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Abstract

The paper analyzes various inventory management systems used in large foreign firms, based on integrated planning in matters of movement of information and material resources. Logistic systems are characterized by the presence of complex random relationships within these systems, which requires the distribution of logistics functions among all participants in the supply chain.

Аннотация

В статье проанализированы различные системы управления запасами, применяемые в крупных зарубежных фирмах, основанные на интегрированном планировании в вопросах движения информационных и материальных ресурсов. Логистические системы характеризующиеся наличием сложных случайных связей, внутри этих систем, что требует распределения логистических функций между всеми участниками цепей поставок.

In the published studies, attention is drawn to such inventory management systems as DDT – Demand-Driven Techniques/Logistics, RP – Requirements/Resource Planning, Rules-Based Reorder (RBR), Quick Response (QR), Continuous Replenishment (CR), Automatic Replenishment (AR), Effective Customer Response (ECR), Vendor Managed Inventory (VMI), JIT II, CSRP-class systems, APS/SCM System (Advanced Planning & Scheduling Supply Chain Management), JIS (Just-in-Sequence), SCP (Supply Chain Planning), SRM (Supplier Relationship Management), CRM (Customer Relationship Management), Lean Production + Six σ , CPFR (Collaborative Planning, Forecasting and Replenishment), S&OP (Sales and Operation Planning), VMI (Vendor Managed Inventory).

It should be noted that the 21st century has brought powerful algorithms and planning technologies. A new age of planning has begun, based on objective consistent models of supply chains, advanced algorithms for optimizing powerful systems for collecting and processing information.

Currently, enterprises use the most complex planning models for key business processes in the logistics systems of inventory management. Through the development of techniques for joint decision-making, modeling of a common business, balancing and multi-structural planning models are complicated by the mixture of planning methods and tasks.

The need for deep interaction between supply chain counterparties, the integration of processes in various elements of the chain, the development of technologies for joint decision-making between supply chain counterparties in planning increase the depth of interaction between participants in the supply chain.

The abundance of techniques, on the one hand, increases the quality of interaction in the “supplier-consumer” system, on the other hand, it indicates the complexity of the problem of optimizing the inventory management system. Despite the abundance of inventory management methods, according to the published research, even in well-oiled systems, for example, in *Toyota*, the cost of spare parts for one car is USD 77, while in America it is USD 500.

In the Russian Federation, with its road transport network being far from the highest quality, in comparison with the roads of developed industrial countries, this figure is even higher.

Thus, the task of optimizing the inventory management system is far from complete, which explains the authors' interest in this task.

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