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Logistics and Maintenance Support for Vehicles in the Agro-Industrial Complex

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Abstract: Social Media in Marketing refers to the strategic use of social networking platforms as powerful tools for promoting and enhancing a brand's visibility, engagement, and overall marketing objectives. This article is about the advantages of utilizing social media in marketing.

Keywords: social media, social networks, mass media, media space, linear communication, network communication, network interaction, network community.

The approach of logistics support of agro-industrial complexes with agricultural machinery and technical means for their maintenance in the planning of tender procurement procedures is considered. The proposed approach is based on the structure of the resource support of the agro industrial complex, which is a complex organizational system. In the described structure of resources, a block of logistics support for vehicles and the material and technical resources necessary for its maintenance, the presence of which is important for solving functional and production problems, is singled out. On the basis of ongoing research, a cause an deffect diagram has been developed with the definition of the most significant problems affecting the management of transport provision in agro-industrial complexes. A methodology for the expert assessment of the most demanded types of resources is proposed and described in order to optimize the spending of financial resources and increase the level of logistics support. The study of the approach under consideration is reduced to improving the procedure for planning tender purchases by developing and applying a model for determining and substantiating technical resources that are the most in demand for fulfilling the functional tasks of the agro-industrial complexes. As a result of the proposed model, the authors developed an algorithm for planning tenders, the practical application of which is based on achieving the objectives of the efficiency of spending financial resources and reducing the timing of tender procedures and their validity in terms of adequacy. Keywords: management, logistics, agricultural vehicles, technical resources, tender, procurement, agro-industrial complex.

In management theory, an organizational system is a set of interrelated subsystems in the form of structural elements responsible for planning, execution, information support and control of activities.

Figure 1 presents the main types of resources used by organizational systems.

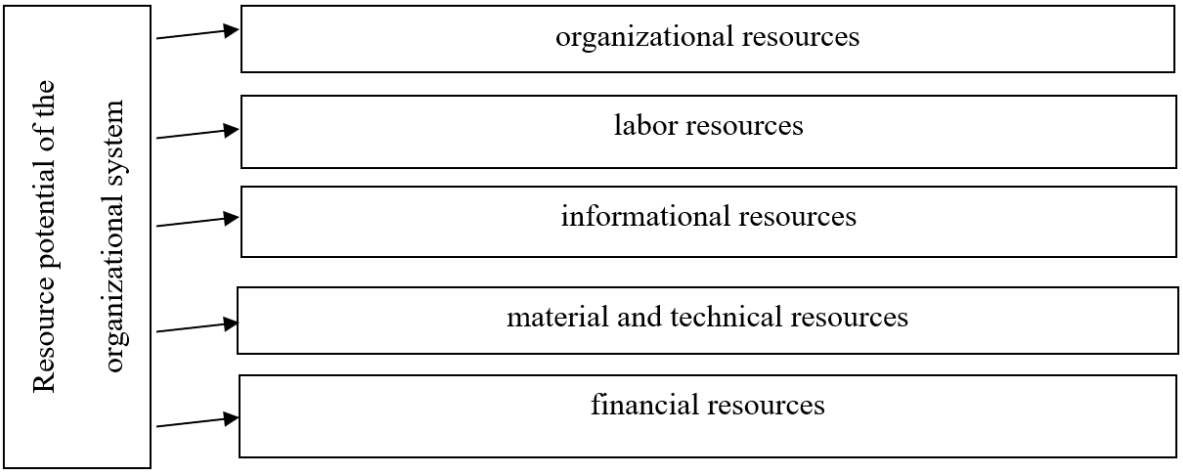

Fig. 1. Types of organizational systems resources.

The effectiveness and efficiency of the organizational system is directly related to its logistics and maintenance support. The system of agro-industrial complexes is complex, which is characterized by the presence in it of a subsystem for providing material and technical resources in the form of agricultural machinery (hereinafter referred to as vehicles), which performs various functional tasks for sowing, processing, collecting and servicing agricultural products.

Being complex organizational systems, agro-industrial complexes, with the aim of reducing the cost of time and saving financial resources, use the institution of tender purchases when organizing logistics and maintenance support. Tender purchase solves the problem of choosing the most advantageous offer for the customer in terms of quality, quantity and minimum cost of the purchased material and technical resource.

