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18. S. Shakeev, PhD in Economics, Associate Professor Kazakh Humanities and Law University, Republic of Kazakhstan

VPLEV SHOHIŅA EKONOMIČNIH SPAD V UMOVAH POŠIÑENJE RINKOVAH SIGNALOV
VÐOWNÄLENIE U ROZVÝNIÊENI ÊRAIÈNAH

V dánii statistiki predstavleni dèvki iè sèinizh ekonomichnih ñïdènþov Â umoðah stàstvanèéñii fàzi bìznes cicaku. Ðàáí, bìldèññ dëññ xìizì ñëîìëìèëëè ðëàñøèjì ñîòîðîìà èçäîïîìèòèjì ìèêîòîìè÷ëîé ïîëèòèíèè. Òàæàí, ìèêîòîìè÷ëè ëîêîíîìè÷èõ ñàìè èìè æèëëè ðàçìîñîìîì êëîìáñòâèìèñü â ñîòîðîìà ðèàäèàëè ìèêîòîìè÷ëèìè÷ëîé ïîëèòèíèè.

Këçñêëîå ñëîñò: ñëîìëìè÷ëè ëîêîíîìè÷èõ ñòðîéíèéè; ñòðîéíèéè ñòðîéíèéè; òðåäîì ìèêîòîìè÷ëè òìåðè ðàçìîæíåãî ðèàãà ðàçíèäèàëü âñòðàíèòåòñü è ðåàêöè. 

VÌÅÍÄÈÖÈÅ SHOHIŅA EKONOMIČSKIJ SPAD Â ÙÌÌÈÑH ÄÌÍÔàðòîèíèè RÝÖÈÒÄÄÈÖÅÈÒß ÀÍÍÎÉÑÒÅÌÈèèèè Â ÐÀÝÈßTÈÊÈÑèè

Êàïàõûé ñëîèí: xìizìîìè÷ëè åêñòîèìè÷ëèè êàáîâèéñìèöèåé Ñàìè èìè êëîìáñòâèìèñü â ñîòîðîìà ðèàäèàëè ìèêîòîìè÷ëèìè÷ëîé ïîëèòèíèè. Òàæàí, ìèêîòîìè÷ëè ëîêîíîìè÷èõ ñòðîéíèéè èìè æèëëè ðàçìîñîìîì êëîìáñòâèìèñü â ñîòîðîìà ðèàäèàëè ìèêîòîìè÷ëèìè÷ëîé ïîëèòèíèè.

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JEL Q 32

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SUPPLY LOGISTICS FOR IMPROVEMENT OF IRON AND STEEL ENTERPRISES

This article describes the techniques that help to improve the material and technical supply management of allied industries. Resource endowment of Kazakhmys Corporation had been analyzed. To control physical resources effectively logistics center establishment for allied mining enterprises was offered.

Keywords: logistics; logistics management; material and technical supply; supply logistics; logistics center.

Problem statement. In the current context of increasingly competitive environment, where the strategy of business entities development are formed considering the changing market conditions, an important factor for improving the competitiveness of any company is the effective material and technical supply management. Analysis of existing management practice in enterprises of industrialized countries shows that a lot of attention is paid to the management of logistics, leading to faster turnover of own and borrowed funds, competitiveness, strengthening and expanding its role in the goods, works and services market.

Managing logistics is always a significant part of economic activity, but only recently this feature has become a critical issue for the competitiveness of a business entity. The main reason is the transition from a seller’s market to a buyer’s market, which makes it necessary to fit the capacity of producers to rapidly changing conditions of production and trading systems.

Analysis of latest discoveries and publications. Theoretical and practical aspects of effective supply logistics assessment, especially the necessity to improve the management system of logistics major enterprises and the development of logistics systems were considered in the...
publications of Russian scientists as A.M. Gadzhinskiy [1], Y.M. Nerush [2], Kazakh scientists: O.S. Sabden, Raimbekov Z.S. Raimbekov Z.S. [3], A.N. Tulembaeva [4], R.K. Moldahmetov [5], but in spite of the existing material, some aspects of effective supply logistics assessment of metallurgical enterprises are not developed enough.

