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# Industrial Cooperation as Value Added Opportunities in the Context of Globalization

The article deals with the formation of value added in the member states of the Eurasian Economic Union (Russian Federation, Republic of Kazakhstan, Kyrgyz Republic, Republic of Armenia, Republic of Belarus) and the possibility of establishing cooperative relations allowing to form a common value added chain, where each member state will have its specific role depending on its competitive advantages. The main industrial development programs were analyzed, as well as the priority sectors and several weaknesses of the industry of the EAEU member states identified. The article highlights the main problems that arise in the process of creating added value chain in the member states of the EAEU, and proposes measures for their reduction and elimination.

**Key words:** *global value chain, Eurasian Economic Union, national economic development.*

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According to M. Porter's study, value chain (hereinafter – VC) is a set of activities that creates value for the enterprise, starting from the stage of procurement of raw material through the stage of sale of finished products, including consumer service. These stages can exist within one company, or may be divided among many firms.

Production chains can link a region, multiple countries, or a global network. As a result, a global chain of added value has developed, where one country does not produce the complete commodity, but rather participates in the formation of added value at individual stages of its development, production and sales [1]. Countries compete with others in order to infiltrate a certain link of VCs.

According to the research carried out at Duke University, the main spheres of the VCs are research and development (R&D), design, marketing and services. At the same time, the study notes that those added values are mainly concentrated in developed countries, while the production process occurs in developing countries in the picture below.

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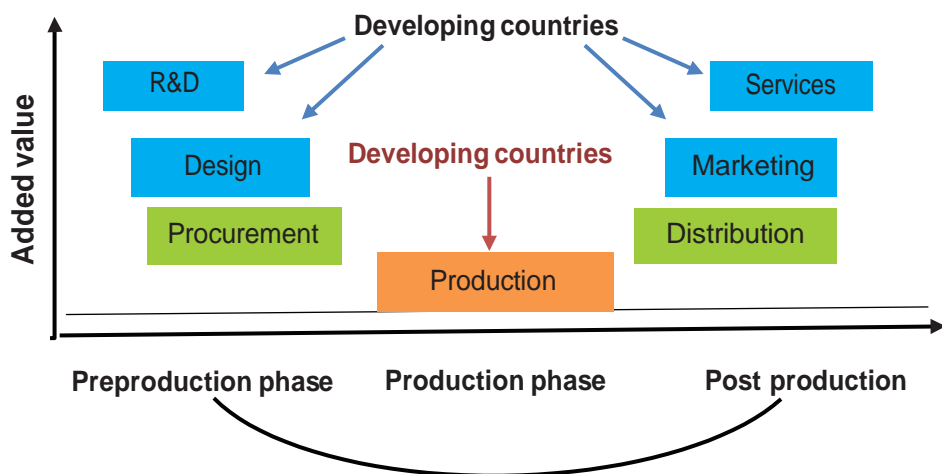


Fig. 1. Links of VCs

Value chains are heterogeneous for different industries, enterprises, products or services. Some parts of the chains adhere to the classical pipeline structures where the product or service is subjected to sequential treatment (snake value chains), while others include the final Assembly of several intermediate goods or services (value chain spiders) [2].

Globalization is the process of increasing integration between countries, in which developed and developing countries depends on political, economic and socio-cultural processes at regional and global levels. The creation of global value chains – large-scale networks of international production and scientific-technical cooperation covering hundreds and thousands of links, allows and encourages the distribution of the technological stages of production of goods and services between producers located in several countries.

The formation of new value chains within the framework of the Eurasian Economic Union (hereinafter — EAEU) also refers to the global value chains, where each member country will have a specific role depending on its competitive advantages. The aim is to create the finished product within the territory of the EAEU, competing with the products of third countries.

Realization of the industrial cooperation potential among the member countries of the Union is one of the main areas of industrial cooperation and the main tool to stimulate economic development of member states. This industrial cooperation can be carried out in both traditional sectors and new industries of strategic importance.

The basic industries, such as metallurgy, chemical industry, food industry, engineering industry and industry of construction materials are all represented in the manufacturing industry of Kazakhstan. Companies that operate in these sectors

are mainly focused on raw materials or work in the segment of intermediate stages, which belong to the segment with the lowest added value.

In Armenia and Kyrgyzstan, the situation is similar. Russia and Belarus, however, had more innovative assets after the collapse of the Soviet Union and a significant sales market, and therefore were able to maintain and develop the VC segments with higher added value.

