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## **SPECIFIC ASPECTS OF LOGISTICS ENTERPRISES IN THE FAT-AND-OIL INDUSTRY**

*The article reveals the importance and the relevance of logistics management principles for the fat-and-oil industry enterprises. The priorities regarding the implementation of the logistical approach into the industry are specified. The specific aspects of logistics enterprises in the fat-and-oil industry are outlined. The types of material flows and the composition of the logistics industry enterprise system are identified. The factors of the synergistic effect as a result of the logistics information system implementation at the enterprises are stated. The usefulness of the logistics information system for producers and consumers of sunflower oil product are described. The specific domains of the logistics to be researched are identified.*

**Key words:** *enterprise, fat-and-oil industry, logistics, logistics information system, specific aspects of logistics.*

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## **СПЕЦИФІЧНІ АСПЕКТИ ЛОГІСТИКИ ПІДПРИЄМСТВ ОЛІЙНО-ЖИРОВОЇ ГАЛУЗІ**

*У статті показано значущість й актуальність логістичних принципів управління для підприємств олійно-жирової галузі. Сформульовано першочергові завдання щодо запровадження логістичного підходу на підприємствах галузі. З'ясовано специфічні аспекти логістики підприємств олійно-жирової галузі. Визначено види матеріальних потоків і склад логістичної системи підприємств галузі. Вказано на чинники синергічного ефекту від запровадження логістичної інформаційної системи на підприємствах галузі. Описано корисності логістичної інформаційної системи для виробників і споживачів продукції олійнодобувних підприємств. Визначено специфічні сфери логістики для дальших наукових досліджень.*

**Ключові слова:** *підприємство, олійно-жирова галузь, логістика, логістична інформаційна система, специфічні аспекти логістики.*

**Introduction and review of literature.** One of the main factors in the state security is effective and sustainable development of the agro-industrial complex. The performance of the operation is determined by the level of both agricultural production and consumption of basic foodstuffs by the population as well as the volume of their exports abroad [5]. In this respect, B. Supihanov says: “Despite

features of a general increase in exports, we can name several commodity positions, which make Ukraine the leader in the world market. It is primarily sunflower oil ...” [7, p. 5].

Currently experts estimate Ukraine’s share in the world sunflower oil market at 55–57 %, indicating that our country has gained market leadership by selling this products for a long period [6].

The increase in global demand for food has become the main factor of the Ukrainian exports growth of sunflower oil products. Also it results in excellent price quality ratio, high level of logistics applying as well as the situation when world market prices get higher. Logistic approach has enabled domestic producers to cut significantly transport costs and reduce delivery time of both seed and sunflower oil products to domestic and foreign customers. For example, Ukrainian agricultural products are supposed to be delivered to Egypt according to the relevant transport routes in four or five days, while grains from Northern Europe are been transported to the mentioned countries within 11–12 days, and it is about 18 days from the USA. From South America it takes even longer (a month) to deliver grains to Egypt. This is positive effect of the so-called “external logistics” of the fat-and-oil industry enterprises but “internal logistics” has been out of expert’s interest. However, the “internal logistics” provides the following advantages for the industry: the reduction of production costs and additional handouts for maintaining an adequate level of quality; the trim of lead time including logistics cycles; high level of production and others.

Given above mentioned there is a need for urgent and comprehensive research into the specific aspects of “internal logistics” of the fat-and-oil industry enterprises in order to increase economic efficiency and effectiveness of their management.

The problem of developing the theoretical concepts as well as applying the logistics tools in the agricultural enterprises management is considered in publications of the following scientists: T. V. Borovik [2], T. V. Bozhydarnyk, N. V. Bozhydarnyk [3] and O. M. Varchenko [4] and others. Their works are certainly of great interest. However, in terms of industry specifics the vast majority of publications are devoted to investigation of the practice of logistics approach concerning agricultural enterprises. And fat-and-oil industry enterprises still remain without appropriate attention, while these manufactures have a special need for tools to enhance management efficiency and effectiveness to fit modern realities in the respective segment.

**The purpose of the article** is twofold: to clarify and to describe the specific aspects of logistics of the fat-and-oil industry enterprises.

