

Formation of Integrated Industrial Companies under Current Conditions

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Abstract

Economic researches in the area of integrated interrelations between industrial companies are particularly topical under conditions of globalization. The goal of this scientific research is to investigate the essence of integrated process with the participation of economic entities of the fuel and energy complex. In order to achieve the goal, the essence of industrial integration under current conditions was determined; its role in the development of integrated industrial structures of the fuel and energy complex of economy was defined; elements of the process of industrial integration on the basis of innovations and manufacture modernization were classified. In order to extend the research, special literature stating approaches to efficient management in the area of business combination is reviewed. Terms and conditions of establishing and conducting business in the country are characterized as the basis for integration processes. Integration of companies on the basis of merger and acquisition (M&A abbreviation) transactions is regarded as a special financial and economic tool. Measures on internal integration of manufacturing complexes on the basis of modernization and innovations are offered.

Keywords: industrial economy, economic integration, industrial integration, diversification, innovations, taxation

1. Introduction

The globalization of the world economy is related to integration processes that are revealed through the consolidation of the role of transnational companies, growth of investment activity of state and private companies by implementing transactions with the participation in partners' capital and without it.

Table 1. Dynamics of indicators of macroeconomic development of the Russian Federation and the Republic of Kazakhstan (in % as to the previous period)

Indicator	2007	2008	2009	2010	2011	2012	2013	2014
Gross domestic product (GDP)								
Russia	108.5	105.2	92.2	104.5	104.3	103.4	101.3	100.6
Kazakhstan	108.9	103.3	101.2	107.3	107.5	105.0	106.0	104.1
Industrial production								
Russia	106.8	100.6	89.3	107.3	105	103.4	100.4	101.7
Kazakhstan	105	102	103	110	103.5	100.5	102.5	100.2
Capital investments								
Russia	123.8	109.5	86.5	106.3	110.8	106.8	99.8	97.5
Kazakhstan	114	105	103	97	102.4	104	106.5	103.9

Notes: according to the resources (Industrial production in January-December 2014, 2015. Open Resource of the Federal State Statistics Service of the Russian Federation), (Industry in January-December 2014, 2015. Open Resource of the Statistics Service of the Ministry of National Economy of the Republic of Kazakhstan).

Industrial economics and its modernization are also based on the integration that is a combination of technological processes of the manufacture participants. Stable development of the national economy is based on efficient functioning of integrated companies that unite all technological processes of the manufacture participants in a single chain. Organizational and economic approaches to industrial integration are constantly improved, among other things by means of the current challenges of the business environment.

Following the dynamics of changing volumes of industrial production in Russia and Kazakhstan, it is possible to make a conclusion that in 2014 gross domestic product in the specified countries changed upwards as to the previous year (Table 1). The growth of the Russian economy was 0.6% and that of Kazakhstan - 4.1%. Volumes of industrial production in Russia went up by 1.7%, and 0.2% in Kazakhstan. Financial risks on foreign companies' capital investment increased. Therefore, the volume of investments in original capital of the Russian economy decreased by 2.5% as compared to 2013.

According to the report of the World Bank "Doing Business 2015", it is noted that Kazakhstan is on the 77th position (Doing Business 2015 Rank), and Russian is on the 62nd position (World Bank Group, 2015) among 189 countries (Table 2).

Table 2. General characteristics of the terms and conditions of forming corporate relations in the Russian Economy (according to the "Doing Business" rank of the World Bank)

Estimation criteria	Doing Business 2014: Understanding Regulations for Small and Medium-Size Enterprises	Doing Business 2015: Going Beyond Efficiency	Note
DB RANK	64	62	Positive tendency, improvement by 2 positions
<i>Paying Taxes</i>	48	49	Negative tendency, worsening of the position by 1 point
Total tax rate (% profit)	50.7%	49%	Negative factor: higher than the rate in Europe and Central Asia (34.9%)
Starting a Business	58	34	Positive tendency, improvement by 24 positions
Time (days)	15	13	Negative factor: higher than the term in Europe and Central Asia (12.1 days)
<i>Protecting Minority Investors</i>	97	100	Negative tendency, worsening by 3 positions
Strength of minority investor protection index	4.7	5.1	Positive factor: lower than the investors protection index in Europe and Central Asia (5.9)

Notes: according to the resources (Doing Business 2015: Going Beyond Efficiency, 2015), (Doing Business 2014: Understanding Regulations for Small and Medium-Size Enterprises, 2014).

The fuel and energy complex largely represents the Russian economy. At the present time the Russian oil mining sector produces approximately 10% of the total volume of primary energy resources that is about 12% of the world oil mining and 20% of natural gas extraction. A significant number of Russian companies consume European technologies and special equipment. However, the introduction of limits for providing orders in this area enhanced negative tendencies in increasing the deterioration of fixed assets. Along with the specified problem, there is a problem of global scale related to the decrease in budget of companies that work in the oil and gas industry. It includes the reduction of prices for energy products. This process was caused by a number of factors of the external environment:

- Firstly, prices for oil and gas fell according to the law of supply and demand: slowdown in global economic growth had an impact on energy consumption runoff, and reduction of demand caused fall of prices,
- Secondly, availability of reserve stock with primary consumers for energy resources allows to use them within the planned period for performing operational activity,

- Thirdly, the appearance of new generation technologies on mineral production increased the production that raised the supply under conditions of the demand fall, supporting the tendency of reduction of prices for energy resources.

