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The Use of Logistics n the Quality Parameters Control System of Material Flow

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ABSTRACT

The relevance of the research problem is conditioned on the need to justify the use of the logistics methodologies in the quality parameters control process of material flows. The goal of the article is to develop theoretical principles and practical recommendations for logistical system control in material flows quality parameters. A leading approach to study this problem is a set of scientific knowledge and special methods, allowing identifying the main trends and features for the quality parameters control of material flows. The main results of the research with the scientific novelty are the following: - grounded conceptual framework for the qualitative parameters management of material flows and business processes; - defined the relationship of the evaluation criteria to characterize products and processes, and to highlight typical and assigned material flow characteristics; - proved the necessity of quality parameters logistical system control of material flows. The article can be useful to set up the quality parameters control system of material flow in the micro – mesa-logistics systems to optimize total costs, improve quality, material flow and processes and, as a consequence, improve the products competitiveness.

KEYWORDS
Quality, logistics, material flow, company, management

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Introduction

The problem description

Many businesses are currently seeking to establish a permanent contact with their suppliers to design and develop common quality standards, as well as

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to harmonize test methods and to create ways for quality improving, simultaneously reducing overall costs. In this regard, there is the problem to find and implement the most effective methods of quality management in enterprises, among which in modern terms are the logistic methods of analysis, prediction and optimization of flow processes.

Literature review

The products quality study dedicated to the works of such famous scientists as J.M. Juran (1988), A.V. Feigenbaum (2004), K. Ishikawa (1985), G. Taguchi, S. Chowdhury & Y.V. Wu (2004), B.D. Crosby (1979), H.K. Rampersad (2009), etc.

The study used the works of outstanding domestic and foreign scientists in the field of logistics, among which particularly noteworthy are works by V.V. Dyibskay, E.I. Zaitsev & V.I. Sergeev (2009), O.N. Kurbatov, I.O. Protsenko & F.D. Novikov (2007), D.Novikov, E. Grebnev & A. Horn (2007), V.I. Sergeev (2009), D. Bowersox, D. Closs & M. Cooper (2012), M.R. Leenders & H.E. Fearon (1992), J. Stock, R. Lambert & M. Douglas (2001), D. Waters (2009).

Research and development of these scientists made a great contribution to the development of theories and practices like quality management and logistics, however, debatable problems of logistical quality parameters control system of material flows and the lack of logistics integrated application to form the quality management system of resources and processes in enterprises that confirms the need for research.

The purpose of the study is to develop theoretical principles and practical recommendations for logistical quality parameters control system of material flows.

This paper proposes the use of logistics management to the quality management of material flows, aiming at increasing the efficiency of enterprises and improving the competitiveness and adaptability to external conditions, especially in conditions of the world economy instability.

Methods

Research methods

During the research following methods were used: experimental-theoretical (axiomatic method, analysis, synthesis, analogy, generalization, deduction and induction); diagnostic (analysis and diagnosis of quality management systems); empirical (observation, description, measurement, experiment and comparison); methods of mathematical statistics and graphical display of results.

Experimental research base

The pilot survey was conducted at the subjects of micro - and mesa-logistics systems.

Investigation stages

The problem study was carried out in 5 stages:

1. The definition of the research problem.

2. The collection and processing of scientific information on the research problem.

3. The choice of research methods.

4. The study: justification of the conceptual foundations for quality parameters control of material flows and business processes; definition of the relationship assessment criteria the properties of products and processes and the allocation of typical and assigned characteristics to the material flow; the reasons to use logistical quality parameters control system of material flows.

Results and Discussions

Due to the complexity in the conditions of industrial enterprises functioning on the market, the relevance of the logistical approach to the company management increases. This is explained by several factors: goods diversity and increasing nomenclature of sold products, the complexity of production planning, increase of consumers requirements to production (services) quality and service level. The logistics approach is especially important for new and existing enterprises in Russia.

The main results of the research with scientific novelty are the following:

- grounded conceptual framework to manage qualitative parameters of material flows and business processes, and also defined the relationship between evaluation criteria for products characteristics and processes, and highlighted typical and assigned material flow characteristics (table. 1, Fig. 1);

- justify the need for logistical quality parameters control system of material flow (Fig. 2, 3, 4).

