

## INCREASING THE EFFICIENCY OF SUPPLY CHAIN MANAGEMENT IN THE MODERN BUSINESS

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*The article discusses the role and place of supply chain management to ensure the sustainable development of modern business; reveals the essence of supply chain management and ways to improve their efficiency in the activities of the enterprise; the characteristics of the stages of implementation of the SCOR model in supply chain management are given for making effective strategic decisions in the management of enterprises and applying advanced methods for effectively reviewing, improving and transmitting information; new innovative technologies of the 21st century are proposed to improve the efficiency of supply chain management to ensure sustainable business development in a globalized environment with elements of fierce competition within Industry 5.0, which provides for close interaction between man and technology in the modern world.*

**Keywords:** *supply chain management, modern business, Internet of things, big data, advanced analytics, robotics, automation, simulation, 3D printing, augmented reality.*

**Introduction.** In the context of globalization, in order to develop a business, every enterprise must be able to properly build its logistics and supply chain management in such a way as to best meet the needs and demands of the market, increase the number of buyers of its products (works, services), with subsequent access to increasing profits from its activities. The product manufacturing for subsequent sale in large quantities requires coordination, cooperation, foresight and preparation. It is the successful alignment of the system of organization and understanding of the operation of a successful supply chain that is the first step to expanding the business. For most enterprises, it is the rational management of this system that is a serious competitive advantage that contributes to the rapid and successful development of the modern business and become the most recognizable brand.

**Main part.** The supply chain management helps businesses to optimize their business processes and operations and outperform competitors. For the modern business, supply chains are instrumental in bringing quality products to consumers at competitive prices. Large enterprises can create entire departments responsible for managing and optimizing supply chains. Small and medium-sized enterprises tend to have less experience and resources to optimize and manage their supply chains more effectively. In the traditional sense, supply chain management refers to the planning, organization, control and regulation of the flow of goods, starting with the receipt of an order and the purchase of raw materials and supplies to ensure the production of goods, and further through production and distribution, bringing them at optimal cost to the final consumer in according to market requirements.

According to [1], the supply chain management is how interconnected enterprises and systems manage the flow of goods and services from raw materials to the final consumer of finished products from these raw materials. A supply chain can include many different enterprises. Then the supply chain management is how each enterprise manages both its own internal activities and the flow of inventory along with other enterprises.

From here, the supply chain management touches on a range of activities covering purchasing, inventory management, product lifecycle management, transportation management, order management, and more.

In the modern business, to improve the efficiency of the supply chain management in an enterprise, a manager can optimize their performance by:

- maintaining and ensuring compliance with agreements with suppliers on the level and quality of market service;
- product management for more economical purchases;
- stock management to reduce storage costs and waste;
- implementation of a policy to ensure the profitability of transport organizations and the conclusion of profitable contracts, etc.

In addition, the supply chain management is understood as the process of managing the flow of goods and services, including all processes that turn raw materials into final products. This includes actively optimizing the activities of the enterprise on the supply side in order to maximize value for customers and gain a competitive advantage in the market [2].

The supply chain management can also be understood as the process of managing the flow of raw materials into finished products. Therefore, the supply chain management is a critical function in manufacturing and retail as its effectiveness affects the success of other integral parts of the business. A well-organized supply chain means that customers always receive their order just in time, as they expected. They also look forward to available support if they need it after purchase, which can affect the effectiveness of their supply chain management. This will certainly have a positive impact on the quality of customer service. A supply chain must be designed in such a way as to maintain the level of demand for the products manufactured by the enterprise in order to avoid overstocking and storage costs. It also manages the costs of supplying raw materials and finished products (transport costs), and all this should contribute to minimizing operating costs. According to the rules of financial management, as the inventory flow to customers accelerates, the flow of working capital into the business automatically accelerates. If the goods are delivered to the buyer for a period less than planned, then it is possible to reduce costs and order waiting time, as well as increase profits [3].

The supply chain management plays a very important role in a growing business, where profit depends on its effectiveness.

Therefore, effective supply chain management:

- develops business relations between its participants;
- promotes quality of customer service;
- helps to reduce transport and storage costs;
- leads to an increase in labor productivity and optimization of business functions;
- helps to reduce direct, indirect, production and fixed costs;
- improves the mechanism for the delivery of goods with the least delays in terms;
- contributes to the organization of delivery of the required volume of goods to the required time and destination;
- shows business entities how to adapt to ongoing changes in the economies of different countries, ever-increasing expectations and demands from consumers and tightening market requirements due to globalization.

From this it is absolutely clear that the supply chain management in business is an indispensable and continuous process, without which it is almost impossible to arrange timely delivery of inventory items, organize large batches of orders and reduce related costs.

In the modern business, there are many different supply chain management models. One of the most common and best of them is the "Supply Chain Operations Reference Model" (SCOR model). This model contributes to the adoption of effective strategic decisions in the management of enterprises and the application of advanced methods for the effective consideration, improvement and communication of information. The SCOR model consists of six phases (stages) of implementation in the supply chain management - planning, sourcing, location, manufacturing (making), delivery and return [1, 2, 3].

Each phase includes a set of business processes that help improve the efficiency of supply chain management in the modern business. The planning phase defines the supply chain management strategy. The rest phases represent the key requirements for its implementation. Enterprises must be proficient in all phases to be efficient and competitive and avoid bottlenecks. Let's consider these phases of the SCOR model in more detail.