Industrial associations of the fuel and energy complex (hereinafter referred to as the FEC) are based on the field industrial structures. Changes in the external environment predetermine the necessity to develop an innovation integrated model of industrial relations between enterprises. That's why it becomes urgent to research the current state and specificity of economic relations between enterprises of the oil industry and branches related to it. Under current conditions there is a necessity to diversify integrated industrial structures that implicates modernization of production and economy as a basis for transferring production to higher levels by turning out products with high added value.

2. Methods

It is possible to overcome structural deformation and increase in innovation activity of industrial companies by restructuring business including merger and acquisition transactions (M&A) and applying forms of international cooperation without direct participation in the capital (Non-Equity Modes of International Production).

Hence, the goal of this research is to reveal the essence of economic entities' integration and adapt the gained international experience to the Russian economy. Tasks which solutions are a basis of the research, and scientific methods of enquiry can be defined as follows (Figure 1). The methodology of this enquiry is a combination of methods and practices of the scientific knowledge applied for researching integration process and forming integrated industrial structures.

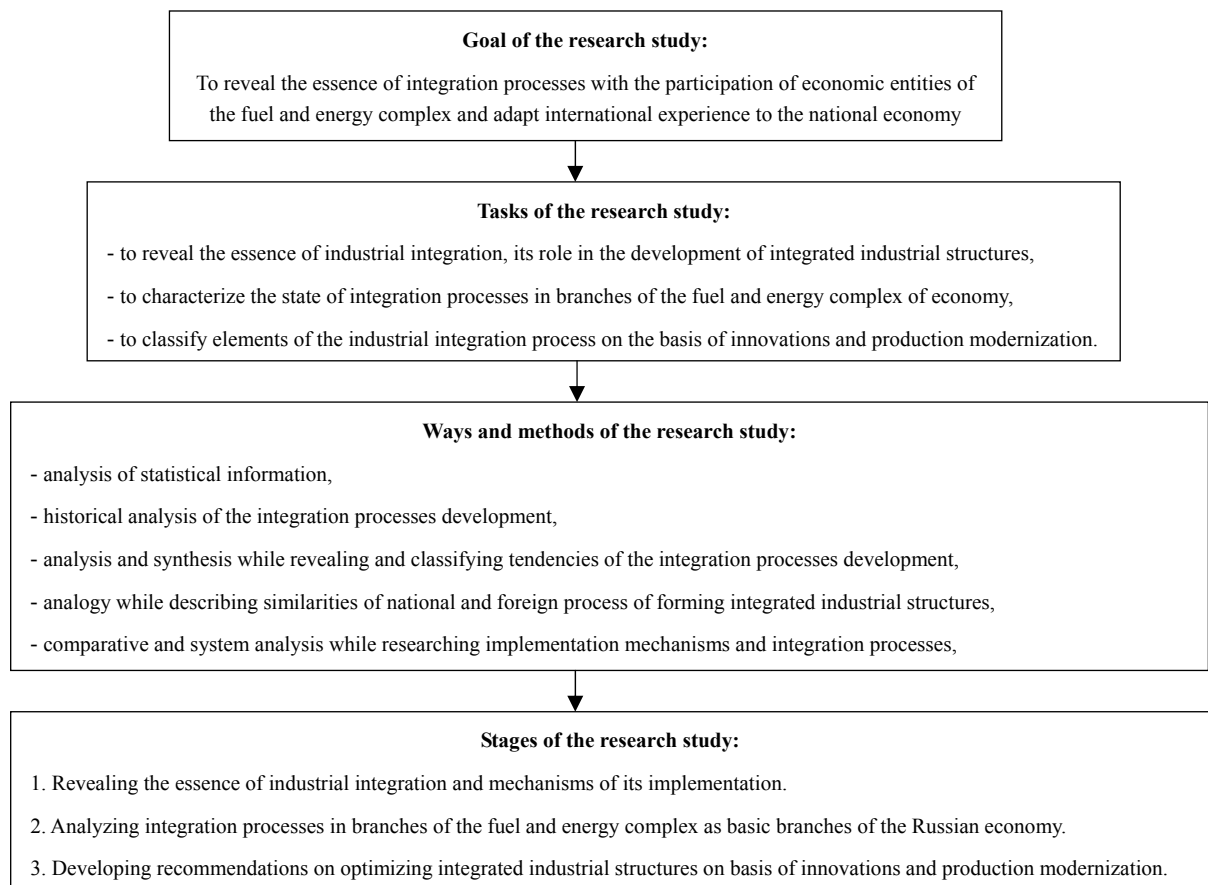


Figure 1. Structural and logical scheme of the research study

3. Results

3.1 Essence of Industrial Integration, Its Role in the Development of Integrated Industrial Structures

Researches of famous scientists have a significant role in the development of an efficient strategy of the business development by means of integration. In particular, American scientists reveal the essence of merger and

acquisition as an economic category (Brealey & Myers, 2014, pp. 918-926). Along with that, statistics of American M&A market detected during 90-ies of the previous century is of professional interest.