Table 1. Typical and assigned the material flow characteristics (original)

The typical material flow characteristics	
Quantitative	**Qualitative**
1. Dimensions (volume, area, linear dimensions). 2. Weight (total weight, gross weight and net). 3. Temporal (longevity, reliability).	1. Functional – the ability to meet the identified functions. 2. Physical-chemical. 3. Organoleptic. 4. Ergonomic. 5. Reliability (from the standpoint of reliability and maintainability). 6. Aesthetic. 7. Characteristics of the packaging.
Assumed characteristics (parameters)	
Quantitative	**Qualitative**
1. Cost (costs of production, price, keeping inventory cost, etc.). 2. The material flow intensity. 3. Material flow capacity. 4. Temporary (logistics cycle, delivery time, etc.).	1. Supply obligation (precision), (a measure of trust and reliability between the consumer and the products manufacturer). 2. Ready for delivery (delivery date consistency and confirmation in accordance with the consumer wishes). 3. Supply flexibility (the willingness of

	the manufacturer (vendor) to perform the insertion by the consumer changes in earlier orders). 4. Information availability (the ability to grant supplier all requested information to the consumer about his products supply). 5. A guaranteed maintenance service. 6. The required level of reserves (the shelf life of inventory, inventory turnover, etc.) 7. The usefulness of time and place. 8. Supply quality (the percentage of orders executed in accordance b the specification).

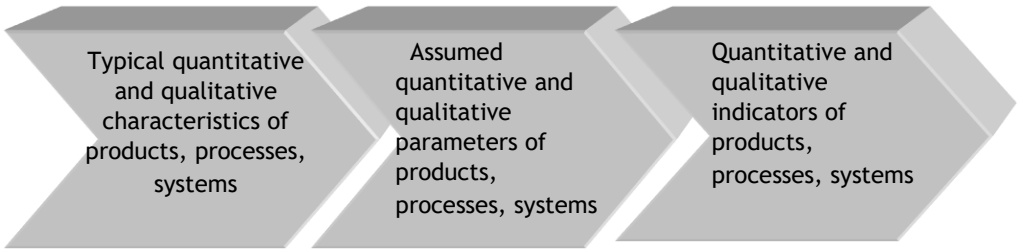

Figure 1. The relationship between assessment criteria of products characteristics and processes (original)

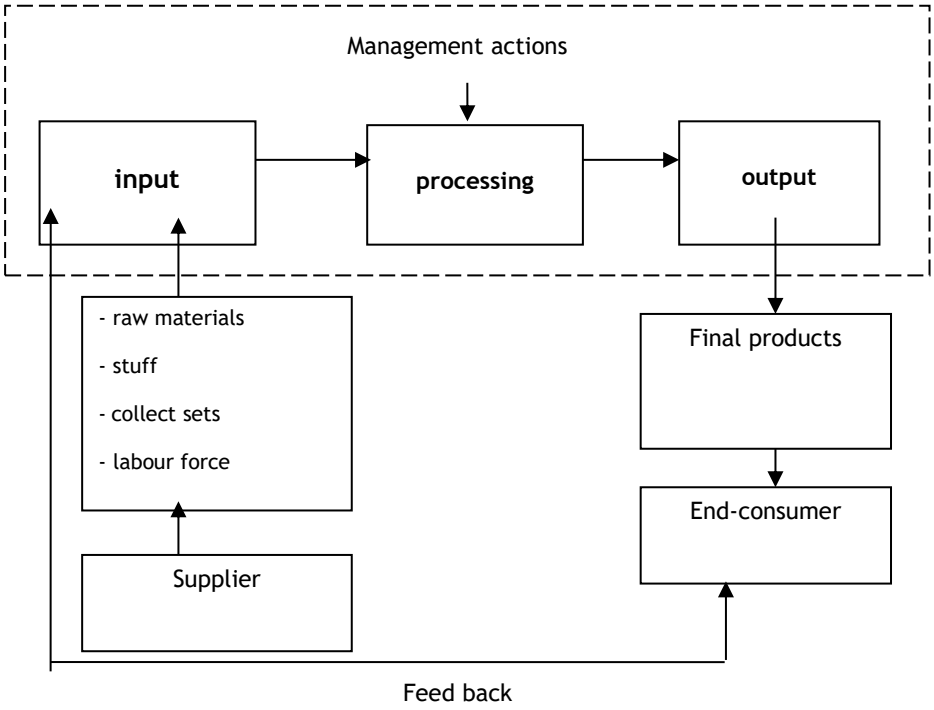

Figure 2. The organization of the process approach at the enterprise (original)

