 3, FSBEI VE College of Business number 11, FSBEI VE College of Business number 15, FSBEI VE Technology College number 28, FSBEI VE College Small Business number 67, FSBEI VE Moscow Publishing and Printing College of Ivan Fedorov, Moscow FSBEI VE feasibility College and others.

Among the largest customers of research firms: OJSC "Ostankino Dairy Plant"; LLC "Ingrad"; Confectionery concern "Babaev"; JSC "Bolshevik"; OAO "Rot Front"; JSC "Lebedyansky"; LLC "Sladkof"; CJSC "Erlan"; JSC "Pluton-Farm"; LLC "Millisekunye technology"; JSC Efes Brewery"; OJSC "Wimm-Bill-Dan foods" of MVKZ "Kin"; JSC "Bakery No. 22"; JSC "Pridonya Gardens"; LLC "Zirax"; Of BPC "Silver Wood"; LLC "Trade Sunfruit" and JSC "Aromaros M"; JSC "Cherkizovsky MPZ"; JSC "KampoMos"; JSC "Lianozovo Dairy Plant"; LLC "Sintezhim"; FSUE "Giprorybflot"; JSC "Mikoyan meat processing plant"; JSC "Plant of baby milk products", FSUE "IREA" and so on.

In developing the model of innovative cluster interaction between educational institutions of higher and

secondary vocational education and food industry Moscow we determined the main goal-improving the quality of vocational training graduates meet current and future needs of the food industry for highly qualified specialists. The fulfillment of this goal contribute to certain tasks: coordinating the mobile areas of cooperation in training, together with the employer and the social partners; ensuring optimum material base of resources for the implementation of real projects on a long term basis; a significant increase in the quality of knowledge and practical training of students majoring on the basis of modernization and the introduction of advanced learning technologies; creating conditions for continuous education: effective work of retraining, skills and getting working professions in the system of additional professional education at the university; empowerment to improve students' motivation to self-education, development of the profession (specialty), a conscientious attitude to work, attached to the corporate and the general culture of workers in the food industry; changing approaches to career-oriented work (through preprofile training and specialized education).

The study was able to identify a number of problems, without which it is impossible to carry out the tasks. Today we face the problem of the creation and maintenance of conditions for the continuous multi-level education; a problem of implementation in the training of students studying innovative technologies, advanced techniques and methods of work organization; the problem of the educational process transparent forms of control, correction and evaluation of the quality of training.

For complex tasks we solve the basic function of the prevailing model of innovative cluster of interaction between educational institutions of higher and secondary vocational education and food industry Moscow. These include: design and analytical; legal; monitoring study of the labor market and educational services; organizational and coordinating; monitoring and evaluation of professional competencies; function of social priorities.

## **DISCUSSION**

Folding mechanisms of implementation the model of innovative cluster of interaction between educational institutions of higher and secondary vocational education and food industry of Moscow demand performance assessment. The basis of the criteria evaluation laid research scientists Mukhametzyanova (2000), G.I. Ibragimov, E.V. Tkachenko, I.P. Smirnov and others. These criteria can be considered: the presence of a coherent regulatory framework in the field of education