Consolidation based on merger and acquisition can be regarded from the perspective of strategic management defining the interrelation between the strategy, market strategy and technologies as key factors of the M&A process (Dahmen & Andreas, 2010, pp. 5-7).

The detection of tendencies and ways to assess value, make payments, motivate sellers and buyers has a special place in researching mergers and acquisitions. Researches explain the “strategic synergism” term, assess objective and subjective factors of forecasting merger and acquisition synergy (Evans, Frank, Bishop, & David, 2001, p. 288; Mellen, 2010, pp. 234-276).

The reality shows that the Russian economy has a primary focus where integrated complexes prevail in extractive industries of economy. As a rule, integrated economic entities unite several stages from extracting feedstock to selling ready products. Value, in other words, added value, should be added for the enterprise to efficiently operate at the specific stage.

The “value chain” term was introduced by Michael Eugene Porter, a researcher in the area of bargaining strength of enterprises, industrial complexes, clusters and states. According to his scientific views, the chain of the value creation can be defined from two perspectives: firstly, as a formation of the added value, secondly, from the perspective of its re-allocation between members who manufacture the final product. The management subject that is often referred to “expenses centers” (management apparatus, economic planning and legal departments, etc.) have a special role in forming the value chain. It is possible to achieve the required effect on receiving the added value with the aid of the production diversification. It is the management subject that has a competitive advantage on the success of mechanisms related to implementing the strategy of integrated structures development. (Porter & Teisberg, 2006, pp. 95-117).

The world experience accrued in the area of industrial objects integration shows that complexes often define the structure of regional development using economic concentration and growth of workforce productivity as factors of industrial growth (Drucker & Feser, 2012, pp. 1-14). The scale economy while integrating economic entities allows to considerably decrease enterprises expenses, open borders for export and inflow of direct foreign investments, and form space structures of optimal industrial allocation (Xi & Kenneth, 2011, pp. 54-68).

Special area of integrated industrial companies functioning is related to forming strategic alliances. According to the experience, strategy of management in alliances must unite partners’ interests in the context of the following factors (Chen & Huang, 2014, pp. 1-2):

- External growth of the firm;
- General areas of activity;
- State of material and intangible property.

Under the conditions of the financial crisis, efficient organization on the level of integrated complexes is based on the added value rate. It became a characteristic feature of the operational and marketing processes of large companies from developing countries which ranks were joined by transnational companies of China, Brazil, India, and Malaysia. Industrial development of integrated companies from these countries is based on innovation breakthrough. According to researches, technologies have the main role in forming an efficient industrial policy by interknitting innovation systems on the level of states through global transnational corporations in a single chain. Herewith, it is necessary to combine technological development and innovations (Franco et al., 2011, pp. 1249-1260).

Formation of integrated industrial structures is related to investments. Economics of the industrial integration is regarded as an area of investment activity. Herewith, the integration according to the merger type when the target company becomes a part of the acquiring company and integration according to the acquisition type are distinctly separated (Damodaran, 2002). The last integration variant stipulates a tender offer about purchasing shares (or unfriendly takeover); provided that the merged company can function till there are shareholders who refuse from the tender.

Specialists who are involved in problems of assessing stable development and investment attraction get an opportunity to research industry practices of transactions on business integration with the aid of methodology of M&A transactions assessment. It is important to mention that the methodology depends on the company profits and prices for its shares (Fridolfsson & Stennek, 2005, pp. 1083-1104).

Economic concentration is urgent in the process of forming industrial structures. It is regarded as the acquisition of shares (shares of participation in the capital) and reorganization in the form of merger and acquisition of the market subjects that hold dominant position on the specific product market and other variants of monopoly display. In this case the formation of integrated industrial structures must be legally reasoned within the international law (Gomtsian, 2010, pp. 64-97). In connection with the fact that the geography of Russian industrial associations expands to new markets including eastwards, the research of economic and legal basis of integrated industrial structures functioning has one of the primal roles.

Approaches to classifying types of integration kindle interest. In particular, it is possible to map back industrial integration with business processes of integration process members (Galpin, Timoti, & Herndon, 2014, p. 480):

- Full integration when all types of activity and business processes of the company that merges and the one that is merged are united,
- Moderate integration when specific key business processes or industrial functions are united, but the operational activity of the merged company remains autonomous,
- Minimal integration that means that specific functions of management and control are combined within the parent company.

Russian economists research peculiarities of business entities' association on the basis of industrial and financial capital (Endovitsky & Soboleva, 2013, p. 438). Some researchers single out peculiarities of forming models of conducting business in the USA, Europe, Japan (Tsvetkov & Visloguzov, 2005, pp. 8-16). The American model is made on the principle of "strict differentiation of financial and industrial sectors of economy). On the contrary, the German model of integration includes "flexible formations" which flexibility in a greater degree is secured by banks that influence merger and acquisition of separate companies. According to the Japanese approach, the reasonability of organizing the production process on the basis of cartel agreement arises when a specific branch is acknowledged as "structurally unfavorable", and not less than two thirds of the branch companies insist on it. In this case the enterprise closely cooperates with the government and implements the program on reducing overcapacity.