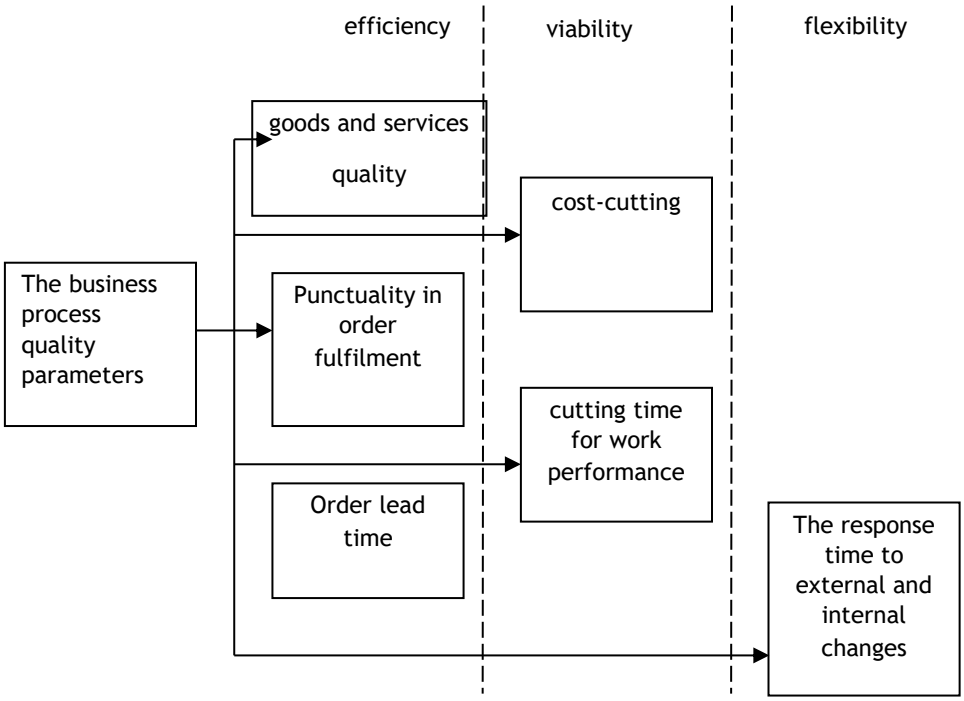

Figure 3. The main quality parameters of the business process (original)

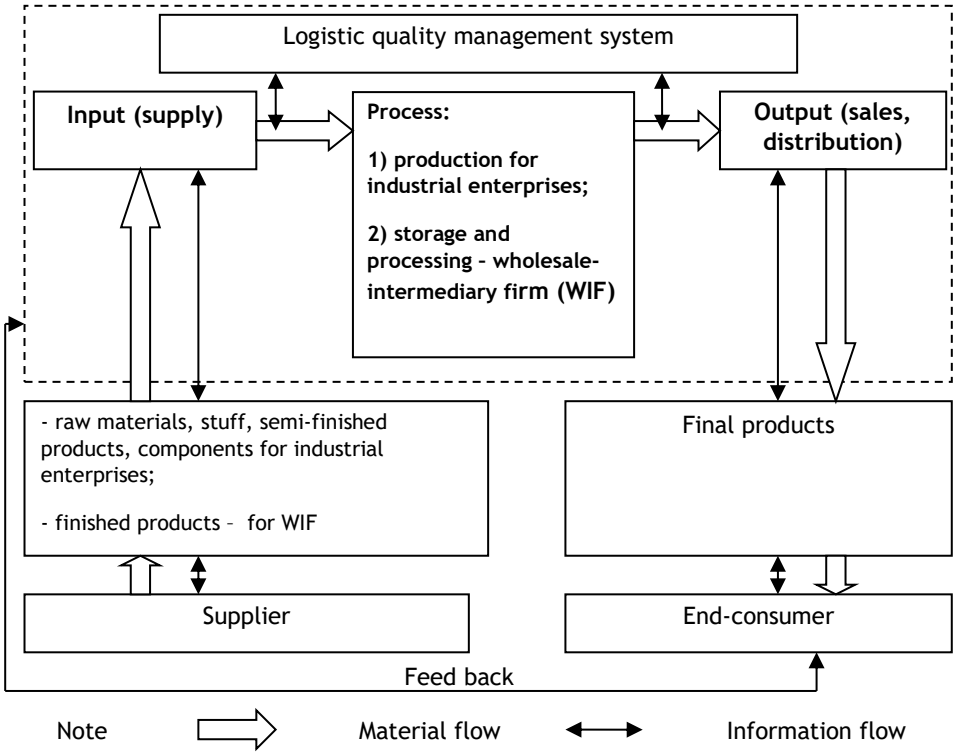

Figure 4. The structure of logistic quality management system (original)

From the philosophical point of view, the quality was firstly analyzed by Aristotle, defined it as "specific difference" as "one who abides the specific characteristic which distinguishes this entity in its species content from another entity belonging to the same genus". Hegel identified quality as a logical category, representing the initial stage of things cognition and world development as a direct characteristic of being an object. By definition, Hegel, "the quality is generally identical with the existence of certainty... Something has due to its quality that it is, and losing its quality it ceases to be what it is" (Minko, 2004).

H.K. Rampersad (2009) defines quality as conformance to customers ' expectations.

J.M. Juran (1988) believes that quality must be planned, starting with senior management, as the result he offered a road map of quality planning".

