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INTRODUCTION

We are happy to invite you to get acquainted with the first issue of the new scientific and practical publication "Intellectualization of Logistics and Supply Chain Management".

We strongly believe that the launch of this magazine indicates the objective need to rethink a wide range of issues related to the development of theory and practice in logistics and supply chain management, awareness of the need to unite the scientific community and logistics practitioners, dissemination of modern knowledge and best practices for innovative development of the logistics services market.

The first issue of the magazine is published at a difficult time. The global coronavirus pandemic and the deep economic crisis have significantly worsened business activity in the world. Currently, global supply chains are collapsing, international trade is declining, and competition between global and regional logistics operators is intensifying. The most common thesis is that the world will never be the same again. Industry experts predict the emergence of new, more flexible and adaptive supply chain management strategies and approaches to logistics business process management. The trend towards collaborations, cooperation and unification of services is emerging, comprehensive proposals for clients are being developed. There is increasing talk about the need to build bimodal supply chains, which involves the development of different decision-making scenarios: the traditional approach - cost-effective efficiency, low risk, high predictability; a new approach "second mode" - rapid recognition of opportunities, adaptability, willingness to solve unexpected problems and look for new opportunities.

Radical transformations of the global and national markets for logistics services require appropriate scientific support. Logistics science has a special role to play in this process. Initiating the emergence of a new journal, we decided to focus on its coverage of problematic aspects of the formation and development of logistics systems at the micro, mezo and macro levels, supply chain management, digitization of logistics, methods and tools for optimizing processes in logistics and supply chains, sociopsychology relations and network interaction of enterprises using cloud technologies, artificial intelligence, e-learning, neural business process management systems, etc.

Therefore, we invite scientists, researchers and business representatives, as well as our colleagues from abroad, to cooperate and present the results of scientific research, to discus and debate on them, to work together to develop the scientific theory of logistics and promote mutual intellectual enrichment.

We hope that the new scientific publication will become a theoretical guide for young researchers and representatives of other fields.

HRYHORAK Mariia
Chief Editor

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LOGISTICS POTENTIAL USAGE FOR RAILWAY TRANSPORT ENTERPRISES COMPETITIVNESS ASSESSMENT

Nataliya Chornopyska, Kateryna Stasiuk. «Logistics potential usage for railway transport enterprises competitivness assessment». *Research relevance. The problem of logistics potential development for the railway transportation companies with a purpose of strengthening its competitive positions is actualized in the conditions of railway transportation market liberalization and deregulation.*

Purpose: to develop a methodology for railway enterprises logistics potential evaluation by supplementing it with qualitative parameters (by applying the hierarchy analysis model) and thus expanding its scope. In particular, when assessing competitiveness.

Methods: the hierarchy analysis model by T. Saati; expert evaluation method; the integral index of competitiveness evaluation method.

Conclusions and value added: The enterprises logistics potential evaluation method with hierarchy analysis model usage was further developed. The logistics potential assessment problem is presented in a form of three-tier hierarchy of criteria. The hierarchy consists of eighteen third-level criteria and five second-level criteria, which compose a comprehensive system of indicators for railway enterprise logistics potential assessing. The qualitative parameters were obtained for enterprises logistics potential criteria evaluation. The research with the described method usage allowed to distinguish the components of logistical potential according to their level of importance in terms of strategic priorities for the industry development in general and the target market requirements; and to identify those criteria, the consideration of which will allow to increase the railway transport enterprises competitiveness. This approach expands the enterprise's logistics potential methodology scope, especially when assessing competitiveness, helps to choose a further strategic direction.

Keywords*:* logistics potential, railway enterprises, rail freight, logistics potential index (IELP), hierarchy analysis method, expert evaluation, pairwise comparisons method, hierarchical model of logistics potential evaluation, ABC-classification, competitiveness, competitiveness integral indicator.