Comparing foreign integration models with the Russian practice, it is possible to make the conclusion that at the current stage the interrelation of economic entities can be referred to flexible structures, but the influence of banks on the process of business reorganization is not as prominent as in Europe. Most of all it is limited only to financing specific M&A transactions. Herewith, taking into account changes in the external environment, the necessity to enhance the interrelation of manufacturing enterprises and the state arises.

3.2 Analysis of Integration Processes in Branches of the Fuel and Energy Complex of Economy

Monitoring the dynamics of the fuel and energy complex start-up, one can see that the majority of large Russian industrial complexes were formed during the Soviet period. Many economic entities underwent the reorganization process during the independence rollout. It is the period of 1991-2001 when the peak value of newly established enterprises was observed, and during the subsequent five years current complexes went on being restructured, new enterprises of manufacturing industry focused around mineral resources sectors were established (Table 3).

Recently new enterprises have been established due to discovering deposits, setting up joint ventures on the territory of neighboring countries within interstate integrated partnerships.

FEC and chemistry organizations are integrated both inside the branches of its group and with enterprises functioning in a single technological chain. Oil-producing, oil-refining, petrochemical and chemical industrial complexes can be considered as integrated structures of such type. The basic share of large business in these sectors of economy is presented by joint stock companies with a chain of branches, subsidiaries and affiliates.

Fine largest Russian oil-producing companies include companies established as open joint stock companies (hereinafter referred to as OJSC): OJSC "Oil Company Rosneft", OJSC "OIL COMPANY LUKOIL", OJSC "Surgutneftegas", OJSC "Gazprom Neft", OJSC "TATNEFT". The assessment of oil extraction comes down to the indicator of 526 ml. tons oil by the end of 2014. The probability to maintain the volumes on the achieved level in the nearest three years is high. However, some factors of external macroeconomic environment can have a negative impact, in particular:

- Reduction of prices (or demand) for oil and gas that will inevitably lead to the deficit of the companies' budget, and, finally, income as tax levies and payments,

- Long-term effect from sectoral sanctions for supplying new technologies and commodities of intended use for oil and gas industry that will negatively influence material support of the current production in the short-term period and can significantly increase in the expenses for implementing large investment projects,
- Financial barriers related to operating Russian enterprises of the oil and gas industry that can cause problems on credit resources security for developing the productive work and related industries that are of interest not only for representatives of large business by also small and medium-sized entrepreneurship.

Table 3. Allocation of Russian enterprises as for types of economic activity (according to the establishment date in 2013), number of enterprises

Type of activity	Total number of enterprises	Including according to years of establishing the enterprise asset complex												
		1960 and before	1961-1980	1981-1990	1991-2000	2001-2005	2006	2007	2008	2009	2010	2011	2012	2013
Total in Russia	92,242	9,054	5,615	1,817	21,320	21,571	5,543	5,222	4,748	3,911	4,055	4,041	3,463	1,882
Extraction of fossil fuels	888	31	39	18	245	253	54	61	50	28	35	31	28	15
Coal, brown coal and lignum fossil extraction	247	24	15	6	46	79	6	11	9	8	13	14	11	5
Crude and natural gas production; providing services in these areas	636	7	23	12	198	173	48	49	41	19	22	17	17	10
Manufacturing activities	1,6036	3,493	1,270	354	3,697	3,100	681	652	540	557	518	538	379	257
Coke and oil industry	116	24	8	3	30	22	6	4	3	2	3	5	5	1
Chemical industry	763	144	59	8	211	134	29	32	28	32	27	23	20	16
Manufacture of rubber and plastic products	706	37	25	12	174	224	47	42	24	30	27	33	12	19

Notes: according to the resources (Allocation of Organizations according to the Establishment Date in 2013 in the Russian Federation as for Types of Economic Activity (2015). Open Resource of the Federal State Statistics Service of the Russian Federation).

For the Russian economy applying gas as a motor-fuel is one of the focus areas of the oil-refining and petrochemical industry development. Along with alternative variants of using products associated with hydrocarbon production in the national economy, industrial companies have got a task to manufacture products with high added value and innovation characteristics.

The assessment of the dynamics of innovation goods and services production showed that during last four years the growth of volumes of ready products manufacture was observed in extraction of minerals including the oil and gas industry and manufacturing industries associated with it. In 2013 the share of the innovation products, goods (services) in minerals extraction was 6 % of all products. The tendency to its decrease in 2012-2013 as to 2011 is an impulse for the activation of the innovation activity in mineral mining branches of economy (Table 4).

The share of innovation goods, works (services) in manufacturing industries exceeds the share in mineral mining branches making 11.57% of the total volume of products in 2013. The relative weight of innovation chemical products and the conversion following in including the manufacture of products of rubber and plastic is less than 10%; herewith, the dynamics of decrease is obvious as to the previous year.

