



CRITERION ASSESSMENT OF INTEGRATION POTENTIAL OF COUNTERPARTIES IN SUPPLY CHAINS

PRIMEIRO TERRITÓRIO FEDERAL NA RÚSSIA: CARACTERÍSTICAS DA ORGANIZAÇÃO DA AUTORIDADE PÚBLICA

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ABSTRACT

Objective. Goal of the study is to assess the integration potential of supply chain counterparties using interrelated criteria and develop unified criteria for evaluating logistical integration potential.

Methods. The authors used methods of grouping, comparative and systematic analysis, expert assessments, questionnaires, comparison by analogy, and rating method. The methodological basis of the study is founded on the works of domestic and foreign specialists in the field of logistics integration, strategic partnership, and procurement management.

Results. Key criteria for integration potential included joint planning, information integration, and resource sharing. Approximately 21% of companies showed significant integration potential, 32% had basic conditions, 28% had minimal potential,





and 19% had none. Suppliers were categorized into strategic partners, preferred suppliers, basic suppliers, and one-time contractors, with different interaction strategies for each.

Conclusions. Optimal integration levels vary by company and depend on factors such as enterprise type, industry, product specifics, and supplier relationships. While about 20% of companies can achieve high integration levels, most operate at stable or basic levels due to procurement maturity and transparency issues. Tailored integration strategies are essential for enhancing supply chain partnerships and sustainability.

Keywords: Supply chains; Integration; Suppliers; Consumers; Procurement; Strategic partnership.

RESUMO

Objetivo. O objetivo do estudo é avaliar o potencial de integração das contrapartes da cadeia de abastecimento utilizando critérios inter-relacionados e desenvolver critérios unificados para avaliar o potencial de integração logística.

Métodos. Os autores utilizaram métodos de agrupamento, análise comparativa e sistemática, avaliações de peritos, questionários, comparação por analogia e método de classificação. A base metodológica do estudo assenta nos trabalhos de especialistas nacionais e estrangeiros no domínio da integração logística, da parceria estratégica e da gestão de aquisições.

Resultados. Os principais critérios para o potencial de integração incluem o planeamento conjunto, a integração da informação e a partilha de recursos. Cerca de 21% das empresas apresentaram um potencial de integração significativo, 32% tinham condições básicas, 28% tinham um potencial mínimo e 19% não tinham nenhum. Os fornecedores foram categorizados em parceiros estratégicos, fornecedores preferenciais, fornecedores básicos e contratantes únicos, com diferentes estratégias de interação para cada um.

Conclusões. Os níveis ótimos de integração variam consoante a empresa e dependem de factores como o tipo de empresa, a indústria, as especificidades do produto e as relações com os fornecedores. Embora cerca de 20% das empresas possam atingir níveis de integração elevados, a maioria opera a níveis estáveis ou básicos devido à maturidade das aquisições e a questões de transparência. As estratégias de integração adaptadas são essenciais para melhorar as parcerias e a sustentabilidade da cadeia de abastecimento.

Palavras-chave: Cadeias de abastecimento; Integração; Fornecedores; Consumidores; Aquisições; Parceria estratégica.

1 INTRODUCTION

The results of modern research in the field of supply chain management indicate a steady increase in logistics costs for Russian enterprises, which significantly exceed the global average. The authors believe that the typical reasons for this situation are:





- High political and economic instability in domestic and international markets (Alekseev et al., 2023; Serbina, 2023);
- Economic sanctions (Starovoitov et al., 2023; Shugurov & Pechatnova, 2023);
- Consequences of the pandemic (Degtev et al., 2022; Deyev et al., 2024);
- Customs restrictions;
- Lack of transparency in supply and sales systems (Panasenko et al., 2024; Yessenali et al., 2024);
- Low level of business confidence in almost all areas of the Russian economy (Kuznetsova et al., 2020).