Чорнописька Наталія, Стасюк Катерина. «Логістичний потенціал в оцінці конкурентоспроможності підприємств залізничного транспорту». *Актуальність дослідження. В умовах лібералізації та дерегуляції ринку залізничних перевезень актуалізується проблема* *розвитку логістичного потенціалу підприємств залізничного транспорту з метою посилення його конкурентоспроможних позицій.*

Основна мета: розвинути методику оцінки логістичного потенціалу підприємств залізничного транспорту доповнивши її якісними параметрами (застосування моделі аналізу ієрархії) і тим самим розширивши сферу її застосування. Зокрема, при оцінці конкурентоспроможності.

Методи: метод аналізу ієрархій Т. Сааті; метод експертних оцінок; метод розрахунку інтегрального показника конкурентоспроможності.

Висновки та додана вартість: Отримала подальшого розвитку методика оцінки логістичного потенціалу підприємства з використанням моделі аналізу ієрархії. Проблему оцінки логістичного потенціалу представлено у вигляді трьох-рівневої ієрархії критеріїв. Ієрархію складають вісімнадцять критеріїв третього рівня та п'ять критеріїв другого рівня, що в сукупності складає цілісну систему показників оцінки логістичного потенціалу підприємства залізничного транспорту. Отримано якісні параметри оцінних критеріїв логістичного потенціалу підприємства. Проведені дослідження за цим методом дозволили виділити компоненти логістичного потенціалу за рівнем їх вагомості з погляду стратегічних пріоритетів розвитку галузі загалом та вимог цільового ринку та виявити ті критерії, урахування яких першочергово дасть змогу підвищити конкурентоспроможність підприємств залізничного транспорту. Такий підхід розширює сфери використання методики логістичного потенціалу підприємства, зокрема при оцінці конкурентоспроможності, допомагає вибирати подальший стратегічний напрям.

Ключові слова: логістичний потенціал, підприємства залізничного транспорту, залізничні вантажні перевезення, індекс логістичного потенціалу підприємства (IELP), метод аналізу ієрархій, експертна оцінка, метод попарних порівнянь, ієрархічна модель оцінки логістичного потенціалу, АВС-класифікація, конкурентоспроможність, інтегральний показник конкурентоспроможності.

Чорнописька Наталья, Стасюк Екатерина. «Логистический потенциал в оценке конкурентоспособности предприятий железнодорожного транспорта». Актуальность исследования. В условиях либерализации и дерегулирования рынка железнодорожных перевозок актуализируется проблема развития логистического потенциала предприятий железнодорожного транспорта с целью усиления его конкурентоспособных позиций.

Основная цель: развить методику оценки логистического потенциала предприятий железнодорожного транспорта дополнив ее качественными параметрами (применение модели анализа иерархии) и тем самым расширив сферу ее применения. В частности, при оценке конкурентоспособности.

Методы: метод анализа иерархий Т. Саати; метод экспертных оценок; метод расчета интегрального показателя конкурентоспособности.

Выводы и добавленная стоимость: Получила дальнейшее развитие методика оценки логистического потенциала предприятия с использованием модели анализа иерархии. Проблему оценки логистического потенциала представлены в виде трех-уровневой иерархии критериев. Иерархию составляют восемнадцать критериев третьего уровня и пять критериев второго уровня, в совокупности составляет целостную систему показателей оценки логистического потенциала предприятия железнодорожного транспорта. Получены качественные параметры оценочных критериев логистического потенциала предприятия. Проведенные исследования по этому методу позволили выделить компоненты логистического потенциала по уровню их значимости с точки зрения стратегических приоритетов развития отрасли в целом и требований целевого рынка и выявить те критерии, учет которых в первую очередь позволит повысить конкурентоспособность предприятий железнодорожного транспорта. Такой подход расширяет сферы использования методики логистического потенциала предприятия, в частности при оценке конкурентоспособности, помогает выбирать дальнейший стратегическое направление.