**Extraction of the unsolved aspects of the problem.**

In the current context the management issues of supply logistics industry become highly relevant. The urgency is due to the need to improve the management of supply logistics for industrial competitiveness through the development of a flexible policy for proper ways of finding vendors and consumers of physical resources choice of logistics channels of choice of suppliers and consumers of material resources, and enhance innovative technology support of the material resources use.

**The purpose of the study** is that the evaluation of supply logistics effectiveness means to develop a science-based approach to organizing the logistics of product metallurgical enterprises distribution to identify ways of optimizing the organization and management of logistics flows.

**The main results of the study.** In a market economy, managing the logistics of production is determined by the ability to combine the activities of the various departments and services related to the distribution, material support of production. Material supply is one of the logistics elements. In modern conditions, Western experts identify several types of logistics:

- Logistics related to material support of production (supply logistics);
- Production logistics;
- Sales (marketing, or distribution) logistics;
- Transport Logistics (which, in essence, is an integral part of each of the three types of logistics);
- Information logistics.

At the end of XX century instead of the known and the familiar concept "material and technical support" in the scientific revolution the term "supply logistics" derived. According to the Russian scholar V. Filonenko *there was not a simple replacement of terms, but the change in the process of material and technical supply*. The fact that the enterprise performance started to depend on reliability of material and technical supply was significant.

A characteristic feature of the supply chain in steel companies is the availability of stable economic relations between vendors of basic technological raw materials, equipment and the enterprise.

The largest independent vendors of Kazakhmys Corporation are "Boliden Contek" (Sweden) and "Venmek Systems" (Finland). The company "Boliden Contek" deals with the reconstruction of ore-treatment furnaces (OTF), and the company "Venmek Systems" deals with the replacement of bridge cranes, reconstruction of casting wheels (CW) with the installation of weight measuring devices.

Among the suppliers such countries can also be distinguished: Turkey, Russia, Ukraine, which are involved in the supply of refractory bricks, and Kyrgyzstan, which supplies electricity to the amount of 48.09 mln. Tenge. In addition, a number of small nonproduction materials and equipment are supplied by private companies in Zhezkazgan.

The need of corporation in the materials essential for the production is fully covered by outside vendors.

The largest part of raw materials is supplied by the management of material and technical supply logistics (MTSL) of "Kazakhmys Corporation". The Kazakhmys Corporation* LLP provides its own 50 structural units of material resources. Therefore, 42 are provided centrally with help of the management of material and technical supply logistics (MTSL) corporation. The rest of them have own UMTS. These include the following divisions of "Kazakhmys" corporation: Balkhash mining-and-metallurgical integrated enterprise, "Borly" coal department, Department of Electric Power plant, Karaganda foundry and machine factors, "VostokKazmed", Karaganda foundry factory, Copper-Chemical Plant, Zhekzen Mining plant [8]. However, some purchases are made by corporate contracts and purchases are conducted centrally, such as fuel.