The quality A.V. Feigenbaum (2004) understands the process, covering the entire company where the quality control system extends to suppliers and customers.

K. Ishikawa (1985) believes that the concept of "quality" applies not only to products but also for after-sales service, management, company and employees. In his writings he pays great attention to the use in industry statistical methods, which determined the development of the causality analysis graphic method called "Ishikawa diagram" (figure "fish skeleton").

G. Taguchi, S. Chowdhury & Y.V. Wu (2004) investigated the quality of the products at the stage of its design, by dividing this process into three components: system design, parametric design and tolerance calculation.

B.D. Crosby (1979) has developed a program to improve the quality and formulated well-known quality principles: the principle of offered defect-free and the principle "Do it right the first time". In the explanatory dictionary of the Russian language, quality refers to (the big explanatory dictionary of Russian language, 2000):

1. A significant characteristic feature that distinguishes one thing (entity) from another.

2. A degree of dignity, value, things availability, actions, etc., to conform what they should be.

3. Substantial object, phenomenon or process certainty by virtue of which it is or isn't the data object, phenomenon or process.

National State Standard (NSS) ISO 9000-2011 defines quality as "the degree of compliance to typical characteristics requirements." This requirement means, firstly, a need or expectation that are alleged, established or expected, and secondly, documented criteria that must be met in accordance with the existing documentation (NSS ISO 9000-2011, 2013)

So the quality can be understood as a set of products properties and characteristics that are formed during its creation and depending on the requirements of customers (consumers) may be different.

According to NSS ISO 9000-2011 characteristic is a typical or distinctive feature. This feature can be both quantitative and qualitative. There are various classes of characteristics:

1) physical. These include mechanical, chemical, electrical, etc. characteristics.

2) organoleptic associated with smell, touch, taste, hearing, and sight.

3) the ethical, which can include the characteristics of courtesy, honesty, etc.

4) time is the availability, reliability, punctuality, etc.

5) ergonomic reveal physiological characteristics, as well as issues of human security.

6) functional – the ability to meet the identified functions.

The explanatory dictionary of the Russian language defines that characteristic can be represented in the form of the distinctive properties or traits descriptions belonging to someone or something (The Big dictionary of the Russian language, 2000).

Quality characteristics are common to the product, process or system characteristics, related to the demand. In this definition, "common" means a permanent or inherent feature of something. Thus the product characteristics, process or system (e.g., product price, process owner) are not their quality characteristics (GOST ISO 9000-2011, 2013). Then the question arises, what the process characteristics, if not the quality, its owner is. In our view, the process owner, having the ability to apply their knowledge and skills, i.e. competence, is

the quality process parameters bearer, which quantitative activities parameters you can judge by the results of achieving the objectives.

All products, processes and systems characteristics (quantitative and qualitative) constitute a system of interrelated parameters, reflecting the degree of conformity is typical and assigned characteristics to the requirements.

The parameter can be defined as (The Big dictionary of the Russian language, 2000):

1. The value or values that characterize any properties of a process, phenomenon, system.

2. Dimensions, boundaries, manifestation of anything.

Thus qualitative parameters of products, processes and systems can be considered as complex that reflects the totality of their characteristics and determine the ability to match the expected, the established or anticipated needs. Qualitative parameters have influence on the quantitative parameters and vice versa.

The qualitative parameters of products, processes and systems is necessary to understand as the complex inter-related variables that characterize products, processes and systems from their scope, number and development degree within a given quality.

In turn, the quantitative and qualitative parameters of products and processes can be expressed through appropriate indicators (Fig. 1).

Indicators you should understand as the data by which to judge the development, course, properties, or qualities of something (the Big explanatory dictionary of Russian language, 2000).

In turn, indicators can be classified into quantitative and qualitative. Quantitative indicators include, for example, the volume of output, number of employees, etc. Quality indicators reflect the essential features and qualities of objects, for example, cost of goods (works or services), labor productivity, profitability level etc. The change in quantitative indicators also necessarily leads to a qualitative change and vice versa.

Thus, by controlling the quality of products, processes and systems, we simultaneously influence on the formation, as their parameters as their indicators. Therefore, the quality management concept in the companies requires more detailed consideration. In turn, the concept is a system of interrelated and stemming views, coming one from another on a certain phenomenon (the Big explanatory dictionary of Russian language, 2000).

Management in both, the quality and qualitative parameters should be understood as the impact not only on production process but also on the whole process of product distribution to ensure the desired level of product quality. Thus, quality control and quality parameters require a systematic approach involving all stages of the product life cycle.