Ключевые слова: логистический потенциал, предприятия железнодорожного транспорта, железнодорожные грузовые перевозки, индекс логистического потенциала предприятия (IELP), метод анализа иерархий, экспертная оценка, метод попарных сравнений, иерархическая модель

оценки логистического потенциала, АВС-классификация, конкурентоспособность, интегральный показатель конкурентоспособности.

Introduction. The problem of railway enterprise competitiveness is one of the most fundamental among the many challenges in the context of rail market liberalization. Its fundamentality is caused by the fact that "the ability to withstand competitive pressure and the action of market forces" is a basic criterion for the ability of Ukraine's rail transport to integrate into the EU's single transport space. As of 2019, the infrastructure component of the Logistics Performance Index (LPI) estimates 2.22 with a European average of 3.24. In order to match the European level, it is necessary to eliminate the bottlenecks in cargo transportation, to increase the transportation speed, to reduce the unproductive transport costs of enterprises, etc. The lion's share of these tasks lies in the area of logistical capacity utilization at the macro level, but in the context of liberalization, deregulation and privatization, they are inseparable with the efficiency of logistics potential management at the level of railway undertakings.

Many researches of the economic science founders and modern scientists-economists are devoted to theoretical and methodological questions considering the problem of competitiveness. Modern competitiveness analysis methodologies have been developed by the world's leading think tanks, including the world's most authoritative institution in this respect, the World Economic Forum, which publishes the Global Competitiveness Index annually (GCI). In terms of railways density, Ukraine ranked 23rd in the Global Competitiveness Report 2018 [1]. At the same time Ukraine is ranked 37th in terms of rail transport services efficiency in 2018 [2].

Logistic potential development applied issues are reflected in numerous works of foreign and Ukrainian scientists. Polish scientist P. Smoczynski conducts railway safety research [3]. The author has proposed a modern method for accident detection/reporting on the railway. Accident modeling allows detailed causality analysis to prevent such a situation in future. Latvian scientist G. Bureika considers Eurasian rail corridors environmental performance in his study. Factors affecting environmental performance are infrastructure, rolling stock, road electrification, and more. It is suggested to use an ECO TRANSIT WORLD (ETW) software package throughout the logistics chain to evaluate them [4]. I. Posokhov in his article highlights the existing problems of the Ukrainian railway - high level of assets depreciation, lack of modern equipment, outdated technologies, inappropriate environmental measures, low level of transport safety, etc. [5]. The capitalization is proposed as a tool for solving these problems, which is the managerial decision to improve the productivity of fixed assets (acquisition of new assets, capital repairs of old funds, modernization, reconstruction), optimal allocation of investment resources and reduction of environmental payments by reducing emissions. This approach addresses some of rail transport problems and contributes to its sustainable development. The scientific research of O. Chupyr [6] presents a methodological approach for strategic planning process optimizing based on the resource potential development for railway enterprises. The proposed method allows to diagnose resource potential management bottlenecks for the enterprises of the railway industry, and in accordance to the results obtained, to carry out further strategic management of enterprises and the railway industry in general. The Ukrainian Institute of the Future study provides a detailed analysis for the rail transportation industry, identifies a number of important challenges for the railways and the Ukrainian economy in general, the most important of which are: critical infrastructure wear, technical wear and tear, locomotive obsolescence, poor fare management, imperfect tariff management, inefficient investment development, digital and technology challenges [7].

All these studies evidence the multifaceted nature of the logistics potential concept and a necessity for generalized assessment.

At the same time, despite the existence of sound scientific achievements in the area of multifaceted problems of competitiveness, the issues of railway transport logistics potential are mainly considered at the macro level; the problem of logistic potential at the micro level, which determines the railway transport enterprises competitiveness, has not been sufficiently researched.

Purpose and objectives for the study. The main purpose for the study is to further develop practical tools for railway enterprises logistics potential assessing from the perspective of competitiveness development.

The following problems are to be solved to achieve this goal: enterprise logistics potential estimating indicators system is to be supplemented with qualitative parameters by applying the T. Saati hierarchies analysis model; comprehensive generalization and appropriate recommendations are to be provided considering the practical importance of logistics potential assessing methodology development for railway enterprises in terms of their competitiveness.