Table 4. Share of innovation goods according to types of economic activity in Russia for the period of 2010-2013

Type of industrial activity	Volume of forwarded goods of proper production, performed works, and rendered services by own efforts							
	Total, ml. RUB				including share of innovation goods, works, services, %			
	2010	2011	2012	2013	2010	2011	2012	2013
Extraction of minerals	5,569,989.5	7,702,395.5	8,006,699.5	8,654,604.7	2.72	6.71	6.53	6.05
Manufacturing sector, total,	14,733,363.2	19,132,991.7	20,516,455.4	21,763,846.9	6.72	6.84	9.62	11.57
including:								
- chemical industry	1,098,549.7	1,541,860.6	1,643,831.7	1,679,998.2	11.49	10.17	10.04	9.58
- manufacture of rubber and plastic products	307,510.6	405,020.0	428,640.0	436,154.8	6.52	7.84	10.41	9.24
- production of machinery and equipment	723,721.1	994,573.2	1,031,561.3	1,105,423.0	6.53	5.87	6.04	6.22

Notes: drew up and calculated according to the resource (Technological Development of Economy Branches. Volume of Innovation Goods, Works, Services (2015). Open Resource of the Federal State Statistics Service of the Russian Federation).

Assessing the state of technical and technological equipping of operating structures of the Russian FEC, it is possible to mention the fact that a significant share of fixed assets including equipment has a high level of wear and tear (Figure 2). The average value of fixed assets wear and tear for all industries is 48.2% while the wear and tear at the enterprises related to extracting minerals achieved the level of 53.2% by the end of 2013 (Fixed Assets, 2015. Open Resource of the Federal State Statistics Service of the Russian Federation).

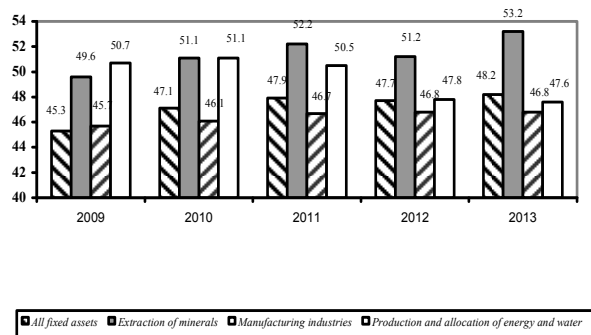


Figure 2. Dynamics of changing the level of wear and tear of fixed assets according to industrial branches in Russia, in per cents (according to the resource: Fixed Assets, 2015. Open Resource of the Federal State Statistics Service of the Russian Federation)

Many Russian companies consume European technologies and special equipment; however introduction of limits for securing orders in this direction enhanced already negative tendencies in increasing the wear and tear of fixed assets. Russian manufacturing enterprises implement all operational process of the world economy in their areas. The basic precondition of the manufacture diversification consists in the difference of the correlation of technological processes from extracting raw materials to working and manufacturing products of a higher class as to the world indicators.

The analysis of the business integration of the world leaders of the fuel and gas industry such as Exxon Mobil Corporation, Chevron Corporation, BP p.l.c., Royal Dutch Shell plc.com, Petróleo Brasileiro S. A. - Petrobras, ConocoPhillips Company, TOTAL S. A., Statoil ASA, PetroChina Company Limited, Eni S. P. A. showed the following:

- Firstly, to a greater or lesser degree all corporations depend on the oil price fluctuations,
- Secondly, all corporations function as large integrated complexes,

- Thirdly, they have up and running production and economic relations with small and medium-sized enterprises that have innovation basis and are in a single production and technological and sale chain almost in all directions of the vertical and horizontal integration.

It goes without saying that economy modernization requires financial investments for research and technological development (hereinafter referred to as RTD), which volumes are defined by the scale of production. Statistics show that such expenses also vary depending on capitalization and level of development of companies themselves (Table 5).

Table 5. Volumes of financing RTD in large companies for the period of 2008-2012

Company	Financing RTD according to years, ml, USD					Share of RTD in net profit according to years, %				
	2008	2009	2010	2011	2012	2008	2009	2010	2011	2012
Exxon Mobil Corporation	847.00	1,050.00	1,012.00	1,044.00	1,042.00	1.87	5.45	3.32	2.54	2.32
BP p.l.c.	595.00	587.00	780.00	636.00	674.00	2.81	3.54	-20.97	2.48	5.99
Royal Dutch Shell plc	1,230.00	1,125.00	1,019.00	1,125.00	1,314.00	4.68	8.99	5.06	3.64	6.53
TOTAL S.A.	1,145.26	978.86	1,132.36	1,399.71	268.33	7.35	8.31	8.08	8.19	1.95
Eni S.p.A.	325.29	290.29	6,721.82	5,738.67	211.00	2.27	3.89	69.47	73.54	1.89
Statoil ASA	2,557.72	2,686.58	3,426.55	2,429.04	481.56	33.97	94.19	41.90	17.64	4.03
Chevron Corporation	1,169.00	1,342.00	1,147.00	1,216.00	648.00	4.88	12.80	6.03	4.52	2.48
ConocoPhillips	1,337.00	1,182.00	1,155.00	1,066.00	1,500.00	-8.18	26.78	10.17	8.57	17.80
PetroChina Company Limited	3,170.54	2,835.45	3,407.62	3,706.58	2,292.60	19.12	18.76	16.40	17.98	12.53
PETROBRAS	2,716.00	2,746.00	3,157.00	4,084.00	2,200.00	14.39	17.94	15.74	20.30	13.02
OJSC "Gazprom"	196.27	235.79	230.15	792.69	62.85	2.86	1.18	1.92	2.71	0.35
Gazprom Group	792.69	908.86	798.94	981.48	247.22	2.59	3.59	2.43	2.2	1.03

Notes: according to the resource (Bushuev et al., 2014, pp. 84-85).