In these conditions, the classical idea of a systematic approach based on the principles of integrating SCM participants and implementing the concept of total costs becomes more relevant than ever. The relevance of applying integration mechanisms in supply chain management is, to some extent, justified by modern Russian and foreign experts. At the same time, the relationship between joint activity mechanisms and assessing the logistic integration potential of supply chain companies according to comprehensive criteria, regardless of the organizational structure of management, is not sufficiently reflected in the scientific literature (Sergeeva et al., 2024). These circumstances determined the choice of direction.

2 LITERATURE REVIEW

The concept of total costs in logistics integration is reflected in the works of Slone, Dittmann and Mentzer (2010), who believe that integration is the core of an ideal supply chain, allowing to build productive relationships between the functional units of a company and determining the ability to cooperate with external partners.

Johnson (1999), Waters (2003), Aryan Van Weele (2014), Robert Monzka (1993), and Gattorna (2017) emphasize the special role of partnership formation in supply chains based on an integration approach.

According to Leenders and Johnson (2006), logistics integration provides communication, coordination, and control necessary to avoid possible conflicts between physical distribution functions and material flow management.





The same idea runs like a red thread through the works of Christopher & Peck (2003), Kim, Park (2018), Bag (2018), Amoako-Gyampah et al. (2018), Lii (2016), as well as in the works of modern Russian experts in supply chain management – Bochkarev (2023), Protsenko (2020), Terenina, Khmel'nitskaya (2023), Dubovik (2022) and others. Considerable attention is paid to building integration relationships between suppliers and consumers within the framework of SRM, VMI, CRM, SCM, CPFR technologies, etc. In other words, according to most experts, logistics integration becomes one of the most effective tools for increasing the sustainability of modern supply chains.

At the same time, there are warnings in the scientific literature about using an integration approach without good reason, regardless of the level of economic development and capabilities of the parties, elaboration of issues related to the distribution of responsibility, risks, and rewards. In particular, Gattorna (2017) points out the likelihood of increasing the level of conflict between partner enterprises. Many experts suggest assessing the integration potential of SCM partners based on a set of main and secondary criteria that differ depending on the business situation and specifics of a particular enterprise. The most significant indicators are usually considered to be the following: perfect order metrics (quality of supplied products, timeliness of delivery, accuracy, comprehensiveness, level of service, additional product/service development proposals), prices, production capacity, supplier's distribution capabilities, financial stability, reputation in their field, etc. (Leenders et al., 2006).

However, such parameters are often designed for a universal market situation regardless of environmental factors (Kochetkov et al., 2023), the stage of the relationship lifecycle, and the interaction strategy used by suppliers and consumers. It seems that taking into account these circumstances require developing more comprehensive criteria that allow for a balanced assessment of the parties' integration potential.

Thus, goal of the study is to evaluate the integration potential of counterparties within supply chains by developing and applying a set of interrelated criteria.

3 RESEARCH METHODOLOGY





The methodological basis of the research was formed by the works of domestic and foreign experts in the field of logistics integration, strategic partnership, and procurement management. During the study, we used methods of grouping, comparative and system analysis, expert assessments, questionnaires, analogy comparison, and the point method.

This work was carried out based on questionnaires, interviews, expert evaluations, comparative analysis, and grouping of 276 domestic and foreign companies operating in the Russian market. The study, which took place from July to December 2023, involved manufacturing companies, trading enterprises (wholesale trade in light industry products, pharmaceutical distributors, and online trading companies), logistics providers, transportation and warehouse operators. Based on the results of the analysis, a conclusion was drawn about the interdependence of integration levels and mechanisms of joint activity of suppliers and consumers, which, in turn, allowed us to draw conclusions about the degree of readiness of enterprises to form partnerships.

The assessment of the level of integration of study participants was carried out according to several criteria for integration that are most important from the point of view of the authors, allowing to evaluate the prospects for integrating interaction between suppliers and consumers (Figure 1).

