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Controlling introduction in the seaport transport technology systems

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Summary. The article describes the work of the seaport transport-technological system (TTS). Spend controlling analysis of the basic processes and port operations. It was found that the construction of an optimal system of controlling processes, leading to increased efficiency of the port. We consider a variety of factors that affect the efficiency of the port of reloading works and the importance of quality of work at every stage of the process. In order to determine the level of the expected impact of controlling the use of the analysis of the construction of the port of the quality management system, which is taken as a basis for the organization of transport and technological system of the port as a whole.

It determined that the efficiency depends on the turnover of the port and thus the quality and quantity of treated vessels. At the same time your system needs to build their own port, to meet the requirements of customers, and dependence of the amount processed by the courts from time to time is the reciprocal of. The authors propose a model of controlling the transport and port system technology, taking into account factors that affect the process efficiency. The scheme of internal communication processes, transport and port systems technology, as well as take into account the external communication with customers.

Use of risk systems in the port processes allows us to consider its bottlenecks, and provide impact of pointing it to a particular element of the system, when it is needed, that is applicable to many processes, owls, and is a universal method to increase the efficiency of the enterprise.

Key words: Controlling, transport, system, analysis, port, development.

INTRODUCTIONS

Controlling – a comprehensive support system for the transport company management aimed at coordinating the interaction of management systems and monitoring their effectiveness. Modern controlling includes the risk management system of the strategic, tactical and operation planning and quality management system (QMS).

Controlling is aimed at efficient use of resources and development of the company in the long run as an integrated enterprise management system. In the construction of controlling system always requires a comparison of the effect of it with the complication of enterprise management system (increasing labor-intensive process).

The following aspects are included in the controlling system:

- Definition of objectives;
- A reflection of these objectives in an efficient and balanced indicators (KPI);
- Regular monitoring (measurement) actual values;
- Analyzing and identifying the causes of deviations from the actual values of plan;
- Acceptance on this basis at management solutions to minimize deviations.

Economic efficiency of cargo handling of port depends on use of modern transmission and data processing, the correct account of the involved resources. Thus, it is provided not only maintenance of a continuity of reloading works, but also there is a possibility of increase in a goods traffic at the expense of decrease the time intervals between arrival of courts. The system of a turn of data properly organized and described in methodical documents at the enterprise and as result timely actions of management provide minimizing of unproductive idle times of technics and payments demurrage in case of a vessel delay.

RESEARCH ANALYSIS

In Vetrenko L.D.'s [9] works, Karminskiy A.M. [2], Anikina B.A. [4], Vaguschenko L.L. [5], Yakovleva Yu.P. [6], Horvath P. [1], etc. repeatedly stated about the processes controlling the transport and port system technology. Basically paid attention Documentation Assistant port processes. However, questions of synthesis and the efficiency of the port system as a whole, insufficiently illuminated.

RESEARCH OBJECT

Target Controlling - building enterprise adoption of effective systems of implementation, monitoring and analysis of management decisions.

The main tasks that need to be addressed:

1. Optimization of organizational structure of management.
2. Organizing an effective system of management accounting.
3. Development of planning, control and analysis

activities.

4. Provide motivation.

5. Automation of accounting and control systems company.

RESULTS OF RESEARCH

Life often consists of interference - system and random, which may include: poor quality product or service, unprofitable production, demotivation of employees and so on. [1].

Responsibility for all actions personally in the system remains the first head of the organization. The control is made through the information about the actions and facts with which workers come into contact, via Article trial data [29]. Management accounting, including its specialized implementation, such as the production accounting, inventory control, accounting QMS, accounting in marketing and so on. G., In conjunction with the accounting amount to controlling information database [15]. Example of controlling TTS seaport proposed by the authors and presented in Fig. 1.

Controlling provides information, assessment of strengths and weaknesses of the responsibility centers, which are: managers, designers, production engineers, testers, technical supervision, customer representative, operating authorities and other [7].

Information support of controlling includes:

- Correct for the fact (reported to the appropriate requested);
- The correctness of the form (report to the appropriate predefined message form);
- The accuracy of the (reported by the compliance of fact exists);
- Accuracy (the error in the message known);
- Timeliness (on time) [12].