The essence of management is to develop management decisions and subsequent implementation, provided these decisions control actions for a specific control object. In the management of qualitative products (goods and services) parameters, a direct object, as a rule, is processes that affect the products quality. These processes occur at the stages of supply, production and distribution. The quality parameters management should be based on functions

that affect different sides of the object and management subject: interaction with the external environment; policy and planning quality; training and motivation; organization of work on quality; quality control; information support of quality management system; the development, adoption and implementation activities.

Currently great importance is the socio-economic systems building based on the logistic approach, the essence of which is the use of the logistics concept, its principles and methods. The management object in logistics is material and related flows. The analyzing the material flow definitions, define its quality parameters.

According to K.B. Sterligov (2006), the material flow is the flow of materials and components that are sent to the company and through that to use them in the production process. This definition is not the essence of the thread that it should be understood; do not set a time frame for the movement of inventory in space. Also here we are talking only about using the components of the material flow directly in the production process. But there is also the sphere of circulation, which operates trade organization and carries out only the sale of goods. Following the logic of this definition, the material flow does not exist, because trade organizations are not using the materials and components in the production process.

S. Karnaukhov (2013) in his work gives the following definition of the material flow: "The central concept of logistics is the material flow, the movement of the labor products at all stages of the product... The material flow is included: all kinds of material resources (production, unfinished products, finished products, cargo, commodity in the wholesale and retail trade, stocks of households); and consumer services; information and financial flows that directly serve a merchandising". Here doubt the determination of the material flow composition, as "consumer services; information and financial flows, directly service distribution" is not but separate flows, functioning in the logistics system.

A more precise definition of the material flow presented in logistics: integration and optimization of logistic business processes in supply chains" (Dyibskaya, Zaitsev & Sergeev, 2009), where it is understood as being in a state of material resources development, work in process, finished goods, which are applied to the types of logistics activities related to physical movement in space: loading, unloading, packing, transportation, sorting, consolidation, divestiture, etc. Therefore, according to scientists, the form of material flow existence must be the movement of specific products types (material resources, work in process, finished products) in the supply, production and marketing. Thus, if the product is not in a state of development, it goes into a reserve which can be defined as a material flow in a certain time section.

Thus, the material flow can be defined as movement in space and time, aggregate inventory, and logistics, in turn, examines and organizes the process of effective management of the movement of material and accompanying flows in order to meet the requirements of the consumer products and services.

The material flow, according to Russian scientists, is characterized by a certain set of parameters, among which are:

— the nomenclature, range and quantity (volume) of goods;

— overall dimensions (volume, area, linear dimensions);

— weight (total weight, gross weight and net weight);

— physical-chemical characteristics of the cargo;

— the characteristics of the containers (packaging);

— the terms of the purchase and sale contract (transfer of ownership, delivery);

— the conditions of cargoes transportation and insurance;

— financial (price, cost) characteristics, etc.

Each of these parameters is associated a certain amount of related information and many options – financial indicators (costs, prices, tariffs) and restrictions, such as budget.

From the standpoint of theoretical and analytical research methods in logistics, material flow can be characterized by parameters such as start and end points of motion, trajectory and path length, velocity, and movement time, intermediate points, intensity, power, etc. In turn, as scientists believe, an important role from the point of view of material flows optimization is a measure of flow intensity, which refers to the number of products volume or mass indices (units) placed on the entrance of the logistics system per time unit (Dyibskaya, Zaitsev & Sergeev, 2009).

Grouping material flow parameters shows that they are listed and characterized, and have the streaming process characteristics in terms of its quantity and quality. Therefore, I would like to clarify the classification of typical quality characteristics and quality parameters of the material flow (Table. 1).

Any economic activity connected with the material flows movement, both in space and in time. Enterprises need to purchase raw materials, semi-products and components to organize their delivery and storage, corporate moving and in accordance with orders to transport the finished products to a specific customer. Currently there must be an understanding that quality customer satisfaction is a prerequisite for business survival. According to American scientists M.R. Leenders & H.E. Fearon (1992), some companies have tried to quantify the total cost of coordination of the quality parameters and found that 30-40 % of the final product cost may consist of quality. Obviously, showing such indicators is necessary to mention one of the major concerns of any company. In the past decade, we could note a lot of corporate initiatives in quality control, combined the term “total quality management”.

The concept of total quality management is a kind of management philosophy which recognizes that customer needs and business goals are inseparable. This approach can be applied equally to all elements of the logistics systems. According to numerous studies, the best results are achieved by those companies that apply the concept of total quality management. The importance of it for logistics is determined by the fact that from the point of view of strategic planning in competitive markets objectives of integrated logistics firm coincide with the ideology of total quality management (Albekov, 2012).

To determine the logistical approach to management of the products quality parameters and business processes should set the objects quality. Objects can be (NSS ISO 9000-2011, 2013):

— an activity or process (business process);

— products;

— organization, system, or a certain person;

— any combination of these.