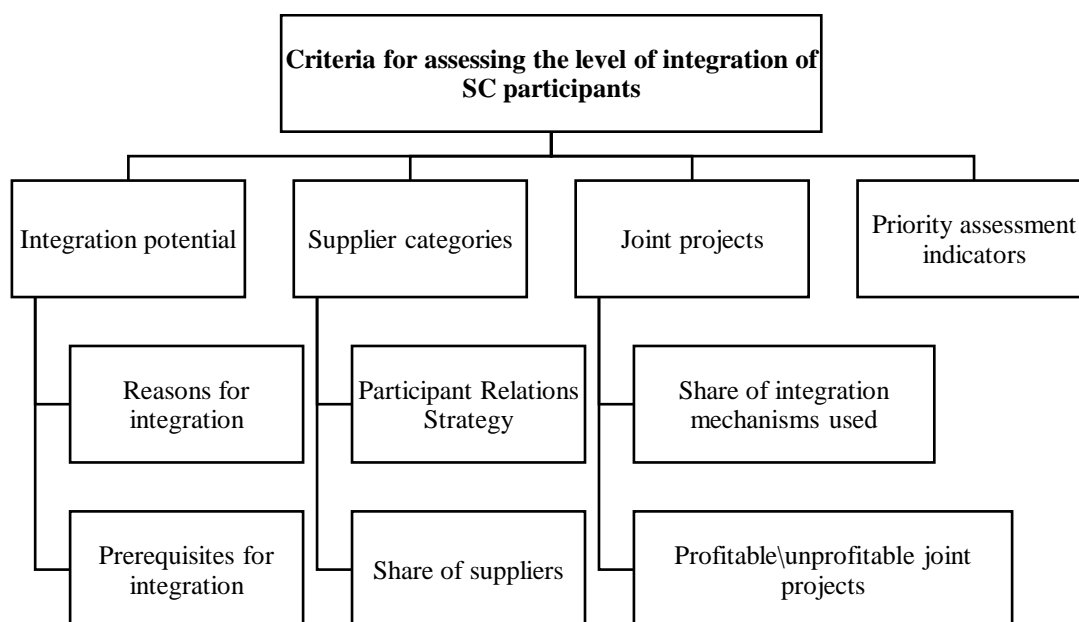


Figure 1. Criteria for assessing the level of integration of supply chain participants (compiled by the authors)



Based on the accumulated scientific experience, we have identified criteria both taking into account the share and effectiveness of joint projects with various categories of suppliers, and from the perspective of forming relationships based on a set of integration mechanisms. The most significant ones include: joint planning, information integration, harmonization of governing documents, supplier motivation, coordination of operational activities, resource integration.

4 RESULTS

4.1. INTEGRATION POTENTIAL

The integration potential of supply chain participants, according to the authors, should be understood as a set of causes and prerequisites that form an environment necessary for the formation and gradual development of cooperation between suppliers and consumers. During the study, an expert assessment was carried out of enterprises in terms of the presence or absence of the necessary causes and prerequisites for integration in their relationships with suppliers (Table 1).

As a result, several groups of companies were identified that differed in their integration potential.

Table 1. Assessment of the integration potential of enterprises participating in the research

Integration potential	Prerequisites	Reasons
Significant integration potential	The presence of common goals and interest in the final result, a shared understanding of the directions for joint development; Consistency of expectations (companies are able to strengthen each other, contributing to mutual success, sharing risks, information, rewards); Orientation towards creating value for the client; Openness and mutual trust; Taking into account mutual preferences when choosing	Coordination has been achieved between the enterprise's units, and further development requires integration with external partners; Improving the quality of goods/services and, as a result, increasing profits per unit of production while focusing on consumers; Joint research and development.





	partners; High infrastructure, scientific and technical potential for joint development; an integrated information network, benchmarking between partners, allowing them to start "not from scratch"; Orientation towards long-term prospects; Compatibility of management systems; Comparable level of economic development of companies; financial stability.	
Elementary level	Initial inter-functional coordination has been reached and there is an understanding of the benefits of integration; Previous experience of cooperation; Equal requirements for quality; Some harmonization of the parties' governing documents; Infrastructure potential for shared resource use.	Ensuring market stability (it is no longer possible to survive alone): The company operates in a mature market with high competition; Entering new markets; Urgent need to reduce costs.
Minor potential	favorable geographical location; close proximity of companies; common competitors; common customers.	Ensuring market stability (it is no longer possible to survive alone): The company operates in a mature market with high competition; Entering new markets; Urgent need to reduce costs.