In the framework of the State program of industrial-innovative development for 2015–2019, the priority sectors of the manufacturing industry of Kazakhstan include 14 sectors, seven of which are export-oriented: ferrous and nonferrous metallurgy chemistry, agrochemical and petrochemical industry, electrical equipment industry, automotive industry, and food industry [3].

The industrial development program of the Russian Federation for 2012-2020 encompasses 21 sub-programs, including machinery-producing industry, chemical industry, metallurgy, light industry, timber industry, manufacturing of composite materials, etc. Some of the sub-programs are aimed at technical regulation system development, standardization and maintenance of unity of measurements, industrial biotechnology, development of engineering and industrial design, and industrial parks [4].

The industrial complex development program of the Republic of Belarus for the period till 2020 is aimed at advancing the development of export-oriented and high-tech industries, with a gradual decline in production in inefficient activities and the modernization of traditional areas of specialization (agricultural engineering, transport engineering, manufacture of building materials, etc.).

The development program of processing industry of the Kyrgyz Republic for 2013-2015 was aimed at the development of production and exports of industrial products, ensuring the competitiveness on the markets of the Customs Union, as well as increasing the share of industrial production in GDP in 17 industries: including 2 industry/mining; 14 industries in the manufacturing sector and the electricity sector as a separate industry[5].

Within the framework of the «Strategy of export-oriented industrial policy» of the Republic of Armenia, the long-term goal of the export-oriented industrial policy is the formation of new industries, which will play a role as a driving economic force by expanding the current export industries and industries with export potential; as well as the improvement of legislative framework for entrepreneurship, modernization of infrastructure, enhanced competitiveness of Armenian products and the attraction of foreign investment. This policy focuses on 11 areas: winemaking, brandy production, diamond processing, manufacture of watches, textiles, biotechnology, pharmacology, production of canned food, bottled mineral water, bottled juices and precision engineering [6]. This is shown in the table below.

## State programs of industrial development within the framework of the EAEU

Country	Program	Priority sectors
Kazakhstan	State program of industrial-innovative development for 2015–2019	ferrous and nonferrous metallurgy chemistry, agrochemical and petrochemical industry, electrical equipment industry, automotive industry, food industry
Russia	The industrial development program of the Russian Federation for 2012–2020	machinery-producing industry, chemical industry, metallurgy, light industry, timber industry, manufacturing of composite materials, etc.
Belarus	The industrial complex development program of the Republic of Belarus for the period till 2020	export-oriented and high-tech industries, agricultural engineering, transport engineering, manufacture of building materials, etc.
Kyrgyzstan	The development program of processing industry of the Kyrgyz Republic for 2013–2015	mining industry, manufacturing sector, electrical energy industry
Armenia	Strategy of export-oriented industrial policy	winemaking, brandy production, diamond processing, manufacture of watches, textiles, biotechnology, pharmacology, production of canned food, bottled mineral water, bottled juices and precision engineering

Source: Compiled by the authors.

Under the coordination of the value chain, several weaknesses were identified, among which were the segments of R&D and design.

In order to pass to a new stage of the value chain, it is not enough to merely attract and adapt new technologies. Equally important is the permanent development of scientific potential of the effected industries. However, R&D is one of the most difficult areas to develop, from the point of view of management, as a distinctive feature of most R&D is the unpredictability of the final results of the research and possible commercialization. As a result, large R&D expenditures cannot always guarantee greater profits or greater market share. However, the development of R&D directly affects the development of priority industries.

In the largest modern universities in the EAEU there is a need to create a stronger scientific base. For instant, Nazarbayev University has competence in robotics, a sector which has significant opportunities for all countries, but NU's robotics are suffering a setback as a result of sanctions against Russia on certain types of components qualified as "used in the defense industry". In May 2016, Agency for Technological Development was created in Russia, which will work to increase the number of established license agreements for the purpose of technology transfer to joint ventures. The possibility of joint work between Nazarbayev University and the Russian Agency of Technological Development will create a mutually beneficial environment for both countries, by increasing the competitiveness

of enterprises through their involvement in the processes of modernization and technological renewal, as well as the growth of non-oil exports.

One of the priority sectors of development in Russia, Belarus and Kazakhstan is **chemical industry**. Armenia and Kyrgyzstan do not have a competitive advantage in the form of their own deposits or the availability of human resources.

The development of the chemical industry in all developed countries begins with such segments as basic chemistry, which includes production of inorganic acids, alkalis and salts, and fertilizers. For example, in Japan the development of R&D in the chemical industry began as a search for jobs for a displaced labor pool, which was formed as a result of stopping large enterprises from the production of mineral nitrogen fertilizers. Factories stopped producing fertilizers, by reorientation to more compliant products produced from gas.