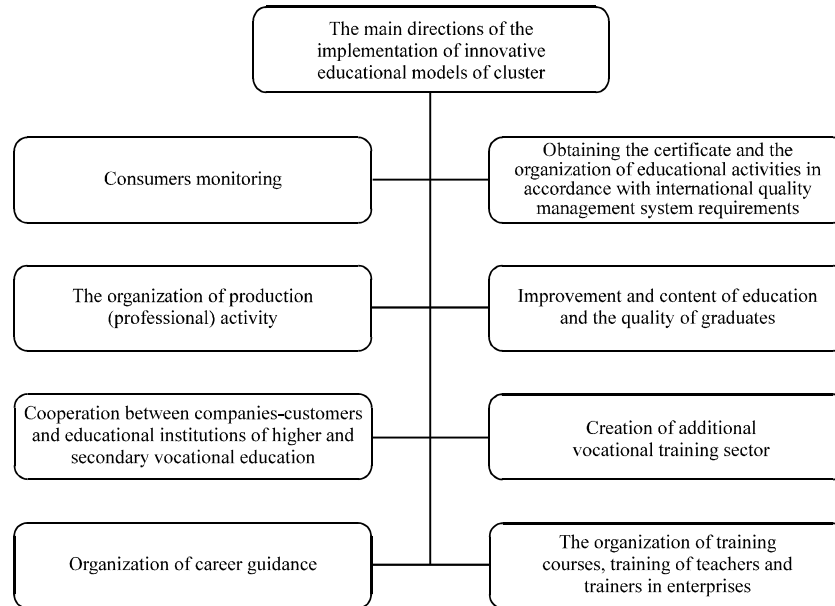


Fig. 1: The main directions of the innovation cluster model of interaction between educational institutions of higher and secondary vocational education and food industry Moscow

cluster as a model forms of social partnership; demand professions and specialist graduates in the labor market (employment of graduates); the competitiveness of the industry; mobility in the study of the complex and changing needs of the educational services, both among employers and among the students coming and tertiary and vocational education; the ability of educational institutions to improve the quality of vocational education in accordance with modern requirements of the social partners in the labor market; the level of social and professional adaptation of graduates for the submission of professional competence put forward by employers in the labor market; level of marketing in the implementation of Continuing Professional Education (CPE).

In the current model of innovative cluster of interaction between educational institutions of higher and secondary vocational education and food industry of Moscow highlighted the following priority areas (Fig. 1).

The flexibility of operation of an innovation cluster model of interaction between educational institutions of higher and secondary vocational education and food industry of Moscow depends on the quality of organized consumer monitoring which reflects the palette of opinions of employers about the presence of graduates of higher and secondary vocational education necessary professional and personal qualities. Monitoring is proposed on the basis of the developed “regulations on the monitoring system of satisfaction of educational services”. This not only allows the identification of

customers, identify the needs and expectations of both external and internal customers but with the help of the analysis to compare and evaluate the actual expectations of satisfaction with the quality of educational services consumers. And as timely adjustments and to determine promising vectors of higher and secondary vocational education which allows in particular to improve the quality of training of specialists in the food industry and to meet customer needs in the labor market.

Obtain a certificate and the organization of educational activities in higher and secondary vocational education in accordance with the requirements of the international quality management system enables mobile and effectively develop and implement systematic corrective actions to improve the prevailing system of social partnership based on analytical monitoring. This approach allowed: exercise permanent access to information on the labor market; promptly to clarify the structure of demand for staff in the labor market; take account of the requirements of employers on the content of the training of specialists in the timely correction of joint professional education content; effectively organize students practice at the enterprises of the industry; assess the quality of training and other independent experts.

One of the key areas of innovation cluster model of interaction between educational institutions of higher and secondary vocational education and food industry of Moscow is the organization of production (professional)

practice. Practical training of students is organized on the basis of leading enterprises in the region. These are the following companies: BPC: "Cheryomushki" of MVKZ "Kin"; "Bakery No. 28"; JSC "Pridonya Gardens"; LLC "Zirax"; BPC "Silver Wood"; LLC "Trade Sunfruit" and JSC "Aromaros M"; JSC "Cherkizovsky MPZ"; JSC "KampoMos"; JSC "Lianozovo Dairy Plant"; LLC "Sintezhim"; FSUE; "Giprorybflot"; JSC "Mikoyan meat processing plant" and others. In the choice of places of practice, preference is given to enterprises, institutions and organizations that plan to in the future to employ graduates of higher and secondary vocational education (cluster interaction). In the course of going through all kinds of practical training under the supervision of specialists of enterprises formed the readiness of future graduates to perform basic professional functions in accordance with the qualification requirements; it is a sequential expansion of the formed skills. At the end of practice for each specialty qualification tests carried out and certification of students for the purpose of assigning them to the qualifying ranks of working professions. The structure of the qualification commissions are included and potential employers.