**Table 1. Logistical status during 2009-2011 years**

<table>
<thead>
<tr>
<th>Material type</th>
<th>2009</th>
<th>2010</th>
<th>Use*, pract,%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Planned</td>
<td>Came in</td>
<td>Use*, pract,%</td>
</tr>
<tr>
<td></td>
<td>requirements</td>
<td>vendors, t</td>
<td></td>
</tr>
<tr>
<td>Magnafloc</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reimpregnated concrete</td>
<td>90,02</td>
<td>74,43</td>
<td>82,40</td>
</tr>
<tr>
<td>Limestone</td>
<td>11,48</td>
<td>77,15</td>
<td>69,21</td>
</tr>
<tr>
<td>Anode paste</td>
<td>10,32</td>
<td>87,44</td>
<td>84,71</td>
</tr>
<tr>
<td>Steel sheet</td>
<td>10,84</td>
<td>119,59</td>
<td>66,18</td>
</tr>
<tr>
<td>Periclase brickites</td>
<td>16,77</td>
<td>48,20</td>
<td>28,7355</td>
</tr>
<tr>
<td>Refractory felt</td>
<td>12,90</td>
<td>11,20</td>
<td>86,8025</td>
</tr>
<tr>
<td>Barium sulphate</td>
<td>503,98</td>
<td>11,20</td>
<td>86,8025</td>
</tr>
<tr>
<td>Diesel fuel</td>
<td>2116,72</td>
<td>2000,0</td>
<td>94,4859</td>
</tr>
<tr>
<td>Sulphuric acid technical</td>
<td>25,99</td>
<td>3441,0</td>
<td>135,47</td>
</tr>
<tr>
<td>Retarded salicy acid</td>
<td>81,28</td>
<td>79,91</td>
<td>97,2102</td>
</tr>
<tr>
<td>Sulfourea</td>
<td>20,32</td>
<td>20,55</td>
<td>101,11</td>
</tr>
<tr>
<td>Gelatin</td>
<td>20,32</td>
<td>17,89</td>
<td>88,0589</td>
</tr>
<tr>
<td>Polypropylene core</td>
<td>9,65</td>
<td>8,89</td>
<td>71,3605</td>
</tr>
<tr>
<td>Contact mass</td>
<td>101,81</td>
<td>42,00</td>
<td>41,2522</td>
</tr>
<tr>
<td>An-slaked lime</td>
<td>127,266</td>
<td>120,01</td>
<td>103,811</td>
</tr>
<tr>
<td>Fire-proofed argil</td>
<td>309,67</td>
<td>325,00</td>
<td>103,811</td>
</tr>
<tr>
<td>Disc steel</td>
<td>64,51</td>
<td>62,17</td>
<td>96,3663</td>
</tr>
<tr>
<td>Salamander wool</td>
<td>28,56</td>
<td>34,00</td>
<td>119,052</td>
</tr>
<tr>
<td>Stripe fagot</td>
<td>888,97</td>
<td>578,60</td>
<td>62,837</td>
</tr>
<tr>
<td>Abstergent</td>
<td>6,38</td>
<td>6,42</td>
<td>100,75</td>
</tr>
</tbody>
</table>

*Source: Use estimates the ratio of supply package to supply.
That it corresponds with current market conditions and can only be improved through evolution. Such underestimation of self-empowerment is costly to companies and they are losing money on almost all stages of the procurement process: planning requirements for materials and equipment for the procurement, inventory management and distribution of materials, their use in the production and the secondary circulation. Our experience in working with companies confirms that the losses caused by poor management in supply, separate categories may reach 30-40% of the total cost of the supply, and it goes on from year to year.

The economy of planning did not stimulate the rational use in the manufacture of materials and resources, so in Soviet enterprises supply system did not attach much importance. Unfortunately, this situation has survived to the present day. Executives of companies are looking at the existing supply system as something inaccessible, and believe that it is impossible to understand and change anything about ordinary workers in the absence of attention and monitoring by administration representatives often use existing situation in their own interests. As a result, uncontrollable costs appear in many companies and attempts to partial improvements are unlikely to change anything significantly. To achieve good results is possible only through an integrated supply chain.

Modernization of the supply system must pass at least three stages [9] (see Table 2).

Stage 1: Diagnostics. To determine the amount of necessary reforms, the nomenclature structure of the procurement and the internal processes of the supply chain are diagnosed carefully at the first stage. Predictability of consumption, importance of planning, procurement volume may serve the criteria for the classification of procurement processes. The classification process allows to set clear objectives to optimize each of them, set up an organizational structure in full compliance with the requirements of the process. The diagnostics helps to find main ways to reduce the cost of procurement of the major categories of resources.

Stage 2: Achieving the initial effects. In the next stage, the changes which give effect in the short term and create a foundation for the formation of long-term benefits, occur. Thus, in the above mentioned company procurement processes for the main categories of goods as a priority have been radically altered to reduce the unacceptably high purchase prices and improve the quality of purchased resources. Standardizing criteria for supplier selection, conducting a detailed comparative assessment of the quality of purchased resources and their indirect impact on the total cost of the company, the introduction of transparent procedures of tenders contributed to achieving this goal.