For time being, the most advanced cooperative sector of the chemical industry is the production of agrochemicals, which already has a functioning value chain, created by MCC “EuroChem”. New methods of development and processing of phosphate ore are being developed in Russia, mined raw phosphate ore is being developed in Kazakhstan in the form of raw materials, fine and coarse ground, and directed to Kovdorskiy mining and processing works (Murmansk region, Russia) for processing into phosphate fertilizer. Starting in 2018, part of the raw materials will be processed in Kazakhstan. At the moment, the excess of raw materials is exported to Belarus.

One of the most promising chains of creation of value could be a collaboration of LLP “Kazphosphate” with the OJSC “Gomel chemical plant” through extension of the VC’s technology. LLP “Kazphosphate” can supply phosphate rock at the OJSC “Gomel chemical plant” for the production of mineral fertilizers. Belarus is a net importer of phosphate rock from Russia at a price of 143 U.S. dollars per ton from the factory. Competition from Russia, which subsidized railway tariffs for export products, thereby lowering the prices for consumers, can be a barrier to cooperation. Transportation of mineral fertilizers on the territory of Kazakhstan costs 2157 tenge per ton per 1000 km. The distance from Karatau (Zhambyl region) to Gomel chemical plant (Belarus) is approximately 4000 km. For transportation through the territory of the Russian Federation, it’s 1848 tenge per ton per 1000 km, and the distance from Kirovsk (Russia) to Gomel chemical plant (Belarus) is 2500 km. Thus, transportation of 1 ton of mineral fertilizers or mineral raw materials for Russian companies is cheaper than others, so subsidizing the railway transportation of Kazakhstan’s companies export products will allow production of LLP “Kazphosphate” to be comparable in price with the Russian phosphate raw materials. In addition, it will increase cargo transportation by JSC “KTZ”.

Projects in the sector of petrochemistry in Kazakhstan began to develop with the beginning of implementation of the State program of industrial-innovative development in 2010. In Belarus and Russia, this sector is the most promising and dedicated of the export-oriented development Programs of countries.

Kazakhstan imports products mainly from Russia and China, but in 2017, JSC “Atyrau oil refinery” is planning to launch production technologies for deep processing of oil, the product of which will be para-xylene and benzene. Para-xylene may be used for the following processing chain: para-xylene (JSC “Atyrau refinery”, Republic of Kazakhstan) sent to Russia (“SIBUR Holding”) for production of granulated polyethylene terephthalate (PET), which later will be processed in Kazakhstan to produce plastic bottles. At this stage, it is necessary to conclude the Memorandum on cooperation between JSC “KazMunayGas” JSC and SIBUR Holding ability of the para-xylene in the form of raw material with the right implementation of granulated PET at its own discretion JSC “KazMunayGas”. In addition, it is necessary to consider the transportation of para-xylene, because the product is hard-transported and it requires special tank cars, which will require updates and increasing of Kazakhstan’s car fleet. The production of 300 thousand tons of par-xylene per year would require approximately 280 railcars per month for transportation.

The development of polymer chemistry in Russia and Belarus creates a resource base for Kazakhstan enterprises in the production of plastic products, while maintaining the prices set for Russian and Belarusian consumers for Kazakhstan.

**In the sector of machine engineering**, the most promising area of cooperation is the sector of the production of equipment for oil and gas industry.

In various countries requirements are becoming more stringent for localization for the international oil and gas companies – the state stimulates the global players to participate more actively in the economy: training and hiring local workers, and developing suppliers of goods and services. If companies want to maintain and improve relations with the public authorities, in response, they will need to reconsider their approach to localization. The main advantage for Kazakhstan is the presence of consumers in the domestic market. Additionally, in the long run, the extension of the Tengiz and Karachaganak oil fields is also expected to start commercial production of the Kashagan project.

The largest Russian investors in the oil and gas sector of Kazakhstan are “LUKOIL” company and OJSC “Gazprom”. Since 1995, OJSC NK “LUKOIL” has invested 5 billion U.S. dollars in the country’s economy, and OAO “Gazprom” has invested 1 billion U.S. dollars in the development of SMEs to increase local content.

It is possible to create joint ventures with Russian companies for the production of bearings, compressors, pumps and valves for the oil industry in the North East and West Kazakhstan, which would increase and develop the proportion of local content and bolster the eco-system of suppliers. It is possible to organize production on the basis of enterprises of oil and gas industry due to developed infrastructure of transport links, utility networks (electricity, water, heat, sewer connection, etc.), resources (labor, materials, raw materials, etc.).