Analysis showed only a small percentage of the studied enterprises (approximately 21% of the total number of respondents) have significant potential for developing cooperation with suppliers. Typically, such companies form partnerships with a narrow circle of strategic suppliers for the most valuable types of goods/services. At the same time, the majority of experts from these companies consider the following preliminary conditions conducive to the development of integration: a shared understanding of goals and directions for long-term joint development, the necessary foundation for establishing a system for joint distribution of information, risks, and





rewards, compatibility of management systems, and comparable levels of economic development among partner companies.

About 32% of the respondent companies possess only basic conditions for integration. Their typical approach involves working within a mixed relationship strategy: collaborating with key suppliers on a commercial basis and adopting a competitive strategy with others. The main prerequisites for integration include information transparency within specific areas of joint activity, partial harmonization of the parties' governing documentation, and basic inter-functional coordination between the enterprises' supply chain units.

The potential for integration of another 28% of the participating enterprises was determined to be minimal. These companies operate in a competitive environment, and only some of them plan to develop cooperation with suppliers. In most cases, the decision to collaborate is made due to the urgent need to ensure uninterrupted deliveries of strategic products (both to overcome shortages and to reduce inventories), low product substitutability, and the complexity of finding and building relationships with new suppliers.

The remaining 19% of respondents (according to expert assessment) do not possess any integration potential at all.

4.2. Supplier categories

In the context of continuous changes in the external and internal environment, the emergence of new risks, the need to take into account the specifics and volumes of purchased materials in relation to the level of logistics costs, it is impossible (and simply uneconomical) for supply chain enterprises to work with all suppliers in the same way. Neither of the known strategies for interaction can be considered universal today. In particular, the popular idea of partnering with suppliers implies a whole range of conditions and limitations and is expensive for both partners. The same applies to the competitive strategy, which is appropriate far from every situation. Balanced decisions are usually based on segmentation of suppliers and the use of various interaction strategies with them.

In this regard, at the next stage of the analysis, an evaluation of the enterprises participating in terms of the prospects for integrating with different categories of suppliers was carried out. For this purpose, typical categories of suppliers have been identified like:





1. Strategic partners - a limited number of major suppliers without close collaboration with whom the company's further development is impossible. Suppliers of the most valuable product groups with significant integration potential, the ability to exchange key technologies and other resources.

2. Preferred suppliers - stable suppliers of product groups with a sustained demand, high and medium profitability and risk, having basic prerequisites for integration. Relationship building with such suppliers is focused on a medium-term perspective.

3. Basic suppliers - easily replaceable suppliers of non-critical mass products that make up the company's "defensive brand", with whom there is experience of regular relations.

4. One-time contracts - one-time suppliers of the least important products, urgent supplies, etc.

Table 2 shows the relationship between supplier categories and participant interaction strategies (Table 2).

Table 2. Relationship between interaction strategies of supply chain participants using different categories of suppliers

Supplier categories	Type of strategy used by groups of enterprises			
	1st group	2d group	3d group	4d group
1.Strategic partners	Partnership strategy: For the most valuable positions: maximum profit / high demand, high risks; - With suppliers with high integration potential	-	-	-
2. Preferred suppliers	Mixed strategy: - For positions with high / medium profitability and stable demand; - With suppliers with medium integration potential	Mixed strategy: -for valuable positions (profitable / high demand)	-	-





3. Basic suppliers	Competitive strategy: -low profits / stable demand; -high profits / low demand; -with suppliers with low integration potential	Competitive strategy: for positions with medium profitability and stable demand	Competitive strategy: for profitable positions with high and stable demand	-
4. One-time contracts	Competitive strategy: -low profits / low demand; -with suppliers with low integration potential	Competitive strategy: (non-critical positions (low profits / low demand))	Competitive strategy: For all other positions	Competitive strategy: For all positions

From the presented table, it is evident that during business activities, the same enterprise may use various interaction strategies with suppliers. Determining factors include supplier category, the specifics of procured and supplied products, the integration potential of the supplier and customer.