When sending and / or transformation of the information controlling important:

- The authenticity of the fact (not modified);
- The authenticity of the source (the source is not modified);
- The correctness of the information transformation (the report is correct when hierarchical transmission);
- The preservation of archival originals (and analysis of failures);

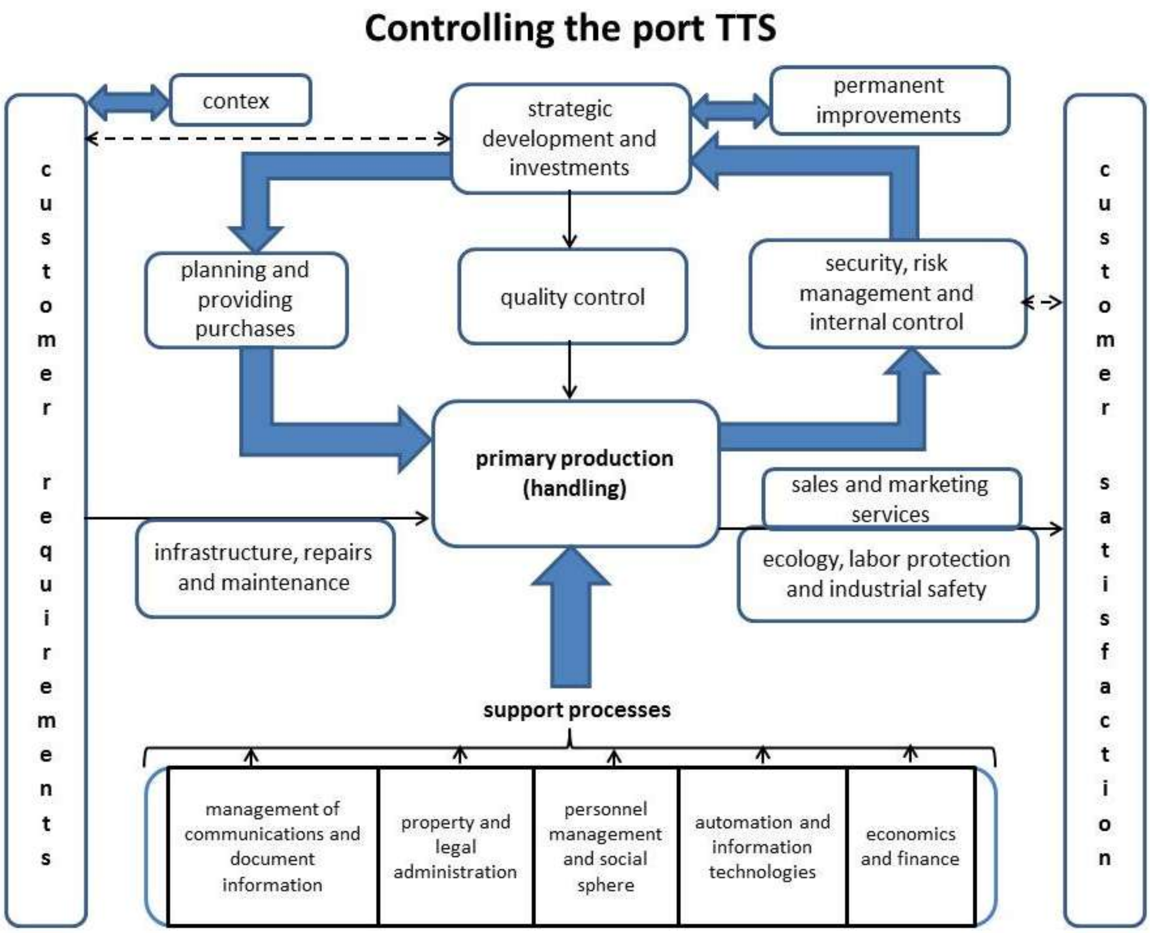

Fig. 1. The scheme of controlling the port TTS. Symbols:

- direction of the main processes of the port TTS;

- Additional Process and External Relations;

- external interaction with suppliers and customers in order to continually improve the system.

- Management of access rights (the contents of documents);
- Registration of change (manipulation) [2].

Improperly configured software is the cause unwanted distortion of information [30]. Consider the indicators of quality and evaluation in the services sector, which includes transport and technological systems (TTS) seaports.

1. Personnel Qualifications.

The service is usually provided to the consumer by service personnel, so the qualification of the personnel is the main indicator of the quality of services and is defined by the following characteristics: competence (availability of professional knowledge and skills required for the provision of a particular service); communication skills (ability to communicate with the client); understanding (the ability to speak in the manner of a client); courtesy (the behavior of personnel in contact).

2. Reliability (consistency of performance, including punctuality and accuracy of service, information and evidence procedures).

3. Accessibility:

- Service time (hours of operation of the company providing the service);
- Speed of service (the duration of the provision of services);
- The location of the company providing the service.