In state agro-industrial complexes, the use of tender purchases is aimed at minimizing the risks of corruption, in connection with which they are regulated by strict rules for their implementation [1-2]. Anti-corruption tools in the contract system are provided at the initial stage of the procurement cycle, at the stage of identifying a supplier and executing a contract, in the process of monitoring, auditing and control. Justification of the procurement, which consists in the justification of its compliance with the legislation objectives, the requirements for the purchased products and the formation of the initial maximum contract price, is an anti-corruption tool at the stage of procurement planning.

Competition at the stage of determining a supplier and executing a contract is ensured by the presence of a wide range of competitive procurement methods, the involvement of small businesses, socially oriented businesses, and the transparency of procurement procedures. Publication of planned and reporting procurement documentation in the unified information system of public procurement makes it possible to control procurements carried out by state agro-industrial complexes. An important element of the mechanism for preventing corruption risks at all stages of procurement procedures carried out by enterprises of the agro-industrial complex are anticorruption requirements for persons involved in procurement.

Tender purchase is characterized by several mandatory stages for its organization and implementation. One of the most important stages is to resolve the issue of planning and justifying the amount of purchased material and technical resources to serve the needs of agro-industrial complexes. In this regard, the relevance of scientific research in the field of tender purchases is aimed at creating mathematical models and algorithms that make it possible to justify a tender and calculate the amount of necessary material and technical resources for the efficient use of funds allocated for this purpose [3-9].

On the basis of ongoing research, a cause-and-effect diagram [10] was developed with the definition of the most significant problems affecting the provision of vehicles in agroindustrial complexes (Fig. 2) and the material and technical resources necessary for its maintenance (parts, fuel and lubricants, etc.).

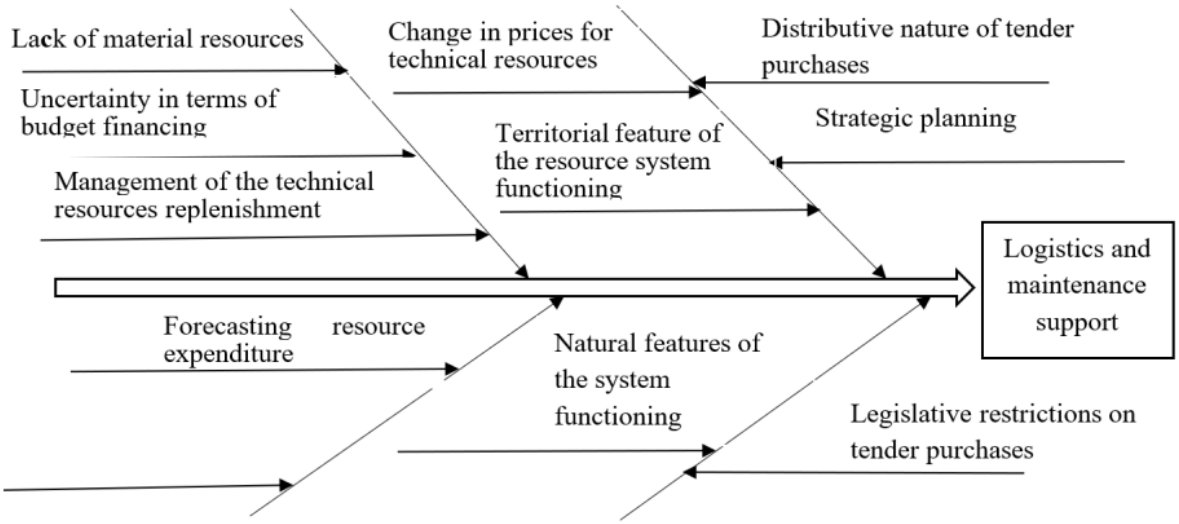

Fig. 2. Cause-and-effect diagram of problems affecting the logistics and maintenance support of vehicles.

An empirical assessment of the impact of the identified problems was carried out by conducting a survey of the heads of structural divisions responsible for the technical condition of vehicles of the agro-industrial complex region in terms of financial savings and cost reduction for tender procedures. The survey methodology consisted in assessing the impact of identified problems on a 5-point system (the higher the impact, the higher the score). According to the results of the assessment, 5 most influencing problems in the provision of agro-industrial complexes with vehicles and its maintenance were identified (Fig. 3). As can be seen from the diagram shown in Fig. 3, it is important to predict the consumption of technical resources. Timely forecasting of the consumption of technical resources will ensure the smooth operation of vehicles and the functioning of the production process.

Efficiency of spending financial resources and reducing the timing of tender purchases can be ensured by conducting procedures for the selection and justification of the purchased mode of transport and its serviced technical resources (parts, fuel and lubricants, etc.). In this regard, in conditions of limited financial resources at the planning stage of the tender, when deciding on the purchase of transport and its serviced technical resources, it is necessary to choose the maximum necessary for solving production problems. The assessment of the impact of the demand for the purchase of transport and its serviced material resources (hereinafter referred to as technical resources) is carried out at the stage of forming a tender request.

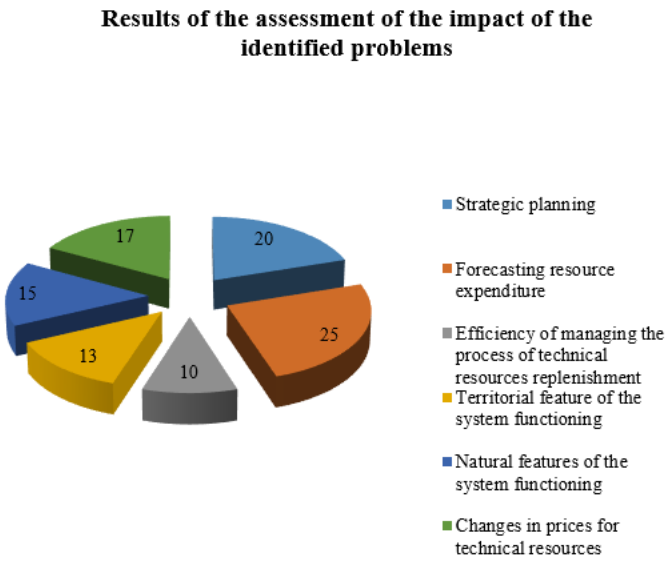

Fig 3. Results of the assessment of the impact of identified problems.

The demand for technical resources is determined by the head of the structural unit, the introduction of which includes the provision of the agro-industrial complex with vehicles. The head of this unit, when making a decision, uses his experience, as well as the experience of employees directly involved in the operation and maintenance of agricultural vehicles. Figure 4 presents a generalized algorithm for obtaining initial data for determining the demand for technical resources.

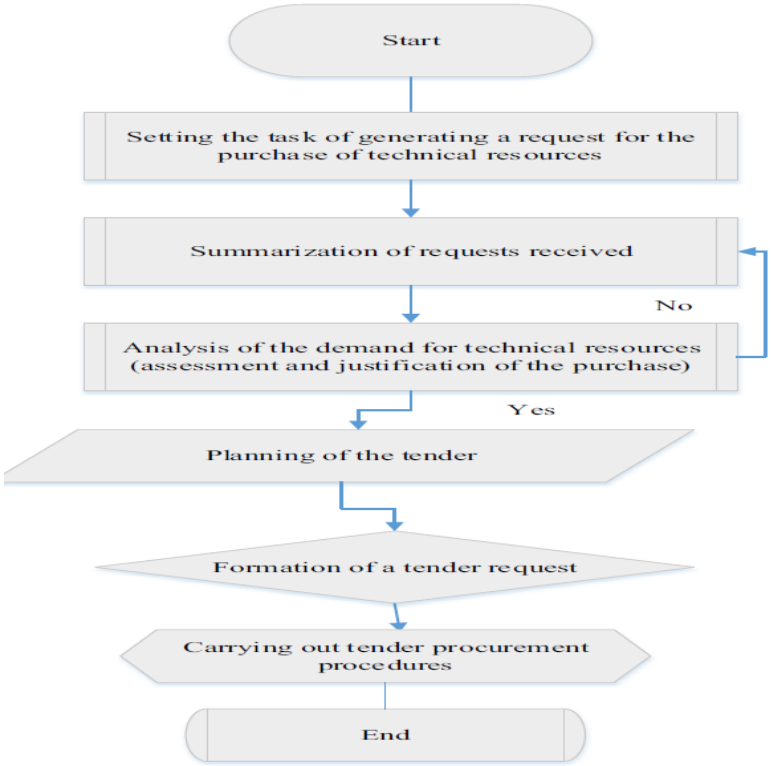

Fig. 4. Block diagram of the algorithm for determining the demand for technical resources.