The data above shows that the world oil and gas companies strive to accumulate their innovation potential, maybe excluding two companies - Statoil ASA and PETROBRAS. Up to 2012 expenses for researches were not a priority direction of allocating net profits of national oil and gas companies. This is one of the reasons of the current arrears in the modernization processes evolution.

3.3 Recommendations on Optimizing Integrated Industrial Structures on the Basis of Innovations and Production Modernization

Last time integration processes obtain a peculiarity when under conditions of changes of external economic, political factors, enterprises have to find new partners for business conduction in order to maintain their positions in the market niche. Added value is determined in the process of defining the value. If the value forming is bound to a specific technological process, it is possible to apply "processing" ("process") method. The essence of this method involves every calculation object to be presented by a synthesis of two conditional units: basic material expenses and expenses added at the specific stage of the technological process. It goes that at the specific period of time the products brought in the specific technological conversion consists of ready products remade for the following conversion or the distribution center.

The goal of the production diversification for national enterprises is to transfer to the development and mastering technologies for manufacturing products with a high added value. It will have an impact on the quality and price of ready products. This process is justified by several reasons:

- Emergence of the opportunity to transfer to the technological conversion of a high level,
- Development of integration manufacturing relations between large industrial enterprises and small and medium-sized enterprises that enter a single technological chain with system economic entities,

- Necessity to develop and implement innovations that will lead to close cooperation of national manufacturers and research centers of the country,
- Establishment of new enterprises and new workplaces that will be characterized by higher competences.

Currently a company manager has got a problem related to reallocating profits for the purpose of financing new programs. Budgetary funds are also provided for projects that have certain state value. The target purpose of investment expenses of the majority of FEC is based on pushing ready products closer to the world standards, namely:

- Increase in the depth of redesigning hydrocarbon resources,
- Improvement of mining and using hydrocarbon stock,
- Formation of intellectual energy system,
- Development of future technologies of the renewable power generation,
- Yield to green thermal power of high efficiency,
- Bio power.

Synergistic effect from the integration lies in a number of advantages that can be enjoyed by partners:

- Firstly, unification of approaches to business conduction in relation to basic subsidiaries,
- Secondly, optimization of operational expenses,
- Thirdly, possibility to develop up-to-date mechanisms for implementing innovation offers in large exploration and mining projects.

It is important to note that along with non-formal ties the formation of integrated structures include purely industrial relations. In this case it goes about industrial mutual relations when the customer and the supplier conclude an agreement as a “result of strategic choice of the two parties; it helps to establish relations based on the division of tasks and responsibility for their performance between the parties” (Miller & Ye., 2013, pp. 105-113). The results of leading specialists’ researches show that closer mutual relations within the vertical integration of industrial structures are implemented in reducing their size, curtailing unprofitable enterprises and establishing so called virtual corporations refusing from the hierarchy management structure in favor of flexible matrix model of the manufacture organization. Herewith, the decrease in transaction disbursements including management expenses, losses related to adaptation in the post-integration period, expenses for searching for a profitable partner, etc. acts as a basic source of the efficiency increase (Davidenko, 2014, pp. 11-16).

It is important to emphasize that the intensification of the integration activity is often related to the manufacture modernization. It is the enterprises modernization that is affected on the technological level of the manufacturing process, growth of petrochemical industry competitiveness adjusting its level to the world quality standards.

Private and state support of integration processes on the level of large enterprises of petrochemical industry and innovation enterprises of small and medium-sized entrepreneurship can be offered as a basic measure to optimize integrated industrial structures. It is the best way to foresee integration with the aid of special scientific methods including foresight technologies. Foresight can provide the path of the integration development opening to the integration process parameters defined before (Figure 3, Table 6.).