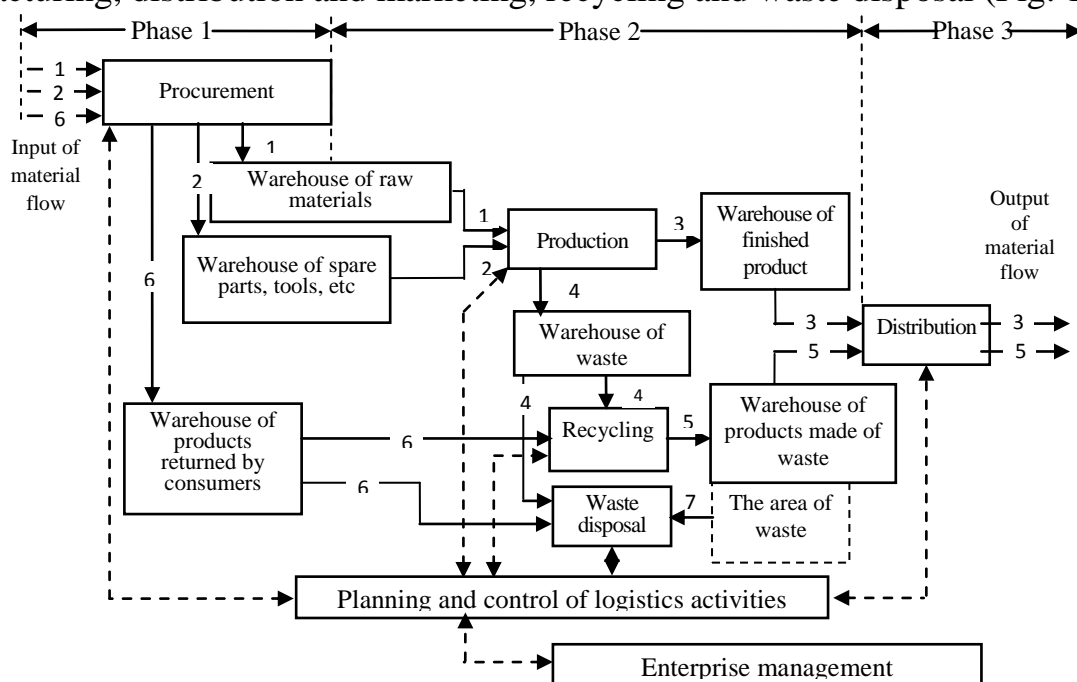
**Results and discussion.** Considering modern conditions of consumer market logistics is getting increasing attention from business managers. The role in the development of competitive advantages is really significant and meaningful. This is primarily due to the real possibility to cut significantly logistics costs in the manufacturing, warehousing and transporting of sunflower oil products to customers.

The thorough study of the fat-and-oil industry enterprises operations has made

enables us to draw the conclusion that the specific use of logistics is mainly determined by the type and the number of material flows circulating in logistics systems of enterprises as well as composition of their logistics systems (LS).

The study and the analysis of the production process of the fat-and-oil industry enterprises provide with the opportunity to find out that at least seven major types of material flows circulate within their logistics systems: 1 – raw materials for producing the products; 2 – spare parts, special tools, etc., that are necessary for normal operation of all subsystem technical and technological base of logistics enterprise systems; 3 – finished products; 4 – waste products; 5 – products obtained during the recycling production; 6 – products sold but returned to the company for various reasons (complaint); 7 – administrative wastes. The outlined streams have different occurrence and consumption place and time. It obviously has the particular impact on composition, structure and organisation of the logistics enterprise system in any business sector.

The analysis of material flows crossing the enterprise and the determining of their types, as well as the study of organizational structure of the fat-and-oil industry enterprises, their manufacturing process and content of logistics activities give us the ground to define and specify the composition of the logistics enterprise system. The analysis shows that the latter includes five subsystems – procurement, warehousing, manufacturing, distribution and marketing, recycling and waste disposal (Fig. 1).



Legend:

————> – material flows; - - - -> – information flows;

1, 2, 3, ..., 7 – types of material flows circulating within the enterprise LS.

**Fig. 1. Analog LS model of the fat-and-oil industry enterprise**

Source: designed by the author.

Each of these subsystems is closely related to specific type of material flows (Table 1). These material flows are crucial for designing the logistics enterprise

system. However, the bundled material flows circulating within the logistics enterprise system establish particular hierarchy and sequence of logistics operations relevant to the process. Specific composition of logistics enterprise system on the fat-and-oil industry enterprises requires the establishment of appropriate logistics information system (LIS).

*Table 1*

**Major subsystems of logistics system on the fat-and-oil industry enterprises**

Phase of material flows according to Fig. 1	Subsystem of logistics system	Type of material flows, circulating within the logistics subsystem
Phase 1	Procurement	1 – raw materials for producing the products; 2 – spare parts, special tools, etc., that are necessary for normal operation of all subsystem technical and technological base of logistics enterprise systems; 6 – products sold but returned to the company for various reasons (complaint)
Phase 1, 2	Warehousing (warehouse of raw materials; warehouse of spare parts, tools, etc; warehouse of products returned by consumers; warehouse of waste products; warehouse of finished product; warehouse of products made of waste)	1 – raw materials for producing the products; 2 – spare parts, special tools, etc., that are necessary for normal operation of all subsystem technical and technological base of logistics enterprise systems; 3 – finished products; 4 – waste products; 5 – products obtained during the recycling production; 6 – products sold but returned to the company for various reasons (complaint)
Phase 2	Production	1 – raw materials for producing the products; 2 – spare parts, special tools, etc., that are necessary for normal operation of all subsystem technical and technological base of logistics enterprise systems; 3 – finished products
Phase 3	Distribution	3 – finished products; 5 – products obtained during the recycling production.
Phase 1, 2, 3	Recycling and disposal of waste	4 – waste products; 5 – products obtained during the recycling production; 6 – products sold but returned to the company for various reasons (complaint); 7 – administrative wastes

*Source:* designed by the author.