4. Characteristic of material support, ie, the parameters of the physical environment in which the service takes place:

- Room;
- Technical equipment (furniture);
- Uniforms (appearance) personnel.

By the quality of service is understood the correspondence between the expectations of consumers and their perception of the service provided [19].

To determine the quality of service used assessment of consumer perception. The consumer perceives the service as high quality if it meets or exceeds their expectations. [10] Customer expectations are formed on the basis of existing experience or from a variety of sources of information [11].

Consumer perception and, consequently, the quality of services is characterized by the following correspondence:

- Between consumer expectations and their perception of the company's management: management should properly represent what customers want and appreciate the quality of service parameter by which;

- Between the perception of leadership in consumer expectations and their transformation in the quality of service indicators: leadership must correctly formulate quality indicators, taking into account the views of consumers in the specific performance standards for the provision of services;

- Between the parameters of the quality of services and quality of services: the quality of services in the eyes of the customer has certain parameters;

- Between the services provided and external information about the services: requirement expectations are formed through the information disseminated to the general public (advertising). The quality of service in this case depends on the reliability of the information provided by the client [3].

For the concept of "neutral zones" Charles Bernard can be used to determine the quality of service [29].

The essence of the concept in relation to domain-sti Service is as follows: in the personal perception of a person there are so-called neutral zone, which do not cause any action responses.

Thus, if the service is acceptable at the middle level, consumer responses remain neutral. The feeling of satisfaction (positive reaction) occurs when the quality and level of service in the minds of consumers are beyond the neutral zone. What is more important for a consumer service option, the narrower its neutral zone [16].

The development of the concept of "neutral zones" is the typology of the effectiveness of the elements of service Kedotta E. and N. Terjen, according to which the various elements of service may have a positive or negative reaction of consumers, and some do not cause responses [13].

For providing quality service, you need to determine what its parameters create a positive customer reaction and feedback directly to shape his perception. E. Kedott and N. Terjen developed the following classification of the service elements according to their importance in consumer perceptions:

1. Critical service elements.

Configure the least neutral zone. Are the main factors that have a direct impact on consumer.

Cause either positive or negative reactions, depending on whether they meet consumer expectations. This is the minimum of service, which must necessarily be fulfilled in order to satisfy the customer (for example, in the restaurant business - cleanliness banquet rooms, tasty and healthy food, courteous and helpful staff).

2. Neutral service elements.

To create the most neutral zone and do not affect the quality of service in customer perception (eg, color uniform personnel).

3. Satisfying service elements.

Cause positive reaction if customer expectations anticipated, but no (including negative) reaction does not occur if expectations are not met.

These elements do not reduce the quality of servicing, if the consumer does not receive them, but in the opposite case, the mind of the customer form the additional benefits of the provision of services and thus increase its quality.

4. Profit disappointing service elements.

If these elements are not performed correctly, it causes a negative reaction, if performed correctly - the customer reaction is neutral [3].

For controlling the service sector it is advisable to apply a new cycle of Deming (Fig. 2). The steps in this cycle are as follows:

1. Product development (services).

2. Product Manufacturing (services), test of its production lines, laboratories, on the spot.

3. Delivery (yield) of product (services) on the market.

4. Check the product in the work, you need to know what it thinks about the consumer (user), how to attract

other customers.

Step 5 completes the transition from step 4 to the new step 1: product redesign, and taking into account the continuous improvements this cycle begins again.

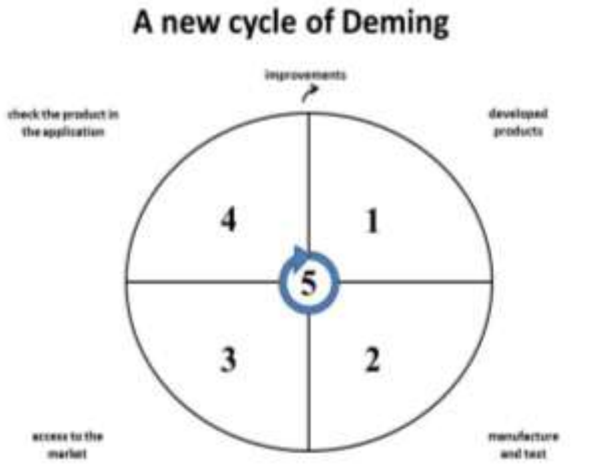

Fig. 2. Deming Cycle proposed for controlling services. Legend: 1 – product development; 2 – manufacturing and testing; 3 – to enter the market; 4 – the product verification in the application; 5 – continuous improvement

The cycle is repeated until the result matches with the plan, which may be changed periodically in accordance with customer requirements and is therefore the primary method of achieving the required quality. In the case of controlling, the planning stage it is advisable to replace the standard or norm, according to which the corrected product manufacturing processes (services).