Improvement of the content of education and training of graduate professionals is the constant hard work of the teaching staff to improve the training of experts is a kind of business card of educational institutions of higher and secondary vocational education with the image of a stable, reliable, time-tested partners deliver quality footage for food sector in the region. According to statistics the state regional food business by a third consists of professionals graduates of the Moscow State University of Food Production. Linear personnel trades almost 50% is represented by graduates of educational institutions of secondary vocational education then improved their education in universities. Many graduates are heads of departments of JSC "Mikoyan meat processing plant" BPC "Cheryomushki" and others.

One of the most effective forms of innovation cluster model of interaction between educational institutions of higher and secondary vocational education and food industry of Moscow on harmonizing requirements for customer enterprises professional knowledge and skills of graduates of educational institutions of higher and secondary vocational education. Employers should participate in the expert evaluation of training programs, the SJC during the RGA, specialists of enterprises should be involved for diploma projects, reading of special courses, participate in scientific conferences, competitions and others. All this creates a good basis for mutual cooperation and allows you to respond quickly to changes related to the professional development of future

workers in the food industry. Ultimately, all this allows you to quickly and flexibly respond to changes in the quality of educational services in training for the food industry in the region.

Creation of a supplementary professional education on the basis of educational institutions of higher and secondary vocational education is an important element in the education cluster model. This allows you to ensure the continuity and multi-level vocational education, to make an objective assessment of services: from both the students enrolled on programs of additional professional education as well as by experts of personnel services, external customers-customer personnel.

Organization of career guidance as well as the problem of employment of graduates are the most urgent and difficult areas in the implementation of cluster interaction between educational institutions of higher and secondary vocational education.

Today in Moscow, career guidance is complicated by a number of objective factors) the demographic situation 90: reducing the number of school students of the city leads, respectively to reduce the number of potential students in a small number of applicants) the presence emerged in recent years of various branches of higher education institutions that a certain part of the college students are oriented) the difficulty in securing housing for non-resident students for studying at institutions of higher and secondary vocational education.

Therefore, changing approaches to career-oriented work, the reorientation, the search for effective modern forms became a necessity. It features a systemic nature and biodiversity. For example such as the use of the media organization of pre and training courses for students; regular meetings in schools with students and their parents; the use of various propaganda printed materials; open days, joint competitions, sporting events and much more.

As part of the development model of innovative cluster of interaction between educational institutions of higher and secondary vocational education and food industry of Moscow should create conditions for the organization of training courses, training of teachers and trainers in enterprises; held joint events and conferences, business meetings, sightseeing, there is a favorable moral and psychological climate, the atmosphere of mutual cooperation.

## **CONCLUSION**

Thus, the result of the implementation of the innovation cluster model of interaction between educational institutions of higher and secondary

vocational education and food industry of the Moscow region is to prepare qualified professionals motivated to receive continuing education and further career growth have a responsible attitude to work and corporate culture. As the characteristics of the existence of a model of innovative cluster of interaction between educational institutions of higher and secondary vocational education and food industry of Moscow can note the presence of indisputable advantages.

On the part of employers: the realization that investing in the training of graduates-the key to qualified specialist.

From the educational institution: the realization that quality and flexible system of organized educational process allows to produce qualified professionals in demand in the labor market in the food industry.

On the part of science to realize that it has the opportunity for a short period of time to implement innovative technologies not only in production but also in the educational process, shortening the period of adaptation of specialists in the manufacture and carrying out advance training in the advanced sectors of the economy.

Permanent joint mobile coordination of employer and educational institution for management quality of training permits not only to coordinate and emphasize the urgent problems of interaction between partners but also significantly affects the folding and forming a stable cluster policy in vocational education in the region. The competitiveness of graduates of educational institutions of higher and secondary vocational education in the labor market ultimately leads to the development of human

capacity in the food industry in the region which potentially affects the economic growth of the region and therefore contributes to strengthening the economic power of the country as a whole.

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