For now, the barrier is the problem of product marketing, because production is primarily focused on the oil and gas sector, where large mining companies carry out procurement in accordance with internal procedures. At the same time, as a rule, products must comply with API standards, ASME.

For reducing barriers it is necessary to:

- Address the issue of building certification centers collaborating with international institutions such as API, ASME;
- Proceed with further training of local staff through internships and training in Russia for the really popular destinations.

It is necessary to consider the experience of BP in Azerbaijan on creation of enterprises Support Center. In 2002, BP opened an Enterprise Support Centre, which provides services to local small and medium-sized businesses, including those in the field of business education and technical skills, and assists in the search for new opportunities and information about the requirements for localization. Since 2009, this role has been played by the Electronic Support Center companies, also sponsored by BP. In cooperation with the oil and gas industry specialists center of the country continued to support local companies in search of new opportunities.

With the creation of such a Center in Kazakhstan, the largest Russian mining companies would give access to information on opportunities within the supply chain of OJSC “LUKOIL” and OJSC “Gazprom” for local entrepreneurs, as well as representatives of small and medium-sized businesses.

The machinery industry requires the creation of data-centers to ensure free access for all potential producers of information that will help in the initial level to adapt the necessary business processes. For example, the creation of a platform that enables you to centrally track the order, starting from the moment of filing to the final customer is needed.

Further cooperation with Russian and Belarusian producers of agricultural machinery can happen through developments of the design Bureau. It is expedient to carry out technology transfer with the licensing, standards, patent, and other process documentation to be eligible for subsequent upgrades of a product or technology. Another way to attract investors is the development of services (repair and maintenance of machinery and equipment specialized companies or companies manufacturers). In the life cycle of machines, the cost of the service can reach 50 % of the price.

It is necessary to stimulate and support the development of specialized companies that can form a variety of structures in the industry, based on the network interaction method. For example, foundry-mechanical, forging, metalworking, welded-assembly, assembly and other production can make a variety of networks of relations between specialized companies.

Armenia produces electrical equipment for the private sector, Kyrgyzstan produces precious metals, Belarus does not have its own raw materials and is dependent on imported raw materials, between Russia and Kazakhstan there are existing VC. Interest is the establishment of a competence Centre, which will share technology with the aim of creating better products and developing ore deposits with low content of base metal. The Centre will, in effect, take on the role of a research laboratory.

Today, the creation of the center of competence is one of the recommendations of the Unified Economic Committee. However, there is no clear understanding of the location for establishment of the Center. Each of the participating countries would like to create a Center on its own territory, associated with the desire to enhance the R&D segment in their industry. However, for the establishment of the Centre, we must consider the funding mechanism – whether all the participating countries will Finance the Center through financial institutions, second level banks, or development banks of the participating countries, and what measures of state support will be provided. It is necessary to raise these matters at the next round of discussions on the recommendations for the development of the sector of ferrous metallurgy in the countries of the EAEU.

In the ferrous sector, the only country of interest for cooperation is Russia. There is also a need to establish a competence Center by analogy with the sector of non-ferrous metallurgy.

In the framework of realization of strategy of development of ferrous metallurgy of Russia for 2014-2020 and on prospect up to 2030, Russia plans to implement projects promoting the creation of small-scale productions of special steels and alloys, as well as develop a mechanism of compensation for costs associated with the ordering of low-tonnage batches of special steels and alloys, with the aim of ensuring break-even of production.

It is necessary to consider the possibility of cooperation of domestic medium-sized enterprises, LLP “Auriscalpium Steel”, LLP “Ferrum Vtor” LLP “KSP Steel” and such Russian manufacturers of special steels, as JSC “Mechel”, JSC “Metallurgical plant “Electrostal”, JSC “Volgograd steel works “Red October” with the aim of developing new grades of steel: austenitic (corrosion resistant) steel, functional, SMART, adaptive metal hybrid materials with further access to the markets of Central Asia and the growing market of Iran.

In Russia, the largest producer of special steels is JSC “Mechel”. Metallurgical direction of Mechel includes enterprises in Russia, Ukraine and Lithuania. The company produces hot and cold rolled stainless, tool and high-speed steel. The company develops its own unique technology of steel production and quality control. There is a solid company position in the market of metallurgical products due to availability in the Group’s own extensive service and sales network:

JSC “Metallurgical plant “Electrostal” – the leading Russian enterprise for the production of high-alloyed steels and alloys, whose production covers special pur-



pose steel, heat-resistant, precision and titanium alloys. The plant specialists have developed and mastered over 2,000 grades of steel and alloys.