This algorithm can be described as follows:

stage 1: the manager sets the task for employees directly involved in the operation and maintenance of agricultural vehicles to submit requests for the purchase of technical

resources;

stage 2: based on the submitted requests, a list of technical resources required for the purchase is formed;

stage 3: a statistical analysis of the expenditure of technical resources from the list

formulated for the purchase (Fig. 5) is carried out based on the demand forecast;

stage 4: the most demanded resources are included in the tender;

stage 5: the request for the purchase of the most demanded resources is transferred to the department dealing with the organization of tenders.

The distribution of financial resources allocated for the purchase of technical resources is distributed differently, depending on the demand for the purchased resources. The principle of distribution is as follows: the greater the demand for resources, the greater the allocation of funds for its purchase. An example of the distribution of financial resources according to the degree of demand for technical resources is presented in Table 1.

The algorithm allows maximizing the functional task of the logistics and maintenance of agricultural production by providing technical resources, which can be described by the following objective function:

$$F1 = A \cdot X5 + B \cdot X1 + C \cdot X4 + D \cdot X2 + E \cdot X3 \rightarrow \max, \quad (1)$$

where:

a, *b*, *c*, *d*, *e* – the impact of a technical resource on the functional task performance;

X1, X2,… X5– the amount of financing for the purchase of a technical resource.

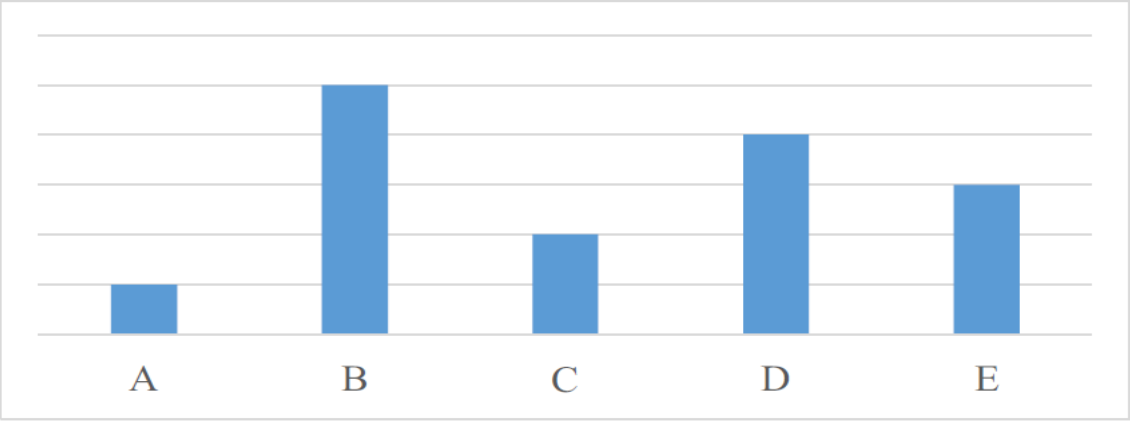

Fig. 5. The result of the technical resources expenditure analysis.

Table 1. Distribution of financial resources according to the degree of demand for technical resources.

No.	Resource *	Assessment of the demand for a technical resource **	Impact on task performance ***	Distribution of funds ****
1	A	5	*a*	X_1
2	B	1	*b*	X_5
3	C	4	*c*	X_2
4	D	2	*d*	X_4
5	E	3	*e*	X_3

Note: - name of the technical resource;

- the degree of assessment of the demand for a technical resource in points when assessed by experts (1 - the most demanded, etc.);
- the impact of a technical resource on the performance of a functional task in accordance with the function (1);
- distribution of funds in accordance with the function (1).

Complex organizational systems, such as agro-industrial complexes, are faced with the solution of the managerial task of rational and efficient distribution of the entire resource potential. Particular importance in solving this problem should be given to the rationale for planning the purchase of technical resources within the framework of logistics and maintenance support.

The proposed approach to planning and purchasing the most demanded technical resources is a practical solution to the problem of distributing financial resources in complex organizational systems for tender purchases of technical resources, which makes it possible to effectively allocate financial resources and reduce the risks of freezing resources as stocks in warehouses.