Primary materials and results. In authors' previous research devoted to theoretical and methodical and practical aspects of enterprises logistic potential [8,9] the author's methodology was proposed for the index of enterprises logistic potential evaluation (I_{ELP}). The author's methodology for enterprises logistic potential evaluation includes the following steps: indicators definition, indicators grouping by components, partial indices calculation for each logistics potential component, sub-index determination for each component, enterprises logistics potential index calculation. The authors have restricted the methodology with the available and practical statistics that was considered best to characterize rail freight transportations. All 18 indicators were grouped into these components: technic-technological, economic, environmental, competence, quality. The proposed authoritative methodology for the enterprises logistic potential evaluation is universal (can be adapted to different companies in the logistics market), available (all the indicators are statistical) and effective (the enterprises logistical potential evaluation results are important for comparing with competitors and positioning the enterprise in the market).

T. Saati's analysis method allows to present the railway transport enterprises logistic potential evaluation problem with consideration of the constituent elements in the hierarchy, which reveal its essence. A detailed description of all the stages of logistic potential evaluation using the hierarchy analysis method is presented.

Stage 1. Representing a problem in a hierarchy form.

The first level represents the study purpose - to evaluate the railway enterprises logistics potential.

The second level of the hierarchy is represented by the components for evaluation: Technic-Technological component (K1), Economical component (K2), Ecological component (K3), Competence component (K4), Quality component (K5).

Third level - each component is divided into sub-criteria:

1. Sub-criteria for Technic-Technological component:

Cargo transportation on average per day (Q1),

Average transportation distance for one ton of goods (Q2),

Transportation intensity (Q3),

Warehouse capacity (cargo stations) (Q4),

Total number of rolling stock (Q5).

2. Sub-criteria for Economical component:

Cargo turnover (Q6),

Cargo transportation (Q7),

Revenue (Q8),

Enterprise capital investments (Q9),

Expanses/cost (Q10).

3. Sub-criteria for Ecological component:

Pollutants emission rates into atmospheric air (Q11),

Transport safety (transport events) (Q12).

4. Sub-criteria for Competence component:

Total number of employees involved (Q13),

Skills/training of Logistics&SCM (Employees number having advanced training courses in logistics passed) (Q14),

Skills/higher education of Logistics&SCM (Employees number having higher education diploma for logistics speciality or certified according to international standards (e.g. ELA) (Q15).

The problem decomposition is reduced to a hierarchy (Fig. 1).

5. Sub-criteria for Quality component:

On time (Q16),

In Full (Q17),

Error-free (Q18).

The first stage results in a three level hierarchy model for railway enterprises logistics potential analysis.

Stage 2. Expert evaluation. Pairwise comparisons are determined by peer reviews as an advantage of one element over another. Railway enterprises senior managers represented experts. A relative importance scale by T. Saati (Table 1) is used for evaluations, because its efficiency is proved in comparison to other scales [10].

The second stage resulted in expert evaluations of pairwise comparisons for all the elements of three level logistics potential analysis model for railway transportations enterprises.

Stage 3. Results summary in a form of a matrix. Obtained expert evaluations are represented in a form of a matrix of pairwise comparisons for the second decomposition level of the model (Table 2).

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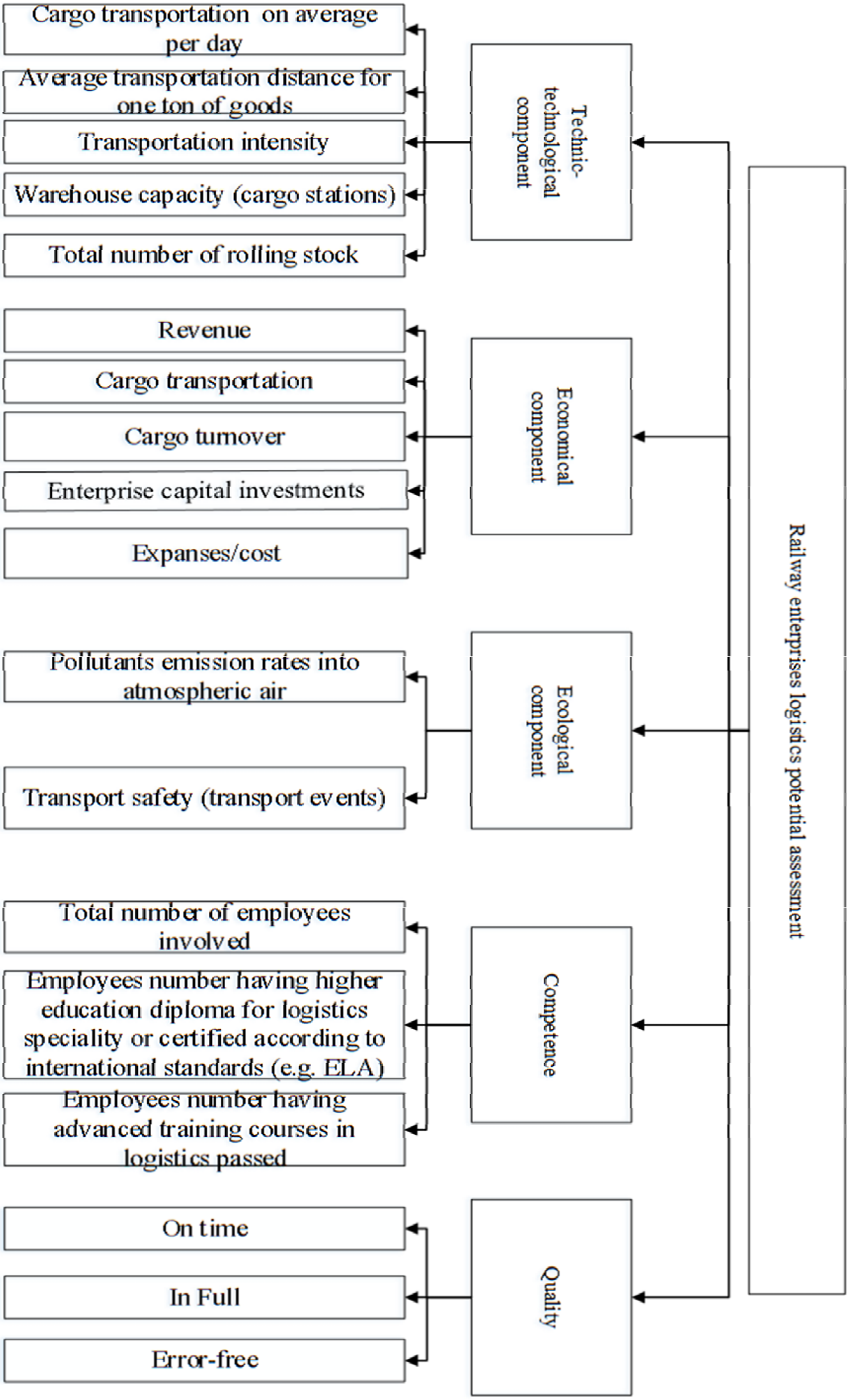

Figure 1. Information model of integrated logistics support for the construction sites life cycle

Source: developed by authors based on [8]

Table 1

Relative importance scale by T. Saati for hierarchies analysis method

Relative importance, point	Definition
1	Equal importance
3	Moderate superiority of one over the other
5	Essential or strong advantage
7	Significant advantage
9	Very strong advantage
2,4,6,8	Intermediate values
Opposing values	If one of the above numbers x is obtained when comparing A and B, then the inverse of 1 / x is obtained when comparing B and A

Source: [10]

Table 2

Pairwise comparisons matrix for the second level components

Element	Hierarchical model second level elements names	Element					Local priorities vector, u_i
		K1	K2	K3	K4	K5	
K1	Technic-Technological component	1	1	5	3	3	0,329
K2	Economical component	1	1	3	7	5	0,390
K3	Ecological component	1/5	1/3	1	3	3	0,139
K4	Competence component	1/3	1/7	1/3	1	3	0,084
K5	Quality component	1/3	1/5	1/3	1/3	1	0,058
λ_{max}=5,396; ІУ=0,099; ВУ=0,088<1							

Source: compiled and calculated by authors based on expert evaluation.

