

## The Development Of Distribution Networks For Agrifood Products In Republic Of Moldova

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**Abstract:** Distribution logistics management is nowadays, in the conditions of a competitive market, a major strategic stake for industrial and commercial enterprises. This represents an important potential for creating value for customer: quality of service, performance in terms of time and reactivity. It is also one of the main places where part of the entity's profitability is disputed, through rationalizing supply chain costs or by focusing on new distribution channels.

The research presented in this paper generalizes the theoretical and practical results on the conducted study, that reveals some deductions and measures, which, in our opinion, will contribute to improving the supply-delivery chain and the use of tools to measure market phenomena within the distribution of agrifood products on the market of the Republic of Moldova.

**Key-words:** logistics, marketing, agrifood, distribution network, profitability of entity, efficiency of distribution network.

### Introduction

The importance of logistics in the development of marketing research through the use of scales and methods is motivated by the role they play in marketing, especially in contemporary marketing of the agro-food field. It is well known that for a successful entrepreneurship you need to know your customer and the research scales are objective, comprehensive and easy to interpret methods that allow entities to outline the customer's profile, consumer preferences, attitude towards the entity and the competitors. The market economy contributes to the growth of the gross domestic product, based on the law of supply and demand, while the supply of enterprises with material resources cannot always be analyzed, as well as the factors of production. An analysis of the companies' costs of production highlights the importance of supplies for economic entities. It can be easily concluded that the most significant share in total sales of goods have the costs for supply. According to studies conducted by supply specialists, they can reach up to about 68% of total sales of goods.

### Materials and methods

The study analyzes the efficiency of the agri-food supply channels in the Republic of Moldova. The presented data are based on the concrete aspects taken from official sources placed on the website of the National Bureau of Statistics, based on which are analyzed in dynamics (2015-2020) the import-export volumes of agri-food products from the Republic of Moldova. To determine the economic efficiency of this area, were used the methods of analysis and synthesis, of comparison, statistical method. This topic is approached by many researchers from abroad (Olsen, P., Borit, M. (2012), Scharff, R. L. (2012), Zhang, M., Li, P. (2017)).

### Results and discussions

Distribution logistics exceeds the difference in space and time between the production and consumption of goods. According to the functions performed by the different categories of participants, there are two components of the distribution:

1. the procurement system;
2. the physical distribution system, respectively the distribution logistics.

The procurement system of the distribution means the monitoring of the distribution channels, respectively the structure of the legal, economic, informational and social relations between the members of the goods transfer systems. This system refers to the part of the sales which is based on the chain formed by the own sales compartments of the manufacturing company and the distribution intermediaries that intervene in the way of the producers towards the final buyer. In the center of this system is the transfer of ownership over the respective goods (distribution transaction function).

According to Reina U.M.L, (2012), the physical distribution system, respectively the distribution logistics, is oriented to agree the space and the time that separates the consumption production, through transport and storage. In addition to these two functions, there are also orders and their delivery.

A completely separated approach of the two systems presented above is not justified, given that procurement and logistics activities have a lot of contact points, they are only taken over in some cases by different distribution compartments. The efficiency of the entire distribution system can be enhanced when both areas of decision-making are considered simultaneously.

Distribution logistics is the set of means and operations that ensure the provision of goods and services to users or final consumers by manufacturing companies.

Distribution logistics aims to meet the needs of the demand created by marketers using minimal costs.

In view of the above terms, distribution logistics fulfills the following functions:

- determining market demand and organizing its satisfaction in a rational way;
- accumulation, sorting and optimized distribution of stocks of finished products;
- establishing the economic relations of continuous distribution of products and services;
- selection of rational forms, from a financial point of view, of organizing distribution networks.

Thus, the basic functions of distribution logistics refer to the planning, analysis, control and management of sales of products and services through distribution networks.

In a logistical channel, independent or dependent institutional components have common tasks, determined in a successive order. However, certain individual guidelines, legislative restrictions and some liability issues still lead to conflicts within the distribution channel, in particular the problem of coordination in a complex network of production and information flows. Agreements must be prepared between the institutional components of the distribution channel, for the cooperation, coordination and control of the service of companies (distribution intermediaries and auxiliaries), taking into account the mutual dependence of decisions on the form of logistics activity of distribution. Thereby, for example, small stocks in some cases lead to higher transport costs, or the requirement to reduce the risk of product damage leads to increased packaging costs.