Qualitative parameters of the object are determined by the influence of many random and subjective factors. To prevent the influence of these factors on the level of quality we need the system of quality management. Besides there should be not episodic efforts but a set of permanent, systematic, purposeful ways that influenced the process of product creation and merchandising to maintain a proper level of quality.

Managing processes, laid the basis of series standards ISO 9000-2011 requires detailed examination procedures for the construction process in the enterprise. Process, as mentioned above, is a set of interrelated activities, which transform input process in matching its output. Processes in any company in essence can be of three types:

— individual, performed by a separate individual;

— functional (vertical), reflecting the company's activities vertically and corresponding to the structure of the interaction between managers, departments, divisions and employees;

— business (horizontal), crossing horizontally the activities of the company and representing a set of interrelated and integrated processes that deliver final results.

The totality of the various activities that together create a result of value for the company and consumers can be called a business process. Business processes may be basic and shared. The management of business processes can be carried out at two levels: within each individual business process and within the group of business processes across the organization. A business process should be seen as a source of quality. Therefore, the quality of the process is equal to the result quality in this process and, as it well known; the result of the process is the product.

Thus, the entrance process is provided materials and information. The output of the process is the finished product, the value and the cost of which determines consumers demand for it. Production in this case is considered as the form of processes and we should manage the processes (Fig. 2).

Typically, inputs to the process are outputs of other processes. The strategic goal of each process can be considered the customer satisfaction process, using the least total costs.

In turn, the qualitative parameters of the business process can be considered to be its flexibility, effectiveness and efficiency.

Process flexibility (adaptability) is the ability to adapt to changes occurring both within the enterprise and beyond.

The performance of the process is achieved by product quality, performance punctuality, but also the time spent on customer orders performance from the receipt till finished products shipment.

Process efficiency reflects the extent of allocated resources utilization. Process efficiency is achieved by reducing the usage time of the order, through cost optimization. Quality parameters of the business process are shown in Fig. 3.

The evaluation of the key business processes status in the parameters of efficiency, effectiveness and flexibility in the organization set specific improvement goals and indicators of process quality, which purport to achieve.

Quality management and quality parameters of the products is carried out from positions of the system approach, that is, the whole process of quality management should be viewed as a system. Consequently, the system of quality management is a set of subjects and objects management, events, methods, and tools aimed at achieving and maintaining the highest quality products at the supply, production and sales, which are the functional subsystems of logistics at the enterprise level. It should be noted that the basis of the logistics theory is also methodology of general systems theory, i.e. the consideration of the organization and the supply chain as a holistic economic system (Dyibskaya, Zaitsev & Sergeev, 2009). Thus, Fig. 2 can be expressed in the form Fig. 4.

As can be seen from Fig. 4 the object of the quality management process is the material and accompanying flows. Every company in this case can be regarded as "the mechanism of the raw materials conversion into the manufactured products" (Leenders & Fearon, 1992).

At the procurement stage (input) material flow consists of raw materials, semi-finished products, components, etc. Main tasks at this stage in the management process and material flow coordination of quality and quality parameters are:

— to observe purchase terms of raw materials and components;

— to match number of supply and demands;

— to comply quality parameters of purchased raw materials, etc.

At the production stage organizing quality and qualitative parameters management process of material flow, it is necessary to solve following tasks:

— to make a decision "what to produce" and prepare technic specifications;

— to develop production assignments schedules for workshops;

— to develop production schedules;

— operations management;

— the quantity and quality control of the finished product;

— to prevent and eliminate the causes that negatively operating in quality and qualitative products parameters;

— to consider high quality products production and to ensure systematic update of the product range, etc.

At the stage of finished products distribution in the process of quality parameters coordination the following tasks are sold:

— to determine market needs, i.e. the quality choice of the consumer;

— to choose distribution channels for finished products;

— to valuate finished goods inventories and to organize their storage;

— to make supply contracts with customers, and monitor their implementation, etc.

At the same time, "every company can be viewed as a link in the chain of companies that on the one hand, have suppliers, and on the other hand

consumers. Moreover, every company is, by definition, performs three functions: consumer, converter, and supplier (Fig. 5) (Leenders & Fearon, 1992).

Thus, it is desirable to have constant contact with the suppliers to design and develop common quality standards, as well as for the harmonization of test methods and to develop ways and means to improve quality, while reducing overall costs and monitoring costs.

One of the main goals of quality improvement is the initial production of quality goods, rather than their conformity after manufacturing, i.e. at the core of all programs to improve quality should be the principle of the original quality creation. At the same time, we couldn't insist that the supplier meet the stringent quality requirements, when the company - consumer does not meet these requirements. Thus, the best strategy guide for any enterprise, as well as any functional capacity in the search for quality will be certification and application of quality standards in relation to their own activities at all stages of material flow.