All the calculation details for the second level components of the model are shown below.

Local priorities vector components are calculated by formulas:

$$\overline{u_i} = \sqrt[n]{\prod_{j=1}^{n} a_{ij}};\ i=\overline{1,n}; \quad (1)$$

where a_{ij} – the i-th element of the j-th column in the matrix of criteria pairwise comparisons.

n – criteria number,

$$u_i = \frac{\overline{u_i}}{\sum_{i=1}^{n} \overline{u_i}};\ i=\overline{1,n}; \quad (2)$$

Second level components of the local priorities vector:

$$\overline{u_1} = \sqrt[5]{1*1*5*3*3} = 2{,}141;$$
$$\overline{u_2} = \sqrt[5]{1*1*3*7*5} = 2{,}537;$$
$$\overline{u_3} = \sqrt[5]{\frac{1}{5}*\frac{1}{3}*1*3*3} = 0{,}902;$$
$$\overline{u_4} = \sqrt[5]{\frac{1}{3}*\frac{1}{7}*\frac{1}{3}*1*3} = 0{,}544;$$
$$\overline{u_4} = \sqrt[5]{\frac{1}{3}*\frac{1}{5}*\frac{1}{3}*\frac{1}{3}*1} = 0{,}375;$$

$$\sum_{i=1}^{5} 2{,}141 + 2{,}537 + 0{,}902 + + 0{,}544 + 0{,}375 = 6{,}499;$$

The maximum eigenvalue for an inversely symmetric pairwise comparison matrix is determined by the formula:

$$\lambda\text{max} = \sum_{j=1}^{n} u_j\left(\sum_{i=1}^{n} a_{ij}\right), \qquad (3)$$

Intermediate calculations for maximum value determination for the inverse-symmetric pairwise comparison matrix:

$$u_1 = \frac{2{,}141}{6{,}499} = 0{,}329;$$
$$u_2 = \frac{2{,}537}{6{,}499} = 0{,}390;$$
$$u_3 = \frac{0{,}902}{6{,}499} = 0{,}139;$$
$$u_4 = \frac{0{,}544}{6{,}499} = 0{,}084;$$
$$u_5 = \frac{0{,}375}{6{,}499} = 0{,}058.$$

$$\sum_{i=1}^{5} a_{i1} = 1 + 1 + \frac{1}{5} + \frac{1}{3} + \frac{1}{3} = 2{,}867;$$
$$\sum_{i=1}^{5} a_{i2} = 1 + 1 + \frac{1}{3} + \frac{1}{7} + \frac{1}{5} = 2{,}676;$$
$$\sum_{i=1}^{5} a_{i3} = 5 + 3 + 1 + \frac{1}{3} + \frac{1}{3} = 9{,}667;$$
$$\sum_{i=1}^{5} a_{i4} = 3 + 7 + 3 + 1 + \frac{1}{3} = 14{,}333;$$
$$\sum_{i=1}^{5} a_{i5} = 3 + 5 + 3 + 3 + 1 = 15.$$

$$\lambda\text{max} = 0{,}329 * 2{,}867 + 0{,}390 * * 2{,}676 + 0{,}139 * 9{,}667 + + 0{,}084 * 14{,}333 + 0{,}058 * * 15 = 5{,}396$$

Compared items relative importance evaluations consistency is determined by the consistency index (ІУ) and consistency relation (ВУ):

$$\text{ІУ} = \frac{\lambda\text{max} - n}{n-1} \qquad (4)$$

$$\text{ІУ} = \frac{5{,}396-5}{5-1} = 0{,}099;$$

The random preferences consistency index value (ВІУ) is chosen considering the number of elements being compared by Table 3.