Research results of D. J. Bauersoksa and D. J. Kloss show that creation of LIS will give real opportunities for manufacturers to reduce value and time for processing orders by 20–40 %, to reduce time for launching the product by 15–30 %, to reduce costs for purchase of raw materials and semi-finished products by 5–15 %, to reduce the amount of inventory by 20–40 %, to reduce production costs by 5–15 % and increase profits at the same rate [1].

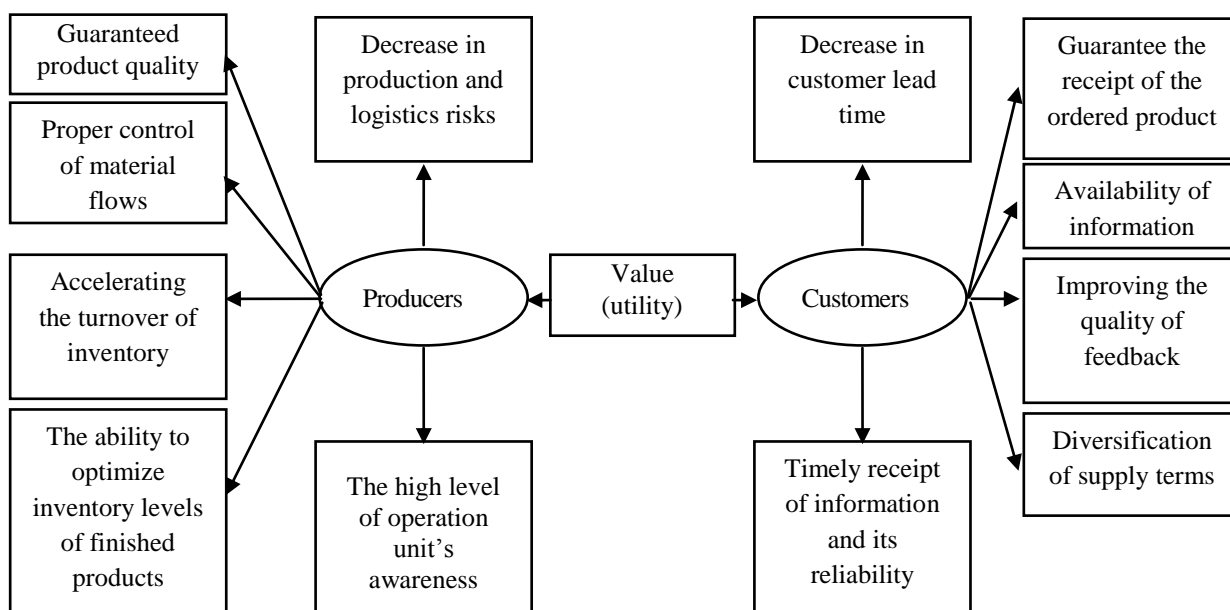
This information actualizes the essence of logistics system implementation into

the production enterprises. It's even more important for the fat-and-oil industry enterprises because numerous information flows circulate within their logistics systems. In-personal study gives the ground to point out that the fat-and-oil production enterprises encompass about 33 types of information flows [10, p. 53].

If logistics information systems are organized on the fat-and-oil industry enterprises then the full integration of all material streams into a single one is possible, which means the absence of any “breaks”, inconsistency in different types of material flows and decoordination within it. In addition, installation of logistics information system at the enterprises in a particular way “fastens” and makes organizational structure of logistics system more flexible and provides higher performance efficiency of its operation.

On the basis of the study the author reveals that the findings quite significantly increase the synergy effect of logistics enterprise systems operation from within. The enterprises could approach it and get cost savings by reducing production costs and cost of sales as well as costs related to waste disposal and sale of recycled products; due to significant reduction of logistics cycle and increased levels of customer logistics service; by reducing customer lead time and increasing the asset turnover ratio; due to decrease in inventories and finished products stocks as well as high level of coordination between all subsystems in logistics system; due to efficient and operative information flow between both subsystems of logistics system and suppliers, partners and direct consumers of finished products; and, finally, due to the growth of financial results of enterprises operations.

Implementation and use of logistics information systems in the fat-and-oil industry enterprises contain a potential value (utility) for both producer and consumer of oil products (Fig. 2).



**Fig. 2. Values (utility) of logistics information system**

Source: designed by the author.



The study and the analysis of specific aspects of logistics embedded in the fat-and-oil industry enterprises provide the opportunity to identify relevant domains that need to be investigated in order to improve the efficiency of logistics systems operation. In particular, these include: recycling of industrial waste into secondary products and managing of its inventory, waste disposal and logistics information flow management [8; 9; 10].

**Conclusions.** Based on the research we can formulate the following conclusions.

1. Despite the existence of established oil production technology, there is an urgent need for wider implementation of logistics tools into production process of the fat-and-oil industry enterprises.

2. Logistics implemented in the fat-and-oil industry enterprises has its peculiarities. At this time they have to be thoroughly explored in order to achieve the increase in efficiency and effectiveness of the industrial enterprises management.

3. Specific domains of logistics sector that need further exploration are identified. These include recycling and waste disposal as well as logistics information flow management.

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