Table 2. Modernization of the supply of “Kazakhmys Corporation”

<table>
<thead>
<tr>
<th>1 stage</th>
<th>2 stage</th>
<th>3 stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>diagnostics</td>
<td>The achievement of the initial effects</td>
<td>Ensuring the long-term effect</td>
</tr>
<tr>
<td>1.1 Estimate the savings on major purchases:</td>
<td>- 2.1. Applying a “Total Cost of Ownership” (TCO) in respect of the procurement of important articles:</td>
<td>- 3.1. The widespread introduction of TCO approach to the most important categories of purchases:</td>
</tr>
<tr>
<td>- Raw material</td>
<td>- The standardization requirement to MTP</td>
<td>- Create cross-functional teams to implement the approach TCO</td>
</tr>
<tr>
<td>- Equipment</td>
<td>- The estimate of total costs over the service period</td>
<td>- Expanding horizons of procurement</td>
</tr>
<tr>
<td>- Spare parts</td>
<td>- Quarterly procurement by tender</td>
<td>- Standardization and tenders for the most part of procurement</td>
</tr>
</tbody>
</table>

| 1.2. Assessment of the potential of the efficiency of the supply chain improvement: | 2.2. Elimination of the main “bottleneck”: | 3.2. Creating a more efficient supply chain management: |
| - Planning of demand | - High discipline of orders | - Cross-functional planning and analysis of needs |
| - Making orders | - Reducing of the excessive orders | - The transparency of execution of orders |
| - Procurement | - Increasing of secondary resources use through increased control | - Mechanism of suppliers control |
| - Warehouse management | - Education of key executives | - Individual management of procurement |
| - Organization | | - New IT - systems, organizational structures and system of result management |

* Source: Compiled by the author.
Stage 3: Ensuring the long-term effect. Finally, the third phase of the work is focused on achieving long-term effect. One of the most important steps in the optimization of procurement is the creation of the system of managing the logistic management and the supply of raw materials. It is necessary to introduce new mechanisms of selection, motivation, performance evaluation and career development of purchasing managers and to improve the supply system. This has led to the reduction of inventory management costs.

Analysis of the status of use of material resources of "Kazakhmys Corporation" shows that if the creation of an integrated system of logistics management for many businesses is an urgent need to create a single logistics center has appeared. Moreover, measures for saving and rational use of material resources should not only be part of an integrated program to improve the supply chain, but also to make it a basis, to determine the value, priority and hence the sequence of the main events realization.

Solving the problem of improving the efficiency of inventory management in the current economics requires a shift from traditional management to logistics, where the inventory management allows including the main areas to actively implement the strategy of the enterprise market conduct.

In other words, it may be said that for many companies urgent need to create a single logistics center escalated. Measures for saving and rational use of material resources should be not only the part of an integrated program to improve the supply chain, but also to make the basis, to determine the value and the priority, and hence, the ranking of the main events implementation.

It is linked mainly to such factors: the most important factor regarding the specifics of mining, it is the close proximity of some of the mines. Furthermore, one of the important factors - it is practically identical copper technology of copper production technology; it makes use of similar material resources from explosives to costly parts of the equipment. Stated differently, it indicates the possibility of a unified logistics center to have an only vendor of material resources that serve multiple customers. The analysis showed that the concentration of multi-billion mass inventory in the form of handicapped floating funds in operation negatively affects not only the performance of the enterprises-consumers (cost, revenue and profitability), but it is becoming increasingly a factor that affecting negatively the growth of production, reinforcing scarce situation in the supply, etc. Therefore, it is necessary to enhance the interest of enterprises in reducing inventories and offer formation of a unified logistics center in the framework of material and technical supply.

At the heart of suggested unified logistics center one may notice the access to the logistics services not only from the material resources' vendors, but from the logistics center too. However, a large range of logistics services and supply a significant amount of material resources for large enterprises, or allied industries provides economic efficiency of the logistics center and, consequently, increasing the competitiveness of the enterprises themselves, through the reduction of material production.

According to experts in the logistical field, to consider the costs as 100%, the relative density of the individual components is as follows [10]:

- transportation 28-48%;
- terminal, transshipment operations and storage of goods 25-40%;
- the cost of packaging and wrapping 5-18%;
- management costs 4-15%, etc.

The mentioned input structure indicates the significance of transport, cargo handling and storage costs. To reduce these costs it is proposed to introduce the concept of "just-in-time" (JIT). The concept of JIT is the concept determined to organize the sales of material flows and that all materials, components and semi-manufactured goods will be received in the required quantity, at the right place and exactly the appointed time for the production of finished products with the purpose to reduce the costs associated with inventory.

