Planning the activities of the utility vehicles department in the structure of a joint stock company

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Abstract. Planning the activities of a structural unit is one of the sources for finding reserves to improve the efficiency of the company as a whole. The correctness of the methods used, the completeness of the source data, the software used is an incomplete list of factors affecting the reliability of the plans of the company’s departments, which in turn make up a plan of the organization’s activity as a whole. The article provides an overview of the planning process for the Utility Vehicles Department, considers planning tools, the possibility of increasing the efficiency of the process and achieving planned indicators.

1. Introduction
Planning the enterprise's activity is associated with the selection of the optimal procedure for the formation of development plans for structural units included in its structure. In this case, planning should take into account the specifics of the activities of structural units and their contribution to the implementation of the main technological processes and key financial and economic indicators.

The object of planning the Utility Vehicles Department (UVD) is the production and economic activity that it carries out on orders and instructions of the Company. A characteristic feature of the motor transport company is that the main production process - the transportation of goods - is carried out outside its territory, and consists of work on the line. On the territory of the enterprise, only auxiliary processes are carried out related to ensuring the readiness of the rolling stock for transportation. [4]

2. Materials and methods
For the effective organization of the UVD's activities, it is necessary to receive timely information on the progress of transportation, consumption of fuel and lubricants and spare parts, volumes of goods transported. To build and study models of management objects in their temporal relationship, it is advisable to identify the main stages of the transportation process (Figure 1).

The level of management of the production process is the most important factor determining the level of production efficiency. Special management requirements are presented in the organization of road transport. The production process of motor transportation should organically integrate the production processes of customers, directly linking operations into a single cycle from the moment the need for information arises to the receipt of products, including the satisfaction of needs not directly related to specific material objects. [1] Road transport management is a fairly complex integrated system that includes bodies, personnel and equipment of the department.
The following distinctive features are characteristic of the UVD as a management object:

1) dependence of the UVD functioning on the technological processes of customers, as well as the impact of the transportation process on the economic results of their activities;
2) dependence of the activity of the elements of the organizational structure and management effectiveness on external conditions;
3) dynamism and stochasticity due to the simultaneous influence of many factors, some of which have elements of randomness.

Planning for the UVD is preceded by an analysis of its activities. The formation and implementation of the plan is a continuous process, which can be graphically represented by the following scheme (Figure 2). [2] Under the guidance of the head of the department, the UVD plan is developed with the large-scale and active participation of the entire team in identifying reserves, developing measures for their use and preparing the draft plan as a whole. [9]

The development of the structural unit plan is carried out in stages. At the first stage, a draft plan for the next year is designed taking into account possible additional instructions of the Company. This project is compiled only according to the main aggregated indicators determining the upcoming traffic volume, the need for supplies of the rolling stock and the level of volumes of transport services. Then follows the refinement and approval of the indicators of the plan (Table 1).
Table 1. Procedure for developing and approving the UVD plan

| Stage | Stage Content |
|-------|---------------|
| 1     | Preparation of preliminary proposals of the structural unit for the planned year (based on the analysis of indicators of the reporting year) |
| 2     | Bringing the control numbers of OJSC for the structural unit for the planned year |
| 3     | Issuing an order by the UVD supervisor to develop a plan |
| 4     | Preparation of plans for areas of activities:  
- Plan of organizational and technical activities;  
- Maintenance and repair plan;  
- Goods transportation plan;  
- Rolling stock operation plan;  
- Plan for the implementation of new vehicles and advanced technology;  
- Labor and wage plan;  
- Procurement plan;  
- Plan for the overhaul of buildings and structures;  
- Cost plan;  
- Financial plan. |
| 5     | Formation of the draft plan of the structural unit for the planned year |
| 6     | Presentation of the draft plan for the planned year to the parent company |
| 7     | Continuation of work on consideration and generalization of proposals aimed at improving the efficiency of the structural unit |
| 8     | Obtaining an approved plan for the planned year (by main indicators) by the structural unit from the OJSC |
| 9     | Refining and detailing the previously developed draft plan of the structural unit for the planned year |
| 10    | Approval of the plan for the planned year by the head of the department and bringing it to the shops and columns |
| 11    | Notification of the OJSC on approval of the plan and its main indicators |
| 12    | Implementation of previously developed measures aimed at ensuring the implementation of the structural unit plan |

The first stage begins in April-May of the current year preceding the planned one. On the basis of a thorough analysis of the economic activity of the previous period, the progress of the plan for the past period of the current year, the planned changes in the size and structure of the rolling stock, the needs of the clientele served and other factors, the UVD prepares preliminary proposals on the possible increase in traffic for the next year and presents them to the Company. [3] The latter, based on the control figures and the generalization of the preliminary proposals of the enterprise, brings the control figures for a limited circle of the most important indicators to its structural unit, which, taking them into account, carries out the first stage of the development of the plan.

The head of the department issues an order, which regulates the procedure and terms for developing the plan, appoints responsible persons for individual sections of the plan. At the same time, special attention is paid to the active involvement of workers, engineers and technicians, inventors and rationalizers in the development of proposals related to the quickest elimination of bottlenecks existing in the enterprise and ensuring an increase in the efficiency of the enterprise’s economic activity.

The development of the plan is carried out under the direct supervision of the head of the planning and economic department. The organization’s economic service, organizing this work, engages technical, operational, and other services in it, ensuring thorough and coordinated preparation of all sections of the plan. The first stage of this work should be completed by early July so that, based on the development of the plan, the enterprise has the opportunity to present to the Company its draft plan for the established indicators for the coming year at the time. [15] At the same time, the company continues to collect, review and generalize proposals related to the implementation in the planning period of organizational and technical measures aimed at improving the efficiency of the enterprise.
The draft plan for the next year submitted by the UVD is reviewed, summarized and reflected in the unified plan of the Company. At the beginning of October, the plan for the main quantitative and qualitative indicators is brought by the Company to the UVD as a binding document.

On this basis, and taking into account additionally identified reserves, the next stage of work is carried out, which consists in refining and detailing the previously developed draft plan. This work should be carried out within a month and completed no later than November so that the UVD head has the opportunity to approve the plan in advance, and the planning and economic service can bring the approved tasks to the workshops, transport columns, sections, brigades and prepare events with other services ensuring the successful implementation of the plan of the structural unit, including the organization of systematic and effective control over its implementation.

Upon completion of the work, the head of the UVD is obliged to inform the Company about the completion of the development and approval of the plan and provide a certificate of the main indicators of this plan. This will enable the Company to take into account the obligations undertaken by the structural unit itself in the generalized material. [8, 14]

The UVD plan includes various sections, each of which has its own indicators that reveal their content and place in the plan (Table 2).

| №  | Key plan indicators group | Name of indicators                                                                 |
|----|--------------------------|----------------------------------------------------------------------------------|
| 1  | Cargo transportation     | - total estimated volume of traffic in tons indicating the list of clients served; |
|    |                          | - cargo turnover                                                                 |
| 2  | Operation of rolling stock | - truck fleet utilization rate;                                                  |
|    |                          | - loaded mileage proportion;                                                     |
|    |                          | - time on duty                                                                   |
| 3  | Maintenance              | - number of technical services;                                                  |
|    |                          | - total labor input for maintenance and repair work;                            |
|    |                          | - coefficient of technical readiness;                                            |
|    |                          | - vehicle downtime in repair                                                     |
| 4  | Labor                    | - payroll plan;                                                                  |
|    |                          | - employee plan;                                                                |
|    |                          | - training plan;                                                                |
|    |                          | - workforce social development plan;                                            |
|    |                          | - working efficiency                                                            |
| 5  | Finance                  | - total value of transport services in monetary terms;                           |
|    |                          | - payments to the budget;                                                       |
|    |                          | - budget appropriations, financing of the parent company;                        |
|    |                          | - reducing the cost of road transport                                           |
| 6  | Capital investments      | - level of capital investments;                                                 |
|    |                          | - commissioning of fixed assets and production facilities;                      |
|    |                          | - production development fund generation standards                               |
| 7  | Introduction of new vehicles and equipment | implementation of new technological processes, complex mechanization and automation |
| 8  | Procurement              | volume of supplies of rolling stock, tires, fuel, lubricants and other material and technical resources |

Planning for the UVD begins with a transportation plan that defines the volume and structure of the transportation. This planning stage serves as the basis for the development of all other parts of the plan.

Initial data for drawing up a plan for the transportation of goods are the applications of enterprises, which indicate the types of goods, points of departure and destination, the volume of transportation in tons and ton-kilometers with distribution by quarters. It is important to note that the high level of reality of planned indicators is determined by their recalculation when changing external factors. [5]

Customers draw up applications for the transportation of goods in accordance with the production plan. The volume of traffic is determined by the main types of cargo characteristic of the company.
When summarizing and analyzing applications, the possibility of centralizing transportation is primarily considered. This is preceded by a detailed study of transportation from points that have a large volume of exported cargo to various structural units. Then the volume of traffic, cargo turnover, the condition of roads, access roads and loading platforms, the equipment of loading and unloading means, the mode of operation of consignors and consignees are determined. [13] After processing the data and agreeing on the organization of transportation with the heads of enterprises, they draw up a list of shippers from whose warehouses in the planning year centralized delivery of goods will be carried out. The centralized transportation plan is an integral part of the overall transportation plan for the planned period. After developing a plan for the centralized transportation of goods, the remaining applications are examined, checked, summarized, and as a result, a general plan for the transportation of goods by the enterprise is developed, which can be specified when it is completed. If it is impossible to quantify the transported goods during transportation, vehicles that operate at the hourly rate are allocated. These services are planned in auto hours.

The developed plan for the transportation of goods for the planning period is compared with the carrying capacity of the vehicle fleet. For this, the balances of the carrying capacity of the vehicle fleet are compiled according to the classes of goods, that is, the security of transportation of goods by various types of rolling stock is revealed. As a result, it can be established that not all cargo groups by transportation classes are provided with sufficient carrying capacities. In this case, measures are taken to increase the productivity of rolling stock by improving performance. If this does not provide the necessary carrying capacity, it is necessary to raise the question of either increasing the number of vehicles in the fleet or partially removing the volume of cargo transported. Draft transportation plans for the planned year, developed in the indicated sequence, by type of cargo and consignors are sent to the Company. The annual transportation plan is approved quarterly. Based on the approved annual and quarterly cargo transportation plans, the UVD enters into agreements with a fixed clientele and develops detailed monthly transportation plans, for the preparation of which they receive detailed orders from shippers on the nomenclature of goods indicating the points of departure and destination of goods. Shippers draw up monthly requests in accordance with the volume of traffic planned in annual and quarterly plans. [7, 12]

Monthly plans agreed with shippers and approved by the UVD are the basis for daily planning. Shift-daily plans determine the volume of traffic, the number of rolling stock at the facilities, and are used to develop schedules for the arrival of rolling stock at loading, unloading and vehicle routes.

The constituent parts of the transport process are operational, storage and loading and unloading operations, the organization of which largely determines the downtime of vehicles under loading and unloading operations and the safety of cargo, and therefore, rolling stock productivity and transportation costs.

It should be noted that the centralized method of organizing transportation is the most progressive compared to the decentralized one. The decentralized method of organizing transportation is old and ineffective. With it, cars are allocated to cargo owners who carry out loading and unloading operations.

With centralized transportation, the entire system for organizing loading and unloading and transportation of goods by road changes. The shipper, the UVD and consignees are involved in the transport process. At the same time, the duties are distributed between them as follows: loading of goods onto vehicles at bases and warehouses is carried out by the forces and means of the consignor; cargo transportation and forwarding are carried out by the UVD; unloading of goods from vehicles is carried out by forces and means of consignees. [10, 11]

The centralization of transportation provides the possibility of using heavy trucks in a wide range. The documentation for dispatch and receipt of goods and payment for transportation is greatly simplified since this is done by one organization.

The existing shortcomings in the operation of technological transport are largely due, primarily, to the imperfection of the planning system. This includes a low level of information in the management and communication system both within it and in relation to other systems, insecurity or low level of use of various technical means, insufficient coverage of planning activities, etc. These shortcomings lead to
violations, disruption of transportation plans, cargo delivery schedules and other organizational failures both in the service unit and in the parent company. [6]

However, existing developments in the planning of performance indicators of the Utility Vehicles Department in practice do not ensure the achievement of predicted values of the performance indicators of its activities. This is due to the main drawback of research in the field of improving the planning of the transportation process, namely the lack of a systematic approach to the problem under study, to its consideration. As a result, many of the connections and functions of the planning system were not properly implemented in practice, and in the studies performed, they were not given due attention, some parts of the system were completely missed. This leads to insufficient efficiency of the system of operational planning and operation of transport. Thus, the great importance of the transportation planning system in the implementation of the transport process does not correspond to the level of implementation of the system. Ensuring the effectiveness of the system requires a change in attitude towards it, considering it as a whole, and taking into account all links.

3. Conclusion

Based on the foregoing, we can distinguish the following most important areas of improving the planning of activities of the structural unit of the enterprise:
- strengthening planning discipline, enhancing the validity of plans based on technical and economic calculations for all its positions and drawing up a multivariate plan for choosing the optimal plan;
- expanding the use of modern means of automation of the collection, processing and transmission of information;
- strengthening the planning and economic service, improving the skills and responsibilities of economists;
- organizing continuous monitoring of the implementation of the plan and the prompt elimination of the reasons preventing the achievement of the goals.

When developing the plan of the structural unit, special attention should be paid to the feasibility study of each indicator based on data characterizing the presence and condition of the rolling stock, the structure and organization of transportation, and the plan for improving the vehicles.

To determine the carrying capacity, the average number of cars that the UVD will have in the planning period is initially calculated. To calculate the average number of cars in the UVD, first of all, the number of days of stay at the enterprise for incoming and outgoing vehicles is determined.

Then, on the basis of data on the number of rolling stock of each type for the planning period and the estimated level of its productivity, in accordance with the operational indicators adopted in the plan, a production program for the operation of road transport is developed, which is the basis for compiling all other sections of the structural unit plan.

The annual plan of the enterprise is built on an information basis, in which a special place is occupied by the regulatory and reference base.

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