

UDC 33

## Integration Processes in the Industry Sphere

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**Abstract.** Research of the issues related organization and functioning of the intercompany relations is particularly topical. In the context of integration processes in the production complex there is an objective need to develop new and revise the already-existing methodological schemes and ways that are oriented to the competition power provision and economic institution development in the production.

**Keywords:** integration, quasi-integration, intercompany relations, management.

### Introduction.

Over the last few years integration issues in the industry sphere and roles of the end product sales in this process are under active discussions in the scientific sphere. The interest to the problematics is conditioned upon serious competitive recovery reserves of the cooperative producers and the end product consumers. High risks and distrust to the contractors increases transaction expenses which reduce the competitive recovery. In response to the growing integration processes there is a task of intercompany management of economical formations in the industry. An important peculiarity of Russia's economics modern development stage is increasing the role of integrated structures in the industry sector. Industrial integrated structures have the following significant advantages: they have a great potential for implementing the strategy of competitive advantage; they have an opportunity to diversify production and create closed manufacturing chains; they react to the market changes more flexible; they are able to economize by centralizing some functions; they are more resistant due to the multiple risk operations transfer to subsidiaries, etc.

### Discussion.

Scientific stage of the problem. The theoretical bases for the development of the integration process are reflected in the works of prominent Western scientists like Bertalanffy, Galbraith, R.G. Coase, D.S. North, J. Tyrol, O. Williamson, H. Haken, K. Arrow and others. Issue on effectiveness assess of the integrated structures is researched in the works of V. Pareto, E. Peters, R. Pindyck, A. Thompson, Joseph Schumpeter and others. Functioning problems of the integrated business structures were under research of R. Ackoff, I. Ansoff, Braley, S. Myers, R. Matthews, JS Pappé, A Strickland. In recent years, intercompany cooperation in industry and logistics is deeply researched in the economic literature both abroad and in Russia. There is a significant backup on the developing the methodological basis of the complex integrated structures management in the works of V.I. Sergeeva, V.V. Dybsky, O.D. Protsenko, L.B. Mirotin, A.G. Nekrasov, V.S. Lukinskogo, S.A. Uvarov, E.I. Zaitseva, B.V. Sokolov, A.V. Smirnov, A.V. Arkhipov, S. Wirth, H. Wildemann, H.P. Wiendahl, J. Suedow, J. Kaeschel, T. Teich, D.Ivanova (Germany), R. Swiekatowski (Poland), B. Kaluza (Austria), L.M. Camarihna-Matos (Portugal), C. Chandra, H. Simchi-Levi, T. Tayur, T. Harrison (US). Thus, the intercompany management current state analysis allows to fix that:

- insufficiently studied theoretical and methodological bases for the efficiency assessment of the company integration and supply, production functionality, sales;
- most industry companies have no management approach to the flow processes management aimed to optimization of the intercompany transactions;
- arising expenses and losses when promoting the goods from the original provider of material resources to the final consumer of the end products are not fully taken into consideration and quantified;
- issues on management effectiveness assesment with a glance to necessity of the interest

balance approach of integrated providers of material resources, producers and consumers.

Based on this the research aim is to develop the methodological basis of industrial company effective management under conditions of the integration processes. To approach the aim it is required to deliver the following targets:

1. to find out the peculiarities of the management under conditions of integration in the industry sphere;
2. to develop the methods and economical mathematical model of the integrated areas optimal functioning in the industry sphere.

Let's work a task. The traditional system approach satisfies the requirements of the economical relations current stage. With that today amid the integration processes development the issues on economical practicability and mutual dependance in the whole chain of the participants cooperation become topical, i.e. development and system approach range expansion including its contragents study. Under the conditions of integration processes development the necessity of range expansion of the system approach to the assesment and integrated subjects management has been proved.

By integration of the industry companies we take a process directed to joining of the economical entities to the entire financial and economic «nature» in order to achieve competitive advantages in the external environment through the efficient additions of the potential participants that form its structure. In other words, by integration we can mean both the process and result of interaction between the separate structural elements of some assembly that leads to the link optimization between them and their union into a single system which has a new quality and new potential possibilities videlicet synergy. This is accompanied by an increase in the effectiveness of the activity due to compound of the separate parts into a single system through the so-called systemic effect. In particular, the integration in a metallurgical complex allows to reduce cross unit costs for the final production, cost savings linked with the outside contractors and intermediaries, transaction cost reduction for the intermediate products indirect taxation. In addition, there is a possibility of capital-intensive projects and research programs. Integrated steel structure profitably differ with a higher stability and lower dependent on adverse changes in market conditions.

The main division criterion for the integration unions to full, partial and quasi-integration is an active company control extent over an ownership of the companies belonged to the union while maintaining a full control over developing the different business forms. Performance of the quasi-integration economical forms: virtual corporations, strategical alliances, clusters, delivery chains. First two forms define unions in the big business sphere, second two forms appear mostly in the medium business sphere. Economical forms of the quasi-integration: virtual corporations, strategical alliances, clusters, delivery chains. It ought to be remarked that the generally accepted «quasi-integration» definition doesn't exist. At that different sources core with mismatch of the definitions and the phenimenon conception as well. Particularly, K. Blua defines quasi-integration as a situation where «the companies avoid the vertical integration risk or the ownership rigidity taking out its advantages» [1]. By quasi-integration M. Dietrich means «permanent relations between legally independent economical units» [2]. V. Tretiak has the same opinion; he thinks that we should link quasi-integration existence with the assets integration of legal independent companies that voluntary give consent to control over their assets [2].