Table 3

Random consistency index values by T. Saati

n	1	2	3	4	5	6	7	8	9	10
ВІУ	0,00	0,00	0,58	0,90	1,12	1,24	1,32	1,41	1,46	1,49

Source: [10]

The optimum consistency index value should be ВУ < 10 %.

$$ВУ = \frac{ІУ}{ВІУ} \quad (5)$$

$$ВУ = \frac{0{,}099}{1{,}12} = 0{,}099;$$

The model in question deciphering algorithm is implemented using the application toolkit MS Excel.

Stage 4. All third-level sub-criteria are analyzed in respect to each second level element-component (Tables 4–8).

Table 4

Paired comparisons matrix for third-level elements by component «Technic-Technological component»

Element	Hierarchical model third level elements name	Element					Local priorities vector, V_{i1}
		Q1	Q2	Q3	Q4	Q5	
Q1	Cargo transportation on average per day	1	1	1	5	1/7	0,129
Q2	Average transportation distance for one ton of goods	1	1	1/3	3	1/7	0,094
Q3	Transportation intensity	1	3	1	3	1/5	0,156
Q4	Warehouse capacity (cargo stations)	1/5	1/3	1/3	1	1/5	0,0469
Q5	Total number of rolling stock	7	7	5	5	1	0,574
λ_{max}=5,4363; ІУ=0,10; ВУ=0,097<1							

Source: compiled and calculated by authors based on expert evaluation.

Table 5

Paired comparisons matrix for third-level elements by component «Economical component»

Element	Hierarchical model third level elements name	Element					Local priorities vector, V_{i2}
		Q6	Q7	Q8	Q9	Q10	
1	2	3	4	5	6	7	8
Q6	Cargo turnover	1	1/7	1/6	1	3	0,081
Q7	Cargo transportation	7	1	1	5	4	0,369
Q8	Revenue	6	1	1	5	8	0,411
Q9	Enterprise capital investments	1	1/5	1/5	1	4	0,095
Q10	Expanses/cost	1/3	1/4	1/8	1/4	1	0,042
λ_{max}=5,235; ІУ=0,058; ВУ=0,052<1							

Source: compiled and calculated by authors based on expert evaluation.

Table 6

Paired comparisons matrix for third-level elements by component «Ecological component»

Element	Hierarchical model third level elements name	Element		Local priorities vector, V_{i3}
		Q11	Q12	
Q11	Pollutants emission rates into atmospheric air	1	1/5	0,309
Q12	Transport safety (transport events)	5	1	0,691
λ_{max}=2,683; ІУ=0,683; ВУ=0,01<1				

Source: compiled and calculated by authors based on expert evaluation.

Table 7

Paired comparisons matrix for third-level elements by component «Competence component»

Element	Hierarchical model third level elements name	Element			Local priorities vector, V_{i4}
		Q13	Q14	Q15	
Q13	Total number of employees involved	1	5	1/3	0,279
Q14	Skills/training of Logistics&SCM	1/5	1	1/7	0,0719
Q15	Skills/higher education of Logistics&SCM	3	7	1	0,649
λ_{max}=3,065; ІУ=0,032; ВУ=0,056<1					

Source: compiled and calculated by authors based on expert evaluation.

Table 8

Paired comparisons matrix for third-level elements by component «Competence component»

Element	Hierarchical model third level elements name	Element			Local priorities vector, V_{i5}
		Q16	Q17	Q18	
Q16	On time	1	9	9	0,808
Q17	In Full	1/9	1	1/3	0,062
Q18	Error-free	1/9	3	1	0,129
λ_{max}=3,135; IУ=0,0678; ВУ=0,1<1					

Source: compiled and calculated by authors based on expert evaluation.