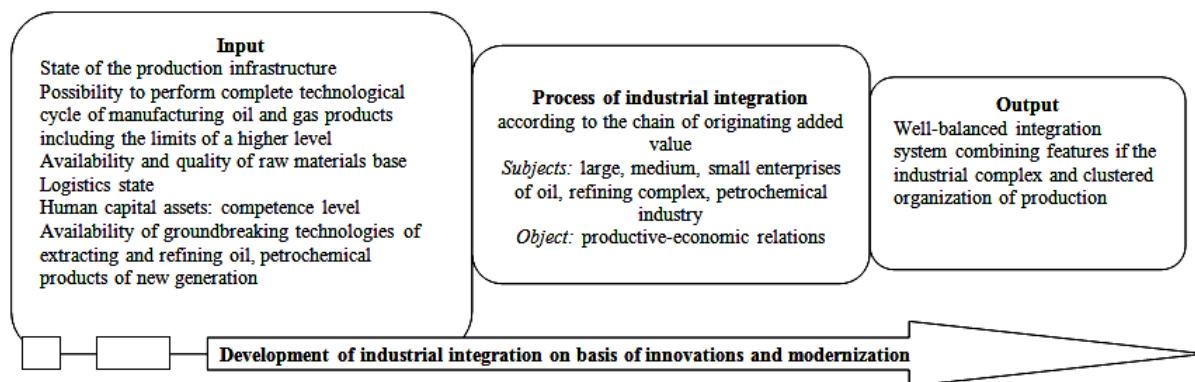


Figure 3. Elements of the industrial integration process on the basis of innovations and modernization

Table 6. Mechanisms of industrial integration on the basis of innovations and modernization

Principles of industrial integration	Mechanisms of industrial integration	
	Means of impact	Economic levers
1. Formation of a long-term strategy of industrial complex modernization	Identification of comparative competitive advantages, strategic planning, informational exchange	Intra-industry, global competition
2. Creation of terms and conditions for subdivisions interrelation inside the enterprises group	Stabilization of the external environment (including geopolitics), efficient legislation base, liquidation of administration barriers inside the group, forming industrial and financial infrastructure, export regulation at the group rate	Increase in the production profitability, price and tariff policy
3. Efficient activity of the directorship aiming to develop the industrial group	Optimal allocation of powers	Competition system of recruitment
4. Yield for lean production inside the integrated complex	Transfer of ecologically focused technologies, transfer to greenfield	Energetic efficiency, financing projects inside the group, monitoring of the environment Increase in the operating capacity, support of high quality of products, feedstock conversion rate
5. Programming resource provision of modernization	Planning internal savings and economic investments, involving direct foreign investments	Amortization fund, monitoring markets of feedstock, materials and ready products
6. Turning innovations in the basic factor of economic potential of the integrated complex	Creation of an innovation system inside the group, technologies transfer, financing innovations, forming industrial and innovation clusters	Innovation grants, preferential taxation, government guarantee
7. Use of the international cooperation potential	International cooperation of production and research activity, joining international conventions and international economic organizations	Export subsidies

Herewith, if to rest on methods of system and comparative analysis, analytic modeling, it is possible to assume process-oriented concept of management of integration processes on the level of FEC industrial companies under current conditions.

4. Discussion

It is possible to mention the reasons that are obstacles for the development of coherent integrated system. They touch upon the problems of not only the petrochemical industry but other branches of the Russian economy, too, particularly: gradual arrears in technological equipping of production, disadvantages in forming innovation transportation infrastructure, and lack of system mechanisms to support outsourcing of business processes.

In order to overcome these barriers, the formed technological chains are improved by integrating enterprises of fuel and energy complex and other companies with business entities, research centers, associations. The “critical” number of participants starts out from 50 partners and more. Last changes will allow to reveal the potential of increasing the added value on the local Russian market by creating new workplaces for producing oil and gas equipment, maintenance service, etc.

Functioning of business entities inside the group conforms certain principles that contribute to the growth of the workforce productivity, increase in the volume of production and selling products, innovation development of economy.

The most important component of the integration interrelations between the association members is a synergistic effect from economic concentration. It is possible to provide *stable development of economic system* in case of favorable concurrence of circumstances, full-size and timely resources’ provision, efficiency of business processes in the whole chain of value formation, and functioning an integrated industrial complex.

5. Conclusion

Under conditions of complexity and entanglement of the internal and external environment, the development and implementation of stable development mechanisms, including the ones based on the chain of value formation, play an important role on the level of integrated business entities. In our opinion, the target destination of such mechanism can be stable functioning and development of an industrial complex that combines important directions in one logical chain: provision of economic stability on the level of the World Corporation, management of business processes quality in functional and resource subsystems, and input and output management of integration processes.

It is reasonable to cooperate in the process of forming reliable corporate relations for implementing innovation projects in the following areas:

- Attraction of cooperation orders (subcontracts),
- Optimization of cooperation relations on the level of states,
- Keeping (content and actualization) of open database of industrial enterprises,
- Organization of innovation exchange between enterprises of the integrated group,
- Development of interregional research relations.

Finally, it is important to note that regardless of sizes, forms of ownership and branch, companies are a primary element of economic relations. That is why the state of integration relations plays a supreme role in the efficiency of the innovation process at the macroeconomic and microeconomic levels.