JSC “Volgograd steel works “Red October” – one of the largest manufacturers of quality metal products, special steel grades for automobile and aviation industry, chemical, petroleum, power engineering and oil industry

The creation of enterprises for low-tonnage production in Kazakhstan will increase competition in the local market, possibly redistributing the existing personnel working at the JSC “ArcelorMittal Temirtau” with the aim of reducing the business’s impact on the decisions of the state bodies that are forced to apply to them for concessions in connection with social tensions in the region. Today JSC “ArcelorMittal Temirtau” is a key manufacturer, with almost 70% of total production and employment in the sector of ferrous metallurgy, so that there is a monopolization of the domestic market, leading to unfair competition and disregard of such requirements of law as environmental regulations, the return of income to the government as the modernization or development of R&D activities.

In the industry of construction materials production, cooperation is possible in the sector of production of plastic products: plastic pipes, PVC profiles, etc. (production of polymer raw materials in Kazakhstan is not available), because the production of basic building materials: cement, concrete, wall materials in Kazakhstan covers 70% of the domestic market.

The development of the base polymer raw material for the production of building materials will allow the switch to the production of high value added products such as heat and sound insulation materials as well as floor coverings and paints and varnishes based on polymers. In addition, the development of SEZ “NIPT” will attract one of the most technologically advanced Russian companies - JSC “Kompozit”, makers of composite materials, volume-reinforced carbon-carbon composite materials, adhesives, compounds, thermally conductive adhesives, paint thermostatic coating, etc.

The lack of domestic raw materials, however, hampers the development of the industry and reduces its investment attractiveness.

In the food industry, cooperation is complicated by the stiff competition from domestic producers in each country. The development of the VC is challenged by the problems associated with light production, transportation and standardization/certification of food products. Certification of products, related primarily with food safety, is one of the main barriers to entering new markets.

Currently the territory of the Customs Union applies the technical regulations of the Customs Union “On safety of food products” (CU TR 021/2011), which established General requirements for food products issued into circulation in the territory of three countries of the Customs Union: Kazakhstan, Russia and Belarus.

Compliance of food products with the technical regulations is ensured by the security requirements and the implementation of safety requirements of technical regulations of the Customs Union on certain types of food products.

The most promising and fast-growing market is the organic products market in the EU. However, the EAEU countries struggle to be suppliers of products related to this segment, due to the absence of normative-legal acts regulating the production of organic food. According to analysts, the market volume of certified organic products in the period of 2016-2017 years will exceed 100 billion.

Thus, the establishment of cooperative chains of added value is possible in each of the sectors of the manufacturing industry, however, often businesses in all of the countries face barriers of non-commercial nature. For example, in September last year, the RF Government adopted a Resolution “On priority commodities of Russian origin, works, services performed, rendered by Russian persons, in relation to goods originating from foreign States, works, services performed, rendered by foreign persons”. This document has detrimental affects on trade between countries, which in turn has a negative impact on the cooperation relations. Another example of establishing non-trade barriers is the certification of products. The need for certification of certain products separately in each of the countries leads to an increase in costs and reduction in free capital for the development of new investment projects.

In order to strengthen industrial cooperation, an analysis of all barriers between the member countries is needed. It can be conducted through businesses interviewing, which will develop measures to remove them. Equally important is the program of import substitution, which aims to reduce the import of products of third countries and increase cooperation between the existing enterprises of the member states of the Union and the creation of new joint projects. For this purpose, it is necessary to analyze the imported products market of each of the participating countries and identify goods convenient for the production.

Accessible information and organizational support to companies in search of business partners are effective instruments for creating links between enterprises of the membe

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## ***Промышленная кооперация как возможность формирования добавленной стоимости в условиях глобализации***

Рассмотрены формирование добавленной стоимости в государствах-членах Евразийского экономического союза и возможности создания кооперационных связей, позволяющих формировать общую цепь добавленных стоимостей, где каждая страна-участница будет иметь свою определенную роль в зависимости от конкурентных преимуществ. Выявлены основные проблемы, возникающие в процессе создания цепей добавленной стоимости в странах-членах союза и предложены меры по их снижению и устранению. Проанализированы основные программы промышленного развития, определены приоритетные отрасли и слабые звенья развития промышленности государств-членов данного союза.

**Ключевые слова:** *глобальные цепи добавленной стоимости, Евразийский экономический союз, развитие экономики страны.*

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