Stage 5. Third level global priorities evaluation. The third level elements global priorities are determined using the synthesis principle:

$$Z_i = \frac{V_{ij}}{u_i} \quad (6)$$

The calculations result into the global priority values in a range between 0,189 and 0,006; the third level element are classified into three groups of importance A, B, C according to the results obtained. Obtained results are summarized in Table 9.

Table 9

Third level elements global priorities

Element	Hierarchical model third level elements name	Global priority (descending), Z_i	Element importance group
Q5	Total number of rolling stock	0,1891	A
Q8	Revenue	0,1607	A
Q7	Cargo transportation	0,1443	A
Q12	Transport safety (transport events)	0,0960	B
Q15	Skills/higher education of Logistics&SCM	0,0543	B
Q16	On time	0,0513	B
Q3	Transportation intensity	0,0466	B
Q11	Pollutants emission rates into atmospheric air	0,0429	B
Q1	Cargo transportation on average per day	0,0426	B
Q9	Enterprise capital investments	0,0372	B
Q6	Cargo turnover	0,0317	B
Q2	Average transportation distance for one ton of goods	0,0309	B
Q13	Total number of employees involved	0,0233	B
Q10	Expanses/cost	0,0163	C
Q4	Warehouse capacity (cargo stations)	0,0154	C
Q18	Error-free	0,0075	C
Q14	Skills/training of Logistics&SCM	0,0060	C
Q17	In Full	0,0036	C

Source: compiled and calculated by authors

Group A indicators have the greatest influence on the enterprises logistics potential. It is important to prioritize these indicators development, as they can in the end affect the enterprise positioning by logistic potential in relation to other companies.

The third level element global priorities can be interpreted as the weighting coefficients of individual indicators. They are determined by independent experts regarding the target market expectations, current trends in railway development, the National Transport Strategy, etc. The importance of supplementing the author's methodology for enterprise logistics potential assessing is manifested in the comparative analysis of the competing enterprises logistics potential. Integral competitiveness indicator for enterprises logistics potential can be used for this purpose; it be determined by the formula:

$$K_{int} = \sum_{i=1}^{18} \frac{Q_i}{Q_{ib}} * V_i \qquad (7)$$

where K_{int} – integral competitiveness assessment;

Q_i – i-th indicator parameter for the valuation enterprise logistics potential;

Q_{ib} – i-th indicator parameter for logistics potential of the enterprise-competitor, selected as a comparison basis;

V_i – i-th indicator importance coefficient;

while

$$\sum_{i=1}^{18} V_i = 100\%.$$

It can be argued, considering the metrics obtained:

firstly, which enterprise logistics potential is more powerful (if K_{int}>1, than analyzed one);

secondly, identify not only the strengths or weaknesses of the studied enterprise logistics potential, but also identify its competitive vulnerability or, conversely, its competitive advantage. This approach provides a possibility to evaluate the enterprise prospects in the target market.

Conclusions. Logistic potential is the basis of railway enterprises competitiveness. Logistics potential evaluation methodology development provides an opportunity to consider the company in comparison with its competitors, to compare its priorities with the strategic priorities of the industry development and to make strategically important decisions for it. The hierarchy analysis model is an effective tool for assessing the importance of all components and elements of an enterprise's logistics potential. The obtained qualitative indicators and importance coefficients of all logistics potential components allow adjusting the method quantitative indicators and getting the most reliable result. The main advantages for the enterprise include low time and money expanses for logistics potential evaluation and quantitative and qualitative indicators analysis that can be used for promising decisions. A clear understanding of which indicators have the greatest impact on the enterprises logistical potential allows to prioritize and set the right development vector to achieve the appropriate results.

The list of enterprises logistic potential indicators, as well as their weight, can be revised according to the change of goals and objectives. For example, for businesses serving the passenger transportation segment, the filling will be different, although the methodology itself can be used due to its versatility.

The proposed approach for enterprises logistic potential evaluation expands practical tools of strategic management and can serve as a basis for portfolio analysis, which will be a prospect for authors further researches.

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