According to M. Christopher (2016), currently many organizations have come to the conclusion that in the event the requirements, improving the final results you need to achieve business process improvement. Just as a few years ago, production managers realized that the key to quality improvement is not a test of the results but controlling the processes of production and logistics, requiring important understanding of the process improvement continuous monitoring. Thus, the key to quality improvement is not a test in the final results, and improving the workflow process itself. M. Christopher (2016) compares this process to the "pipeline" that goes from suppliers through intermediaries to customers. To ensure buyers satisfaction, located at the end of the pipeline (i.e. chain of service), you need to ensure the monitoring and control of all the events within it processes.

The customer service quality depends largely on the ability to develop a logistics system, to ensure effective management. In other words, the result of any kind of logistics activity is customer service, where quality and qualitative parameters of material flow are increased as a result of providing logistics services to consumers.

Thus, ensuring the qualitative parameters of material flows and business processes is the process of setting up required characteristics of the product during its creation, as well as to maintain these characteristics during storage, transportation and operation. In other words, even if the company produces high quality goods and the percentage of defective products is minimal, it remains a strong likelihood that the consumer may not receive the quality products, if a single chain is not included all who are somehow involved in the process of supply, production, and bringing finished products to the final consumer. Initially, a quality product may be unnecessary. Therefore, to improve the efficiency of the processes, you must use a logistic approach, the essence of which is to integrate the individual participants in the logistics process into a single system that can quickly and economically deliver the required goods at the right time and place and, most importantly, the necessary quality.

According to O.N. Kurbatov, I.O. Protsenko & F.D. Novikov (2007), the object of logistics can act as traditional business processes of the company and any stream processes with spatial-temporal sequence of the logistical process can cause logistical structures in which the predominant part of the activities

carried out with the use of modern logistics achievements and aimed on the integration and global (from the standpoint of the whole as a system) analytical improvement, i.e. rationalization and optimization of flow processes with a focus on end results. As a logistics structures, according to scientists, it can act as traditional economic structures subjected to logistical as newly created structures, initially using the forms and methods of modern logistics in its design and development. The final stage of logistics and its highest form is creation of the efficient logistics systems. As a logistical result and the creation of a workable logistics system logistics, there creates a certain potential social structures of various ownership forms and integration density that is able to solve successfully a set of interrelated logistical tasks in the set time mode for optimal organization of quality parameters control in the internal and external flow processes using the latest logistics achievements. This potential in the field of quality management may include a combination of logistics activities as parts of the organization and its partners and on the basis of operational and strategic logistics. Logistization on the basis of operational logistics involves the streamlining of flow processes within a priori defined internal and external constraints in management: organizational and structural, functional, procedural, personnel, legal, infrastructural, related to the quality of facilities management. Strategic logistics provides the opportunity to develop a constructive strategic program for company development, focused on the optimal organization of flow processes and long-term success in the market, thus decide the structural-functional (process) the future of the company (Kurbatov, Protsenko & Novikov, 2007).

Thus, the formation of logistic quality management system and quality parameters appropriate to apply the principles of logistics, including S. N. Nagowski (2012) include:

1. The relevance of logistics in any, but especially difficult and extreme conditions and, as a consequence, focus it on relevant and radical with multiple and flexible, but specific solutions to achieve in an environment of new benefits at the same or lower losses, costs or compromise the expenses balance any all kinds of human values.

2. The preferred orientation of logistics services on specific events, trends, processes, activities, and specific subject's relations and in the market economy conditions based on specific relationship between specific markets consumers, competition and other requirements and opportunities.

3. Focused system of integration structures, elements, and flow processes in logistics services from the time standpoint, space, scale, rhythm, and other relevant, including organizational, economic, technological conditions of human activities, to create in them a large, sometimes fundamentally new positive properties of the successful activities and opportunities for achieving advantages and expedient within the boundaries of the integrated system of flexible and reliable differentiation of the structures, elements, capital and new processes for specific areas and periods for their most effective use.

4. Sufficient adaptation, interconnection and system hierarchy in space and time structures of elements and their flow processes in logistics services between themselves and to the environment activities and the adequacy of their bodies prospective, current and operational management.

5. Optimization in logistics services focus primarily on the interaction between the elements in the corresponding relations between them, thereby affecting the more purposefully, intensively and collectively to the formation of the adaptive elements properties to any more aggressive environment activities.

6. The formation and implementation only on the basis of a specific logistic system and correct calculations, appropriate to its time methods and counting techniques completely-integrated, interdependent time and space the material flow, information, financial, technological, socio-human and other processes in logistics services, including the coordination of forecasting, planning, production, technical operation, technological elements, resources, and managing people clusters.