Using the starting points discussed in the analysis and guided by the similarity of parameters of individual companies across the entire complex of characteristics, all study participants were segmented into four qualitatively homogeneous groups differing in the level of integration with suppliers.

The first group includes slightly more than 21% of manufacturing, trading, transport and forwarding enterprises operating in the Russian market using various interaction strategies with several categories of suppliers. Enterprises of Group 1 have a high integration potential and form partnerships with a small circle of reliable suppliers for the most valuable goods/services. According to the analysis over the past three years, about 50% of the surveyed companies in Group 1 demonstrated an increase in the share of partner suppliers.

On average, the share of partners in the overall pool of suppliers for most Group 1 enterprises is about 16.5%. This statistics confirms the fact that there cannot be many partners - maintaining close, interdependent relationships with a large circle of strategic suppliers is too costly. As noted by the respondents, investing substantial resources in a significant partner base is not effective and cannot be justified either in terms of the return on investment or from the standpoint of their payback. At the same





time, in addition to partner relationships, other types of relationships also exist in the supplier base of Group 1 enterprises - commercial cooperation, as well as relationships built on a competitive principle (only from an economic feasibility point of view).

The use of a mixed and competitive strategy by Group 1 companies is characteristic of medium-profit products with stable demand and risk, low-profit product groups, and situations where replacing products or suppliers is impossible (or too costly). Under these conditions, enterprises interact both with a preferred circle of stable suppliers and with companies providing supplies under one-time contracts.

The second group consists of companies using a mixed strategy in their relationships with suppliers (slightly more than 30% of the total number of respondents). According to the analysis, the managers of more than 80% of the enterprises in Group 2 understand the advantages of cooperating with suppliers and plan to develop it. However, this cooperation is based on a commercial basis and applies to the traditional circle of stable (preferred) suppliers of the most profitable product types. The share of such suppliers accounts for more than 27% of the procurement portfolio of Group 2 enterprises. Unlike partnership, such interaction does not involve the use of the concept of shared costs, joint risks, and a single system for distributing profits and other rewards.

The third group included enterprises operating on the basis of a competitive strategy in their relationships with suppliers (about 28.9% of respondents). These companies do not have significant integration potential, but they form compromise relationships with basic suppliers for the most valuable items in their assortment. All other types of goods/services are purchased under one-time contracts. A distinctive feature of the business of such enterprises is frequent supplier changes.

The structure of the studied companies is completed by enterprises of Group 4. Their share amounts to 19% of the total number of respondents. These enterprises do not have any significant potential for integration and do not plan to develop cooperation with suppliers. They operate in the market within a competitive strategy under one-time contracts, without forming stable relationships with any of the categories of suppliers. A characteristic feature of this approach is frequent supplier changes, making purchases and deliveries from one-time (often random) suppliers.

4.3. JOINT PROJECTS





Under joint projects, the author understands the use of integration mechanisms in the relationships of SC participants. As the study showed, the most productive joint activity is characteristic of enterprises operating in a partnership and mixed strategies with suppliers.

During the analysis, enterprises using most of the studied integration mechanisms in relationships with almost all categories of suppliers were first identified from the general circle of respondents. In this case, the overwhelming majority of joint projects are related to agreements concluded with strategic and preferred suppliers.

The average share of joint projects for other categories of suppliers of Group 1 enterprises was: with preferred suppliers - 46%; with basic suppliers - 27.7%.

The average share of joint projects with basic suppliers of Group 2 enterprises was about 14%.