Conclusions of this research and prospects for future developments in this area. In our opinion, the existing systems of material management on domestic enterprises are controlling logistics operations from procurement of raw materials to the final service of product consumers: delivery of raw materials to the plant, sales forecasting, production planning, production or purchasing of raw materials, inventory management of raw materials and unfinished production. I.e. underdeveloped market mechanism which is primarily expressed in unfair and insufficient competition, adversely affects the system of logistics.

And formation of a single logistics center using the concept of "just in time" for the enterprises of related industries who use the same material resources has many important advantages that allow improving of the system of material resources management, such as:

- A number of technological operations of the supply chain are excluded;
- The reserves are declining in a way, because it reduces the delivery time due to the use of suppliers located near or storage of these suppliers;
- The quality of the goods is improving, because they are certified by reliable vendors;
- The delivery reliability is becoming better, as there is a joint interest in "just in time" functioning;
- Labor productivity is improving by reducing the cost of doing warehousing. This allows reducing the cost per unit of stored or shipped cargo.

- A centralized purchasing system is introduced that would standardize the procurement process, eliminate duplication of functions (such as discussion of all delivery conditions, every time when you want to order), carry out effective monitoring of compliance with the logistics center obligations that will provide workflow improvement.

References:

MULTIDIMENSIONAL COMPARATIVE ANALYSIS OF LEVELS OF LIVING OF POPULATIONS IN EU MEMBER STATES

The major purpose of the article is the comparative analysis of levels of living of populations in EU member states, determination of features that differ studied populations and indication of groups of countries of similar levels of living of their inhabitants in the light of diagnostic features assumed for the study.

Keywords: European Union; taxonomy; synthetic variable.

Introduction. Level of living is a complex category, applied both in economic as well as in social sciences, that is defined in the literature of the subject in various ways. In order to understand the scope of this notion, we ought to pay attention to the definition formulated by UN Committee of Experts in 1954, according to which the level of living includes "totality of actual living conditions of people, and degree of material and cultural satisfaction of their needs through the stream of goods and services against payment and also those coming from social funds" [5, p.73]. This concept of level of living became the foundation for a lot of other definitions of this notion.

A. Luszniewicz defined the level of living as the "degree of satisfaction of material and cultural needs of population by a stream of goods and services against payment and by the fund of collective consumption in a particular unit of time and space" (2 p.12). According to the author, numerical ratings of the degree of satisfaction of seven fundamental types of needs, including food, housing, health, educational needs, recreation, social insurance and material management, are the measures of the level of living of populations.

The major purpose of the article is the comparative analysis of the level of living of populations of European Union member states, determination of features that differ studied populations most and indication of groups of countries of similar levels of living of their inhabitants in the light of diagnostic features assumed for the study. Thus, an attempt was made to answer the question of what the distance between Poland and new Community member states that entered the EU (in 2004, Cyprus, Czech Republic, Estonia, Lithuania, Latvia, Malta, Slovakia, Slovenia; in 2007 – Bulgaria and Romania) and the countries of old EU-15 is, and if a significant relationship between the level of life of inhabitants and economic development of the state finds confirmation in the results of the studies.

The analysed phenomenon of the level of living is not a phenomenon that is directly observed. Conclusions about its level can be made on the grounds of the analysis of the set of diagnostic variables that present its various aspects. And that is why the study was performed with the use of the method of multidimensional comparative analysis (Z Hellwig's taxonomic gauge of development and Ward's method), and the studied period of time was the year of 2010.

Research method. For the purpose of formation of the ranking of EU countries and ordering them from "the best" to "the worst" with respect to the level of living of their populations, a synthetic variable was constructed while basing it on the method suggested by Z. Hellwig [1, p. 307-327; 6, p. 129-130]. The stages of proceedings included:

1. On the basis of matrix of standardised m initial variables, a model object ("development model") of the "best" values for each variable was determined:

\[
z_0 = [z_{01}, z_{02}, \ldots, z_{0j}, \ldots, z_{0n}] \quad (1)
\]

where:

\[d_0 = \sum_{j=1}^{n} w_j (z_{ij} - z_{0j})^2 \quad i = 1, 2, \ldots, n \quad (3)
\]

2. Similarity of objects to the "abstract" best object was analysed through calculation of the distance (most often Euclidean) of every object to the model of development: