THE NEED FOR IMPLEMENTATION OF THE INVENTORY MANAGEMENT SYSTEM AT THE MODERN ENTERPRISES

Elena L. Gunicheva, Kazan Federal University

ABSTRACT

It is the presence and condition of inventories and their management are one of the most important factors in the effectiveness of the company's development.

The inventories have always been considered a factor, ensuring the safety of the inventory and logistics support system, its flexible operation, and have been a kind of "insurance".

The author presents the scheme of technological process of the enterprise, the process of making forecasts and calculations, the stages of implementation of the inventory management system at the enterprise, work maintenance, input information and information obtained as a result of the implementation of each stage, as well as the costs for each phase implementation.

***Key words**: logistics, inventory management, inventories, capital, supplier.*

INTRODUCTION

The condition and efficiency of production inventory usage as the most significant part of the working capital is one of the main conditions for the successful activity of the enterprise. The development of market relations defines new conditions of their organization. Inflation, payment defaults and other crisis phenomena force the company to change its policy in relation to the inventories, to look for the new sources of revenue, to study the problem of the effectiveness of their use. Therefore, all possible ways of rational use of resources, one of which is to determine the optimal value of inventories, gain more and more importance for the company. (Federal Law dated February 8, 1998)

METHODS

The research methods were the analysis of the works of foreign and domestic authors, the analysis of the documentation of the modern enterprise, integrated nature, statehood and reasonabless.

Inventory management is the inventory condition control and decision-making aimed at saving time and money by minimizing the costs of inventory maintenance, necessary for the implementation of a continuous production process and for the achievement of full sale of the finished products.

RESULTS

The urgency of the problem of enterprise inventory optimization and effective management is due to the fact that the inventory condition has a decisive impact on the competitiveness of the company, its financial condition and financial results. It is impossible to ensure a high level of product quality and reliability of its supply to the consumers without the creation of an optimal value of inventories of the finished products and inventories of the raw materials, materials, unfinished products and other resources needed for a continuous and

smooth operation of the production process. The understated inventories of material resources may result in losses associated with a downtime, with an unmet demand, and hence to a loss of profit. On the other hand, the accumulation of surplus inventories binds the working capital of the enterprise; both a significant presence of inventories and their insufficient quantity cause the economic damage. In this regard, special importance is gained by the creation of methodological tools, enabling to quantify, analyze and forecast the various options for the formation of the inventory management system. (Alesinskaya, 2010)

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The logistics inventory control system should be designed in a modern company with the aim of continuously providing the consumer with any kind of material resources. This goal is achieved by solving the following tasks:

– accounting of the current level of inventories at the warehouses of various levels;
– determination of the amount of guarantee (insurance) inventory;
– calculation of order size;
– determination of the time interval between the orders.

In order to identify the most prioritized products, as well as to structure the range of products according to their degree of participation in the company's earnings, we hold the ABC-analysis. The key moment of the ABC-analysis is in the Pareto principle: attention to the 20% of the factors enables to control 80% of the system.

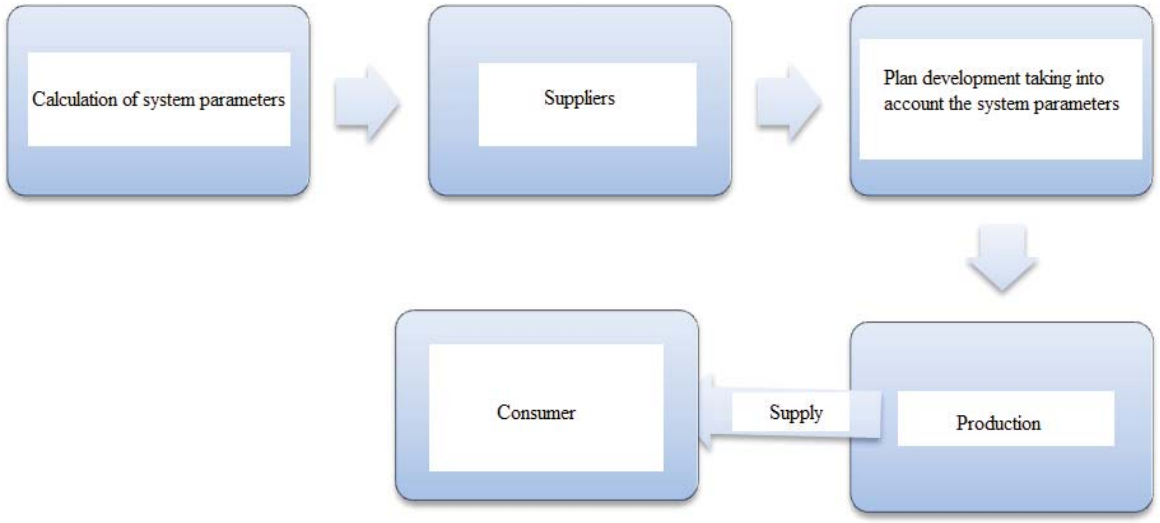
It follows that it is necessary to carry out a systematic analysis to structure the various business aspects according to the level of significance for the company. It makes no sense to invest in the efficiency increase across the board, since many of them will not give the desired result, and some will require additional efforts.

Planning and accounting of the finished products shall be carried out in natural and value terms. The conditionally natural indicators are used to produce the aggregated data about similar products. (Anikin, 2013)

At the company, the finished products are accepted for accounting at the actual production cost. The company implements sale in accordance with the terms and conditions of the supply agreement which establishes (provides) the timing and order of delivery (size of lots, shipment conditions, etc.), product range, price and other material terms and conditions. Shipment of goods from the warehouse is made based on orders of the marketing department or contracts with the buyers. The shipment is drawn by the consignment notes. Also the accounts department gives the invoice, bill or payment request according to the terms and conditions of the contract.

We compose the movement control scheme of material flows, which is presented in Figure 1. (Basovskiy, 2011)

Figure 1
MANAGING THE MOVEMENT OF MATERIAL FLOWS AT THE PROJECT INTRODUCTION



The customer is a consumer, and he/she makes an event management, and the manufacturer adapts to him/her, changing the rhythms of production, the system of transportation, storage and documentation.

In this regard, all the process management shall be implemented by the manufacturer, and in particular:

1) order to start and to complete the project;
2) distribution of obligations and responsibilities among the enterprise employees;
3) development of delivery plans with all the options:
3.1. without fail,
3.2. with a single fail,
3.3. with repeated fails.
4) funds needed for the project:
4.1. the joint funds are involved,
4.2. amount of funds,
4.3. documents, contracts,
4.4. equipment.

All risks are always mainly related to delays in the supply of components, their quality, transportation and lack of consistency.

Notes: it is necessary to inform, if the processes have some time deviation.

To evaluate the efficiency of inventory management, first of all, it is necessary to identify and calculate the resources needed to implement the project within the organization. As it is offered to introduce the model of inventory management system, and it can be classified as a technique, it is necessary to describe the resources. First of all, we should calculate the need for human resources, namely the selection and hiring of personnel or training. Since the inventory management in the enterprise is carried out by the logistics department, it is necessary to consider the staff and the costs for its training, or the employees who will receive benefits for their work on the project.

Then we calculate the information resources, as well as the expenses for legal support of the project. Also it is necessary to calculate the costs for automation, namely the program

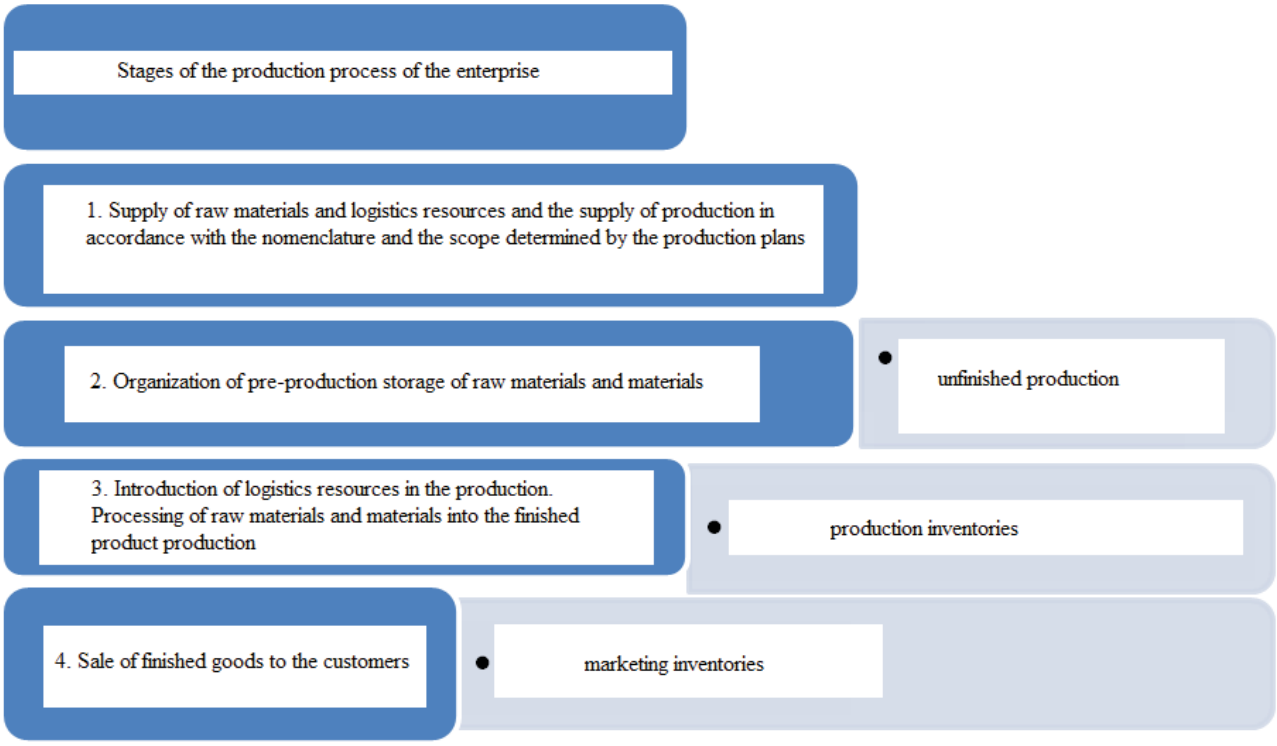
implementation (the creation of macro) in Excel. All operations of information processing will be performed in the program through the appropriate queries and macros. All necessary information will be provided in the screen forms and reports, as well as for printing.

The specificity of this project lies in the fact that the human resources are the main contributors to its value.

The main mechanism of the inventory management system, which should be introduced into the work of all the elements, is in the implementation of feedback principle. The essence of this principle is in the fact that, if the system management level has a control impact on its operating element, the system shall have a "feedback", which ensures the data supply on the new state of the whole system and evaluates the effectiveness of its functioning.

Based on the following scheme of the technological process, it is seen that the inventories appear on each of its stages, while a complete picture of the inventory condition is absent throughout the whole production cycle (see Fig. 2).

Figure 2
SCHEME OF THE TECHNOLOGICAL PROCESS OF THE ENTERPRISE



CONCLUSION

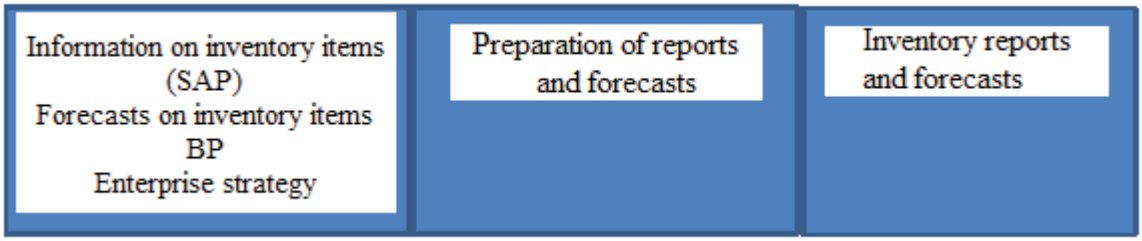
Calculation of the inventory norms in days is the norming process of inventories, while the calculation of inventory planned amount is called the inventory planning. These processes are inseparable and, as a rule, one process accompanies the other one. When using the economic and mathematical method, calculation of the inventory norm in days is often made using the moving average. Calculation of the inventory norm is made in several steps.

The first system level includes the storage program modules and the database, which accumulates the information on the movement of goods and work with the customers concerning the shipment of goods. (Bowersox, 2010)

At the enterprise, the inventory management specialist considers two sub-processes: gathering information (on the SAP system) and considering the turnover indicators.

We consider the forecasting and reporting process (see. Fig. 3).

Figure 3
THE FORECASTING AND REPORTING PROCESS



At the entry of this process, a specialist reviews the information on inventory items, which includes:

1) Raw materials and purchased parts,
2) Auxiliary materials,
3) Production,
4) Finished products,
5) Details of service life,
6) Advance payment.

For each of these items, the standard form is filled with a concern and a group of responsible persons is determined. The specialist looks through the fact (controlling), as well as receives the information on items from the group of responsible persons; based on this data, the inventory forecast is made. The system automatically calculates and generates the graphics based on the data.

One of the main goals is to achieve the targets set in the beginning of the year by the senior management.

It is assumed that on the second level the system consists of a variety of inventory management models, using the necessary mathematical apparatus for the evaluation of the current inventory condition and the development of recommendations for their effective management, but none of the models is used in this enterprise. To eliminate this drawback, it is offered to introduce one of the models of inventory management system, namely the model with a fixed order size, as it is the most convenient and inexpensive. In this system the order size for the inventory replenishment is a constant value. The time intervals, through which order placement is made, may be different in this case. The number of ordered products is established by the agreement between the supplier and the buyer. It is definite and fixed, and the order time is taken as a variable value. The purchase order for another batch of goods is given with a decrease in the inventory size at the warehouse up to the established threshold - the order point. The time intervals between the deliveries of successive batches of goods to the warehouse depend on the flow (consumption) intensity of material resources.

The third level includes the financial management model and rules that enable to monitor the inventory financial condition. It is estimated the economic effectiveness of the rules accepted for the inventory formation, is determined the financial resources for their acquisition and the overall financial strategy of inventory management.

It is very important to carry out an analysis of the automated information technologies in the work of logistics service of the suppliers and the customers. Currently, it is effective to

use two major automated information systems: SAP, which is the main, and "1C Accounting", which is auxiliary.

The SAP system is widely used in the service work. All necessary applications and orders are created with a help of special transactions ME21N and ME51N. Inside the ZF corporation, which includes the company, the transfer of applications is made using the electronic document management system EDI, which is one of the SAP program blocks. In this case, the application placed via EDI shall be automatically placed in the production scheduling program of the supplier. The supplier sends to the customer an electronic confirmation of order acceptance and an estimated delivery time of goods.

Also, as an example of the broad possibilities of the program, it should be noted the possibility of evaluating the supplier reliability. Using the transaction MF96, the program can compare the shipment time of goods ordered at the application with the actual date of shipment and make a comparative analysis, evaluating the supplier for 100 point scale.

If the supplier does not have the SAP system, it is possible to generate the output documents in PDF format with the automatic protection against changes. These applications are usually sent to the supplier by e-mail and their shipment time is specified based on them.

SUMMARY

On the basis of data on the number of goods delivered and the term of their delivery, the so-called "upstream supplies", which are the basis for the goods posting to the warehouse by the employees of internal logistics, are formed using the transaction VL06.

We consider the development of X project plan. Table 1 presents the stages of implementation of the inventory management system at the enterprise, work maintenance, input information and information obtained as a result of the implementation of each stage, as well as the costs for each phase implementation.

Table 1
THE STAGES OF IMPLEMENTATION OF THE INVENTORY MANAGEMENT SYSTEM AT THE ENTERPRISE

Stages	Work maintenance	Input information	Output information	Costs, roubles
1. Formation of the initial data	Collection of background information: Inventory consumption, inventory norm, prices and terms of delivery, terms of delivery delays, costs for accommodation and storage of inventory, calculation of the optimal batch of goods	Price-lists of the suppliers, analytical accounting data, statistical and operational reporting documents, production plan project.	Summary tables on inventory norms, terms of delivery, inventory management costs	-
2. Modeling	Construction of the inventory movement graph	Calculated system parameters	Visual graphs of the inventory movement	1,000

3. Automation	Implementation, configuration and streamlining of the program under the enterprise, data entry	Program product description	Reports on the inventory movement, information on the order date and amount, information about the inventory balance at the warehouse	10,000-14,000
4. Staff training	Participation of specialists of the logistics department in a seminar on the inventory management	Price-list for the company's services, account, contract	The certificate of training completion	13,500
5. Drawing up a contract with the consumer	The agreement with KamAZ on the system work with a fixed order size		Supply agreement	2,000

From the point of view of increasing the inventory management efficiency, the reasonabless of the inventory norming is of great importance, since the reasonabless of inventory norms determines the actual inventory condition to a large extent.

Thus, the basis of the inventory management system in the modern enterprise is made by the inventory condition and environment analysis technologies, as well as the rules of decision-making for the inventory formation. The rules themselves may be implemented as the specialized program modules and instructions to the personnel.

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