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References

- Allocation of Organizations as for Types of Economic Activity According to the Establishment Date in 2013 in the Russian Federation. (2015). *Open Resource of the Federal State Statistics Service of the Russian Federation*. Retrieved from http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications
- Basic Funds. (2015). *Open Resource of the Federal State Statistics Service of the Russian Federation*. Retrieved from http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/enterprise/fund/#
- Brealey, R., & Myers, S. (2014). *Solutions manual for Principles of corporate finance* (11th ed., pp. 918-926). New York: McGraw-Hill Irwin.
- Bushuev, V. V., Afanasieva, M. V., Belogoriev, A. M., & Stankevich, Yu. A. (2014). *Evaluation of Corporate Efficiency in Fuel and Energy Company: Methodology and Results* (p. 188). Moscow: “Energy” Publishing Center, Energy Strategy Institute. Retrieved from <http://www.energystrategy.ru/index.htm>
- Chen, S. S., & Huang, Y. S. (2014, July). Corporate Governance in Emerging Markets: An introduction. *International Review of Economics and Finance*, 32, 1-2. <http://dx.doi.org/10.1016/j.iref.2014.01.003>
- Dahmen, A. (2010). *Strategische Einflussfaktoren von M&A-Transaktionen* (Doctoral (PhD) thesis). West-Hungarian University, Doctoral School Istvan Szechenyi, Sopron.
- Damodaran, A. (2002). *Investment Valuation*. New York: John Wiley and Sons. Retrieved from http://pages.stern.nyu.edu/~adamodar/New_Home_Page/writing.html
- Davidenko, L. M. (2014). Modernization as Factor of Growth of Economic Capacity of the Integrated Industrial Structures (Best Practices). In I. D. Turgel et al. (Eds.), *All-Russian scientifically - the practical Modernization of Old Industrial Territories Conference: Factors of Success in Global Economy* (pp. 11-16). Yekaterinburg: Urals Institute of Management of Russian Presidential Academy of National Economy and Public Administration.

- Doing Business 2014: Understanding Regulations for Small and Medium-Size Enterprises*. (2014). Retrieved from <http://www.doingbusiness.org/reports/global-reports/doing-business-2014>
- Doing Business 2015: Going Beyond Efficiency. (2015). *Report of World Bank Group*. Retrieved from <http://www.doingbusiness.org/reports/global-reports/doing-business-2015>
- Drucker, J., & Feser, E. (2012). Regional Industrial Structure and Agglomeration Economies: An Analysis of Productivity in Three Manufacturing Industries. *Regional Science and Urban Economics*, 42(1-2), 1-14. <http://dx.doi.org/10.1016/j.regsciurbeco.2011.04.006>
- Endovitskiy, D. A., & Soboleva, V. E. (2013). *Economic Analysis of Companies Mergers/Acquisitions* (p. 438). Moscow: KNORUS.
- Evans, F. C., & Bishop, D. M. (2001). *Valuation for M&A: Building Value in Private Companies* (p. 288). New York: John Wiley and Sons.
- Franco, E., Ray, S., & Ray, P. K. (2011, July). Patterns of Innovation Practices of Multinational-affiliates in Emerging Economies: Evidences from Brazil and India. *World Development*, 39(7), 1249-1260. <http://dx.doi.org/10.1016/j.worlddev.2011.03.003>
- Fridolfsson, S. O., & Stennek, J. (2005). Why Mergers Reduce Profits and Raise Share Prices-A Theory of Preemptive Mergers. *Journal of the European Economic Association*, 3(5), 1083-1104. <http://dx.doi.org/10.1162/1542476054729455>
- Galpin, T. J., & Herndon, M. (2014). *The Complete Guide to Mergers and Acquisition: Process Tools to Support M&A Integration at Every Level* (3rd ed., p. 480). Jossey-Bass Professional Management. Hardcover.
- Gomtsian, S. V. (2010). *Regulations of Merging Joint Stock Companies: Rather-Legal Analysis* (p. 320). Moscow: Wolters Kluwer.
- Industrial Production in January-December, 2045. Urgent Information on Actual Issues*. (2015). *Open Resource of the Federal State Statistics Service of the Russian Federation*. Retrieved from http://www.gks.ru/bgd/free/B09_03/Main.htm
- Industry in January-December, 2014*. (2015). *Open Resource of the Committee on Statistics of the National Economy of the Republic of Kazakhstan*. Retrieved from <http://www.stat.gov.kz/faces/homePage>
- Mellen, C., & Evans, F. (2010). *Valuation for M & A Building Value in Private Companies* (pp. 234-276). Hoboken: John Wiley & Sons.
- Miller, A. Ye. (2013). Research of Alternative Options of Integration Interactions of Production Structures. HERALD OF OMSK UNIVERSITY. *Series "ECONOMICS"*, 3, 105-113. Retrieved from <http://journal.omeco.ru/>
- Porter, M. E., Olmsted, E., & Teisberg, E. O. (2006). *Redefining Health Care: Creating Value - Based Competition on Results* (p. 506). Boston: Harvard Business School Press.
- Technological Development of Economic Sectors. Scope of Innovative Goods, Works, Services*. (2015). *Open Resource of the Federal State Statistics Service of the Russian Federation*. Retrieved from http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics
- Tsvetkov, V. A., & Visloguzov, N. M. (2005). Transformation of the World Oil Market on the Background of Strengthening Integration Processes in Economy. *Industrial Policy in the Russian Federation*, 6, 8-16.
- Xi, K. K. (2011, December). Integrating the Global with the Local: Performance Measurement in Multinational Corporations. *Transnational Corporations Review*, 3(4), 54-68.

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