7. Comprehensiveness, timeliness, if necessary, continuity, multiplicity, forward and reverse correlation calculation of logistics forecasting, planning, current, and operational accounting, analysis and control of flow processes, total costs and total results of the logistic service.

8. Organizational-technological, organizational-economic specialized adaptation, multi-purpose and versatile of the structures and elements of organizational-economic systems among themselves and in the environment functioning on the introduction basis in the environmental structures of the elements and integrators, including organizational and technological.

9. Optimal consistency and appropriate orientation of all resources types' consumption and their reserves involved in streaming processes to the logistic service of human activity.

10. The optimal use of knowledge, advanced techniques and technologies with their reserves in the process of logistics services to human activities.

11. Interrelation, interpenetration, mutual enrichment of objects, including the environment, environmental requirements, and the processes of logistics management without violating their reasonable reliance on the conditions that determine "success" or at least "do no harm" at the optimum cost the necessary resources (Nagowski, 2012)

The most accurately and concisely methodological principles, used in the design of logistics systems, formulated in the works of such scientists as V.I. Sergeyev (2013), by V.V. Dyibskaya, E.I. Zaitsev & V.I. Sergeev (2009), and J. Stock, R. Lambert & M. Douglas (2001), D. Waters (2009):

1. A systematic approach manifested in the consideration of all elements of the logistics systems as interconnected and interacting to achieve a common goal management. A distinctive feature of the system approach is to optimize the functioning of the individual elements and the entire supply system as a whole.

2. The principle of total cost, i.e., the light of the overall costs of material, associated information and financial flows management across the supply chain.

3. The principle of global optimization. By optimizing the structure parameters or control synthesized in the logistics system (supply chain) it is necessary to harmonize the local functioning purposes of system elements to achieve the global optimum.

4. The principle of logistic coordination and integration. In the process of logistics management it is essential to achieving a coherent integrated participation of all links of the logistic system (supply chain) from its beginning

to end in the material and accompanying flows management in the implementation of a given objective function.

5. The principle of modeling and IT support. In the analysis, synthesis and optimization of objects and processes in logistics systems must use different methods of simulation, as the implementation of logistics processes in supply chains is impossible without appropriate computer information support.

6. The development principle of important complex subsystems (technical, economic, organizational, legal, personnel etc.), for process management in the logistics system.

7. The TQM principle (total quality management) that includes ensuring the reliable functioning and high quality of every element of the logistics system to guarantee the overall goods and services quality supplied to final consumers.

8. The principle of humanization of all functions and technological solutions in logistics systems, providing compliance with environmental protection requirements environmental, ergonomic, social, ethical requirements of staff, etc.

9. The principle of sustainability and adaptability reflects the stable operation of the logistics system for parameters and factors permissible deviations in the external environment. Significant stochastic fluctuations of environmental factors make logistics system adapt to new conditions, changing the program of functioning, parameters and optimization criteria.

The evolution of Russian science, in particular logistics largely was predefined global systemic transformation of Russian society. Dynamic change of national economy development priorities was dictated by the the content transformation in the national Russian economy. There is a need to find and implement the most effective methods of enterprise activity management. The nature and benefits of these management practices is best manifested in the formation of logistic systems created with the aim to optimize flow processes. The quality management requires the use of logistics with the aim of integrating the individual participants of the logistics process into a single system, capable to deliver quickly and economically a quality product to the end-user with minimal cost.

This work posed and successfully solved a number of important both from the point of view of the theory and practice, research problems. In particular, the logistics management system necessity of material flow quality parameters and enterprises business processes. The practical application of the study main results will allow companies to optimize total costs, increase quality of material flows and processes and, as a consequence, to improve the competitiveness of products.

Conclusion

Scientific research analysis in the field of logistics and quality management has led to the conclusion that on the modern stage of quality parameters control organization in material flows and business processes is possible on the basis of the logistic quality management system formation, to maximize the value of the product for the consumer while minimizing its cost, both for the consumer and for the producer. The use of logistic approach in the quality and quality parameters management in material flows and business processes leads to the

creation of an integrated logistics system, capable to supply the right product, at the right time and place, with specified performance parameters with optimal costs. In this paper we defined a conceptual framework of quality control, and analyzed the logistics principles relationship and the quality management system at the enterprise. The result was the proposed logistics approach to the quality parameters management of flow processes and business processes of the enterprise.

Implications and Recommendations

The study results of logistics for quality parameters control of material flows and processes are interesting for the subjects of micro - and mesa-logistics systems and should contribute to the economic entities activities optimization on the market, considering the growing role of qualitative satisfaction of consumers' requirements with minimal cost to solve a variety of tasks in national economic activity and the growing interest around the world, using international standards.

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