In determining the factors affecting the quality of any figure, often used the cause-effect Ishikawa diagram [20].

In the services sector, the principle of "5P" (Fig. 3).

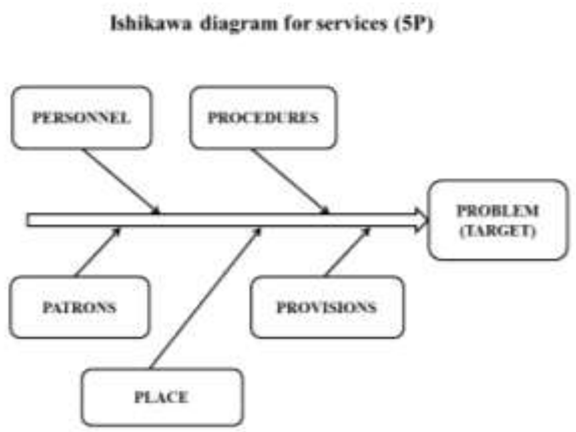

Fig. 3. Ishikawa Diagram ("5P" principle) for the scope of the TTS port services

Ishikawa diagram identifies the relationship between the indicators and factors affecting them.

Processes in an organization are generally planned and carried out under controlled conditions to add value. Input and Output Process TTC port (generally) may be the equipment, materials, components, parts and information, energy, financial and other resources. The input and output parameters of the process are measured and analyzed to make timely management decisions and to further improve the operation of the port [8].

Ensuring product quality comes at a cost. They are formed in all phases and stages of the product life cycle from design to implementation and after-sales service. on poor quality warning costs include the costs of activities related to product quality planning, performance engineering and administrative personnel, construction and development of the equipment to determine the level of product quality, staff training methods for the manufacture of quality products and the preparation of regulations, labor costs for checking supplier [27].

The cost of controlling (quality assessment) - is the cost of measuring the quality of the product characteristics in order to ensure compliance with its specifications. This includes pay supervisors and management personnel, as well as indirect labor costs, such as the control of raw materials supplied to the company [28].

Costs related to marriage, called product that does not meet quality requirements. [26] Internal costs related to the issue of defective products, include all labor, material costs, as well as the overhead product scrap costs, t. E. All the costs that make up the value of the product to the period when it was discovered the discrepancy specifications.

External costs related to the issue of defective products, include all costs to meet the complaints of customers and the necessary operational service due to poor product quality. Capital expenditures related to the improvement of the quality of products are mainly the costs of measuring equipment and data processing equipment. The practice of taking into account these costs are different; in particular, they can relate to production costs and easily controlled by [17].

Indirect costs to ensure the quality of products is the cost supplier to ensure the quality of its products; These costs are reflected in the purchase price of materials [3].

In making production decisions inevitably face the interests of various companies in the supply chain, which requires a constant search for economic trade-offs [24]. Decisions in these conditions is exposed to a number of factors, then must be considered when controlling of the quality characteristics of activity [14].

The method allows to balance the trade-offs of incomes, expenses and profits of the company in the sector, taking into account the needs of other companies of the logistics chain. If the difference between revenue and cost more than it was before, a compromise must be improved as a result of the ratio "cost - effectiveness" [4].

The sphere of influence of the economic compromise (choice of logistic schemes of transport) covers the strategic, organizational and operational levels in the field of commodities distribution planning solutions [22].

Controlling is a consolidation and coordination mechanism among the various departments to enhance the efficiency of the organization as a whole. This is achieved by means of regulations, specially designed models, procedures, regulations and official instructions regulating the activities of managers and performers at all levels [23].

However, this mechanism works well only in a relatively high stability, when situations are predictable, action performers regularly recur and require new solutions. Otherwise, the system will often require adjustments and can eventually become overloaded and over-regulated [4].

TTC seaport is a prime example of a practical embodiment of such a system [8].

To simplify the task of controlling the management of large dimension system is represented as a set of streamlined tasks [5]. This process is called decomposition with which the structuring of the control system is made - its division into subsystems with the establishment of each of these tasks and relationships with other subsystems [25].

This decomposition corresponds to the hierarchical organization of the control system, in which parts of the system are distributed by levels and the whole system is a multi-level, multi-stage. At the same time, the system is integrated, its simpler problems are considered main and subordinate divided as long as there is meaning in this division. The totality of the subsystems level objectives should ensure that the top-level control subsystem [8].