The planning phase starts with the refinement of the details of the operational strategy. The first step is to strategically decide where to locate the production (within the country or abroad) and clarify if the enterprise will manufacture all the products in-house or purchase some components from other enterprises. Then you need to solve the problem of how to produce and store your product, pre-produce and store in anticipation of an order, or produce products after receiving an order from a customer. When developing a planning strategy, you can also provide for the possibility of prefabrication of a part of the final product and complete production to order or suggest order customization. Any combination of these strategies can be used, provided that the method of measuring performance is established prior to planning.

The next phase is the search for sources of purchase of raw materials and any components that need to be outsourced. It has to happen at the best possible price, at the right time, in the right quantity. It is important that all suppliers are carefully vetted and all contracts are awarded in order to get the best value without sacrificing quality. The delivery schedule is also critical. Supplier performance evaluation is an ongoing requirement for the optimal supply chain management as well as payment planning and import/export enforcement.

The location is critical to successful supply chain management. The right location, convenient for resources and materials, is the ideal option. For example, a carbonated beverage business located in a location where water is scarce can undermine the viability of the business.

During the production phase, the product is assembled, tested and packaged. This stage also includes establishing rules for measuring labor productivity, how data is stored, the production capacity of an enterprise, and compliance with regulatory requirements.

The delivery phase, also called logistics, covers all stages of processing customer orders, their distribution and transportation. Warehousing and inventory, or paying the service provider to manage both, are also included in this stage. It also includes trial and warranty periods, as well as post-delivery billing.

To improve the efficiency of supply chain management, you will need a smooth and easy process for returning defective products to customers. This will also include how to deal with end-of-life products when it comes time to stop manufacturing, selling and supporting certain products. For defective products, the return phase includes company-established rules for monitoring productivity, costs, and inventory for the returned product. This means determining the condition of the product, authorizing returns, scheduling the supply of replacement products, and providing refunds.

To improve the efficiency of supply chain management, the strategic logistics management offers modern business a number of new technologies aimed at changing the business

environment for the better. New technologies are changing the way businesses manage their supply chains. Modern business management solutions enable supply chain managers to identify opportunities to save resources (labor, time, financial) and act in a timely manner at every stage of the SCOR model. These technologies simplify planning, forecasting and inventory management along with financial information related to supply chain management.

Industry 5.0, which provides for the interaction between people and technology, is one of the major innovations in 21st century technologies that are being introduced into business, integrating the virtual and physical worlds to create new effective ways to improve the efficiency of supply chain management.

The latest technologies that help improve the efficiency of supply chain management for sustainable business development include the Internet of things, big data and advanced analytics, robotics and automation, modeling, 3D printing and augmented reality [3].

Let's briefly characterize them.

The Internet of Things is the fusion of physical objects such as software, sensors, and electronic elements with the Internet and machine data collection and transmission. In the supply chain management process, this enables real-time communication, allowing physical systems to run without human intervention, and creating smart cities. The Internet of Things offers the opportunity to create digitized and connected supply chains, i.e. fully integrated ecosystems that are completely transparent to all participating enterprises and their structural divisions, to one degree or another tied to logistics (marketing, procurement, production, distribution, inventory management, etc.).

With the Internet of Things comes a huge amount of data. How a business reads and analyzes this information is very important. In manufacturing, the availability of product development, production, and testing data can add new dimensions to how a product is made, offering better innovation and marketing options to enable effective supply chain management decisions.

The robots are already widely used in production logistics, such as mechanical arms on assembly lines. Industry 5.0 can greatly increase the contribution of robots in supply chain management to improve business. The construction of smart factories, where robots take over production and deliver goods to customers with limited human involvement, thanks to information and communication systems, is a clear example of supply chain management aimed at automating modern business.

Today it has become commonplace when products can be virtually simulated and tested, which saves time, reduces labor, material and financial costs. With 3D printing, you can create custom, complex, and lightweight objects at amazing speeds. Augmented reality offers a future in which enterprise personnel, including supply chain managers, can learn on the job much more effectively than with paper or monitors. In combination with cloud services and mobile applications, augmented reality and wearable technologies can provide employees with important information, for example, to improve the efficiency of supply chain management with the subsequent improvement of the business environment.

Therefore, the timely and high-quality implementation of modern technologies such as Internet of Things, Big data and advanced analytics, Robotics and automation, Simulations, 3D printing and augmented reality in logistics and supply chain management will contribute to sustainable business development.

**Conclusion.** To improve the efficiency of supply chain management, it is necessary to develop a mechanism aimed at reducing operating costs, increasing production efficiency, increasing profits, improving material and information flow, and increasing customer satisfaction.

The effectiveness of supply chain management identifies costly business processes that do not add value to the end product, allowing the business to minimize or eliminate them altogether, thus reducing operating costs. The good supply chain management strategy considers waste and minimizes it by focusing on business processes that add value and value to customers. This is the only way to improve production efficiency. Efficient supply chains generate more revenue and therefore more profit. Lower supply chain management costs result in competitive pricing resulting in increased profits. Efficient material flow ensures that there is less lag between supply and demand, making accurate forecasting easier. In addition, real-time information allows all participants in the supply chain to quickly respond to possible changes. And finally, end-users, happy to create supply chains, get what they want, when they want, at the best price.

Only the timely and effective implementation of these measures will contribute to the effective management of supply chains with the subsequent development of modern business in a globalized environment with elements of fierce competition.

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### ПОВЫШЕНИЕ ЭФФЕКТИВНОСТИ УПРАВЛЕНИЯ ЦЕПЯМИ ПОСТАВОК В СОВРЕМЕННОМ БИЗНЕСЕ

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**Ключевые слова:** *управление цепочками поставок, современный бизнес, Интернет вещей, большие данные, расширенная аналитика, робототехника, автоматизация, моделирование, 3D-печать, дополненная реальность.*