Quasi-integrated structure is a combination of the independent companies and organizations that coordinate the activities based on network interaction principle and high trust degree defined by non-formalized relations, sociability, mobility, dynamical structure. Differential peculiarity of the quasi-integration structures is period of relations that is enough to create some «internal» systems of the norms and rules for the group which in most cases allow not to apply to the «external» third party for conflict management. At that the certain norms are formed - «stoppers» that make each of the partners to consider the interests of other participants and thereby conduce the structure stability. Quasi-integration forms are shown in the table Nr 1.

Table 1: General description of the corporate integration forms

Type	Description
1. Strategic alliances	Integration of independent companies for a certain project realization. The companies are independent in settlement of other topics that are not linked to the alliance interests.
2. Franchising	Franchising (trademark owner) provides the franchise with goods, technology and contributes to the business minimazing by this the financial and management recources.
3. Virtual corporation	Its prototype is net organization. The organization is created to execute activities or realize arising needs. It is created from different companies based on a contract that provides integration of the partners efforts for some project realization.
4. Dynamics focal net	Dominant central company («broker») groups a partner net, takes best scopes from the net and coordinates activities on a value engineering by hierarchical methods. It is characterized by stability absence, competition among the partners, open network logon.
5. Value network	It is created with the aim to impprove logistic and marketing processes in a customer-oriented network (retail business, consumer product manufacturing). Aims: terms reduction, costs saving, service improvment, consumer needs considerations. Based on «just-in-time delivery» and «perpetual stocking» systems. It has the quasi-integration form. The partner structure is differ by low fluidity. The network is characterized by polycentrism that is stepwise changed by focal company creation.
6. Facal supply net [89]	One partner domination (focal company) that coordinates the whole value network creation. It has the hierarchic pyramidal form. The structure is vertcally integrated. Dynamics competition among the partners that vid for specific projects participation.
7. Cluster	A group of geographically localized integrated companies, suppliers of equipment, utilities, customized services, infrastructure, scientific-research institutes, universities and other organizations that mutually explanatory of each other and strengthen competitive position of self contained companies and the cluster as a whole.

Thus, it is advisable to introduce the following industry company organization and management principles under conditions of the integrated processes: using of the same management methods; moving from competition to cooperation with the supply contractors; cooperation with a slimited numbert of reliable product buyers and material resources suppliers; quasi-integration with key customers and suppliers at least of the first level in order to ensure stability and reduce the risk; fast reaction to the order; established mutual payment system for the resources; formation of a single chain costs; inventory optimization for the whole supply chain;

tendency for the integrated structure innovative development.

Let us work another task. An author method of supply, production and sales performance optimization at the industry companies under conditions of the integration with contragents has been developed. As distinct from the existing ones first of all it is based on expenses and losses identification sources in the supply chain «supplier-producer-consumer»; secondly it takes into account the correlation between costs and losses; thirdly it shows different schemes of the flow processes with taking into consideration the external environment requirements and interaction with the buyers each of which impacts to the reason and value of the expenses and losses; fourthly it allows to plan the optimal supply and sales parameters based on a difference in production delivery time and its payment. The criterion is minimum of the integral expenses that includes classic, logistic and transaction expenses [3-5].

Oriented to the proposed method an economic and mathematical model for identifying the supply and sales parameters under conditions of advance payment and delay of payment at the integrated companies based on the modern programs application has been developed and tested at one of the biggest metallurgic companies in Russia [6]. The model allowed to get the following practical results: minimal value of the integrated expenses could be achieved at the time value of

the sold production payment and it is  $y(t = 5) = 28,346 \times 10^6$  rubles; modeling of the variant with an advance payment for the sold production has shown that the minimal value of the integrated expenses could be achieved at the advance payment value  $i = 40\%$  and waiting time of the end production  $t_2 = 34$  days; best balance between sales regimes could be achieved at the payment time

of the sold production  $t_1 = 5$  days and waiting time of the end production  $t_2 =$  from 17 up to 34 days depends on the advance payment and sales volume on the advance payment; to increase customer service level for 1% it's required to increase expenses for 1,8 million rubles, at that losses will be reduced for 0,85 million rubles. Vice versa, service level reduction for 1% will lead to losses increase for 0,9 million rubles, at that expenses will be reduced for 0,3 million rubles [6,7].

Practical relevance of the work is what the obtained results allow to move from an intuitive to the scientific rationale of the management decisions took by a management of the integrated industry companies in the cost control process.

Economical effect lies in expenses reduction by stages of the producer cash flow that at in the stage of quasi-integration with suppliers of the material resources and consumers of the end production [8].

Developments and guidance papers have practical value and could be used by management and specialists of the economical subsidiaries.

Individual contribution of the article writers lies in original optimization method development and building up a model of the effective functioning industry companies integrated into a supply chain.

### Conclusions:

- under conditions of growing integrated processes there is an objective task to develop a new management tool and perform its evaluation; the criterion of the effective management under condition of the integration is minimum of the integration expenses for the whole product promotion chain from formation up to consumption, from the supplier up to end consumer; to take fast management decisions it's required to build up an adequate model which allows to define and approach optimal parameters of the integrated participants in a real-time mode.

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