In addition to analyzing the overall share of joint projects, it is important to assess the effectiveness of the joint activities of the study participants in terms of profitable and unprofitable projects. Over the past three years, the following ratios have been identified: the average share of profitable joint projects in the procurement activities of Group 1 companies was 46.2% (strategic and preferred suppliers). These were mainly works in the field of joint procurement planning, harmonization of governing documentation, and coordination of operational procurement procedures. 11.7% of projects were classified as unprofitable. Mostly, they were related to the joint use of material and human resources. The remaining 42.1% represents joint activities that had no significant impact on the main economic indicators of the Group 1 companies.

As a result of the analysis of respondents according to the parameters of the share and effectiveness of joint projects, an assessment of the actual level of integration was made from the position of the priority of using supplier and consumer joint activity mechanisms. (Table 3.) The assessment was carried out under conditions of certainty - the market situation that existed at the time of the study. The ordinal number of priority was distributed from the highest to the lowest: 1 - main priority, 7 - the least used integration mechanism.

Table 3. The priority of using integration mechanisms by the participating enterprises in the study (by groups of companies and categories of suppliers)





Group of companies	Supplier categories	Integration mechanisms	Priority
1 st group	Strategic partners, Preferred suppliers	Joint planning; Information integration Coordination of operational procedures; Harmonization of governing documentation; Joint use of human resources; Motivation of suppliers; Joint use of material resources.	1 2 3 4 5 6 7
	Basic suppliers	Coordination of operational procedures Information integration; Harmonization; Joint planning	1 2 3 4
	One-time contracts	Harmonization of operational procedures	Idle
2 group	One-time contracts	Coordination of operational procedures Joint planning Information integration Harmonization Joint use of material resources	1 2 3 4 5
	Basic suppliers	Coordination of operational procedures Information integration Joint planning	1 2 3
3 group	Basic suppliers	Coordination of operational procedures	Idle

Thus, the study of the features of applying integration mechanisms explains the fact that in modern conditions of Russian business, the most development in the relationships between companies is joint activity in the directions of joint planning, information integration, coordination of operational procedures. It is these areas of interaction that the majority of respondents indicate as the most stable, productive, and determining minimal losses during joint activities.

5 CONCLUSIONS





The criterion analysis of the integration level of supply chain participants based on a comparative study of companies allowed the authors to put forward the hypothesis about the relationship and interdependence between the levels and mechanisms of joint activity of suppliers and consumers, to form an ordinal evaluative scale, and, as a result, to identify four levels of integration of supply chain enterprises. This, in turn, led to the conclusion about the effectiveness of the use of integration mechanisms by respondents and, as a consequence, about the readiness of supply chain companies to form partnerships. In particular, the managers of more than 80% of the enterprises realize the advantages of integration, the formation of partnerships with key suppliers, and plan to develop it. At the same time, the comparison of the share of effective and risky projects allows concluding that the effectiveness of joint activities significantly exceeds possible losses.

It was revealed that according to the combination of the considered criteria a high level of integration is typical for about 20% of the respondents. These are, for the most part, foreign manufacturing enterprises that form end-to-end process processes and actively develop partnerships with suppliers. For the main share of companies, a stable and basic level of integration with suppliers is characteristic. These are mainly Russian manufacturing, transport and forwarding companies, warehouse operators, wholesale and retail trading enterprises. This can be explained by insufficient procurement maturity, as well as the "opacity" of business, fears of losing commercial information, orientation of business on a short-term perspective and maximum extraction of current profits, the absence of incentives for working towards a single final result, etc.

The study allows us to conclude that the optimal level of integration is individual for each company and depends on the type of enterprise, the industry in which it operates, the value and specifics of the purchased products, the phase of the life cycle and the style of relationships with various categories of suppliers, possible losses from interaction, etc. As a result, one company finds a basic level sufficient, while others (having the corresponding prerequisites) strive for strategic partnerships with suppliers at the level of internal and, then, external integration.

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