You can describe this system using a finite element method based on vertical and horizontal connections [19].

The duration of the decision-making period increases with increasing levels of hierarchy in the control system. Therefore, the construction of the system, as a rule, begins with the lower levels, and carried out in stages, taking into account the expansion of functions and further modernization [5].

The structure of the organization and should be built not by the distribution functions of the top and bottom of the management pyramid, starting with simple processes, describing all of the powers delegated. But in the end the problem is reduced to improve the management [6].

In control operations emit monitoring functions and effects. They are used for the organization and coordination of technical equipment, software error detection, information management for forecasting and subsequent decision [20].

With enough development in the system of controlling the enterprise in each division operates an authorized person - the controller or control group (internal auditor, quality circle). All units are loaded with their current job, and the controller task - to form a new independent look at manufacturing processes and inform management in a timely manner if needed solutions [18].

In the event of faults and failures in the system, the fact of non-compliance is determined by its location and view, a message is sent to management for taking steps to eliminate it. The system should also have a provision for the event of failure the most risky elements [8].

In operation, the system is constantly adapting to reflect changes in the internal and external environment. Control of the enterprise activity, primarily focused on the forecast of its future goals, taking into account the risk assessment, which will not allow to achieve the objectives [19].

It was the introduction of controlling risks does the organization controlled and as a result - controlled [21]. At full capacity, and maximum use of resources of the enterprise can calculate lost profits in its bottlenecks formula [6]:

Integrated Management System is a set of interrelated subsystems managed by a common goal of functioning.

$$D = \sum_{j=1}^{n} (p_j - k_n) x_j \rightarrow \max;$$

$$T_i \geq \sum_{j=1}^{n} t_{ij} x_j, (i = 1, \ldots n);$$

$$x_j \geq 0, (j = 1, \ldots n).$$

where: T_i – time (a month), during which there are additional fixed costs in a particular narrow point;

x_j – the planned number of product type i (each type of load and its direction of transportation is considered separately);

D – the overall profit margin for all products and services;

t_{ij} – the need for a tight spot by one of its own production;

p_j – the market price of the product type j;

k_n – variable costs of production independent of the form j, or the cost of purchasing these products on the side.

The general rule is the correct pricing policy: the price of any kind of product should not be lower than the variable costs of its production [27].

In order to control complex systems with multiple criteria of communication such as the port of the TTS additionally apply method of expert evaluations [8].

CONCLUSIONS

1. Controlling TTS ports is essential for solving industrial problems, it allows to develop conceptually new theoretical and methodological foundations for the study of processes and objects in the TTS seaports.
2. Further development of TTS seaport requires a comprehensive analysis of its individual elements and their relationships.

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ВНЕДРЕНИЕ КОНТРОЛЛИНГА В ТРАНСПОРТНО-ТЕХНОЛОГИЧЕСКОЙ СИСТЕМЕ МОРСКОГО ПОРТА

Зинченко С.Г., Пархотько А.В., Хлопецкая Л.Ф.

Аннотация. В статье рассмотрена работа транспортно-технологической системы (ТТС) морского порта. Проведен анализ контроллинга, основных процессов и операций порта. Выявлено, что построение оптимальной системы контроллинга процессов ведет к повышению эффективности работы порта. Рассмотрены разнообразные факторы, влияющие на эффективность перегрузочных работ порта и важность качественного выполнения работ на каждом этапе процесса. С целью определения уровня ожидаемого эффекта от применения контроллинга проведен анализ построения системы управления качеством порта, основой для которого взята организация транспортно-технологической системы порта в целом. Определено, что эффективность работы порта зависит от грузооборота и соответственно от качества и количества обработанных судов. При этом свою систему порт должен строить самостоятельно, с учетом требований клиентов, а зависимость количества обрабатываемых судов от времени является обратной величиной. Авторами предложена модель контроллинга транспортно-технологической системы порта, с учетом факторов, влияющих на процесс эффективности его работы. Описана схема внутреннего взаимодействия процессов транспортно-технологической системы порта, а также учтены внешние связи с потребителями.

Использование системы рисков в процессах порта позволяет рассмотреть его узкие места и оказывать точечное воздействие именно на конкретный элемент системы, когда это необходимо, что применимо для многих процессов и является универсальным методом по повышению эффективности деятельности предприятия.

Ключевые слова: контроллинг, транспорт, система, анализ, порт, развитие.