References

1. Mahammadovna, S. I. (2021). Needs and factors for developing professional and creative abilities of students of higher educational institutions. *Annals of the Romanian Society for Cell Biology*, *25*(6), 2200-2209.
2. Federal Law of the Russian Federation of 05.04.2013 No. 44 - FZ, URL:https://base.garant.ru/70353464/
3. Federal Law of the Russian Federation of November 18, 2011 No. 223-FZ, URL: https://base.garant.ru/12188083/
4. M.V. Masaleva, Technologiy of technosphere safety: Internet journal **4(68)**, 129-133 (2016)
5. N.G. Topolsky, A.P. Satin, M.V. Masaleva, A.V. Stavissky, Fires and emergencies: prevention, liquidation **3**, 88-93 (2018)
6. Mahammadovna, S. I. (2023). Features of Cluster Design in Modern Paradigms of Education. *Telematique*, *22*(01), 348-355.
7. Сирожиддинова И. Методика смешанной отборки при комплексном проектировании профессиональной подготовки будущих инженеров //Общество и инновации. – 2022. – Т. 3. – №. 7/S. – С. 87-92.
8. Sirojiddinova I. M. Scientific and Technological Progress, Problems and Solutions In the Application of Artificial Intelligence //American Journal of Language, Literacy and Learning in STEM Education (2993-2769). – 2023. – Т. 1. – №. 9. – С. 49-53.
9. Sirojiddinova I. M. Immersion of students in an uncomfortable environment as a method of activating the learning process //Ta'lim va rivojlanish tahlili onlayn ilmiy jurnali. – 2023. – Т. 3. – №. 11. – С. 4-5.
10. Сирожиддинова И. М. В комплексном проектировании профессиональной подготовки инженеров метод случайной выборки //O'zbekistonda fanlararo innovatsiyalar va ilmiy tadqiqotlar jurnali. – 2023. – Т. 2. – №. 16. – С. 521-523.
11. Sirojiddinova I. Technological character of the educational process when designing pedagogical objects //Solution of social problems in management and economy. – 2023. – Т. 2. – №. 2. – С. 130-132.
12. Maxammadovna S. I. In comprehensive design of professional training of engineers random sample method //O ‘zbekistonda fanlararo innovatsiyalar va ilmiy tadqiqotlar jurnali. – 2023

13. Mahammadovna S. I. Improving the professional training of future engineers based on the cluster approach //Spectrum Journal of Innovation, Reforms and Development. – 2022. – Т. 3. – С. 45-47.
14. Sirojiddinova, I. M. (2015). Engineering Students Have Succeeded In Creating A Technology Cluster. *Pedagogy & Psychology. Theory and practice*, *22*..
15. Makhammadovna S. I. Efficiency of development of professional and creative abilities of students //ACADEMICIA: An International Multidisciplinary Research Journal. – 2020. – Т. 70. – №. 11. – С. 1292-1296.
16. Mahammadovna S. I. Development of a methodological system of training based on the cluster approach //Archive of Conferences. – 2022. – С. 30-33.
17. Sirojiddinova I. The importance of the cluster approach to the creation of a motivational and methodological teaching system //Вестник Ошского государственного педагогического университета имени А. Мырсабекова. – 2022. – Т. 2. – №. 2. – С. 146-150.
18. Maxammadovna S. I. Pedagogical opportunities for the development of professional and creative abilities in students //International Journal for Innovative Enginering and Management Research…. – 2021.
19. Sirojiddinova I. M. Pedagogik ob'yektlarni kompleks loyihalashtirish texnologiyasi //Academic research in educational sciences. – 2023. – Т. 4. – №. TMA Conference. – С. 298-302.
20. Сирожиддинова, И. М. (2022). Таълим жараёнини мониторинг тадқиқ қилиш учун ташхис материалларини ишлаб чиқиш. *Results of National Scientific Research International Journal*, *1*(6), 33-38.
21. Сироджиддинова И. Ta'lim jarayonida innovasion texnologiyalar //Цифровизация современного образования: проблема и решение. – 2023. – Т. 1. – №. 1. – С. 57-60.
22. Maxammadovna, S. I. (2022). Klaster texnologiyasi asosida bolajak muhandislarni kasbiy tayyorgarligini takomillashtirish. *Муғаллим ҳәм үзликсиз билимлендириў. Илмий-методикалық журнал.*
23. Maxammadovna S. I. O'zbekistonda inson huquqlarini ta'minlash: Ijtimoiy xizmatlar agentligi misolida //Central Asian journal of social sciences and history. – 2023.