The interaction of the elements of the distribution logistics is important, because each component of the distribution logistics does not necessarily need to be optimally structured, in order to receive the synergistic effect of the activity of all the components of the logistics chain.

Distribution is a major component of the marketing mix, which, in a unitary form, defines the process of bringing goods and services from producer to consumer. Most experts acknowledge that distribution cannot be limited to a simple circulation of products, so distribution is a much more complex process that begins when the product is ready to be launched on the market and ends with the consumption of the act. for sale to the final consumer. During this period (time and space), several logistical operations are carried out, along with many other specific activities of a financial and marketing nature, with the aim of satisfying, in conditions of maximum efficiency, the needs of consumers and / or users. Distribution refers both to the physical and economic circuit of goods, and to the system of relations between market agents, to the activities of a wide and heterogeneous mass of units belonging to several economic areas.

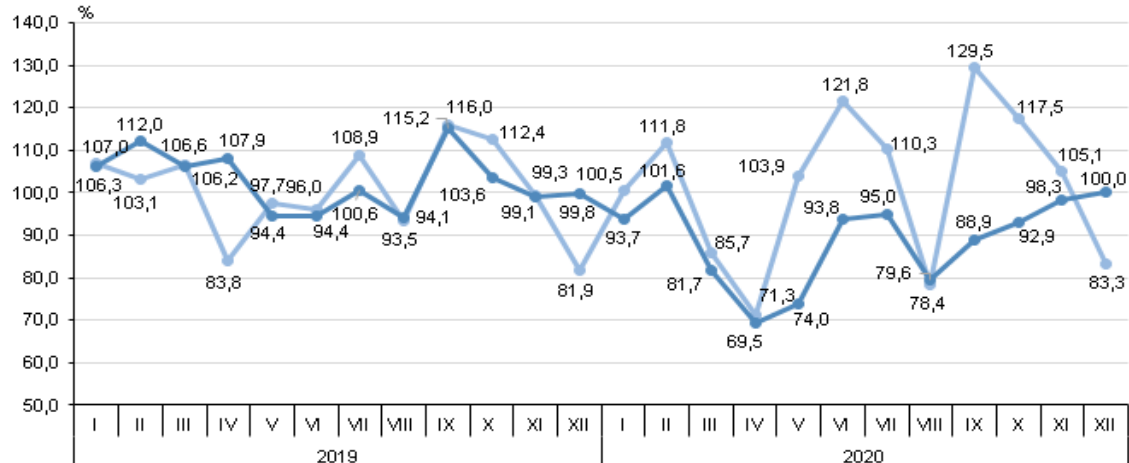
The increase in exports of agri-food production has a positive impact on consumption and income in the medium and long term, while also serving as a major stimulus to the non-agricultural economy in rural areas. However, the increase in exports depends on the ability of the Republic of Moldova to exploit its

comparative advantages and the ability to engage in the international trading system. A major barrier to trade of agri-food products are the underdeveloped and dispersed agricultural markets, which are a key factor in reducing incomes of agricultural producers. Local prices for agricultural producers are much lower than international prices, which affects the profitability of agriculture, which is currently lower compared to other sectors of the economy. The insufficiency of the own financial resources of many agricultural producers is caused by the reduced competitiveness of their production both on the internal and on the external market.

The low capacity of modernization of processing enterprises also has a negative influence. Most manufactures have outdated equipment and produce production that does not always meet the requirements of the European market. This situation creates conditions for underdevelopment: the quality of products decreases, which leads to low selling prices and limited market opportunities. At the same time, low sales revenues create obstacles for the process of modernization and, respectively, improving product quality.

The financial condition of most processing enterprises does not allow them to permanently credit agricultural enterprises on base of the next harvest. The country lacks vertically integrated systems, which bring together agricultural producers and processors of agricultural products. Agricultural entrepreneurs, in many cases, do not have information on standards, buyers, prices, etc. This situation creates an atmosphere of mistrust between producers and buyers. Paradoxically, the safest markets for farmers are low-value crop markets, such as cereals, corn, sunflowers. These crops, as a rule, do not require large investments. Relatively stable markets, traditional knowledge of cultivation techniques and low investment cost lead many farmers in the country to continue to grow these crops. The export of the mentioned agricultural products or of the products obtained by their processing does not bring considerable income to the producers. In this situation, the export potential can only be exploited by increasing the cultivated areas, obtaining significant quantities of one or more of the products in which the respective enterprises specialize.

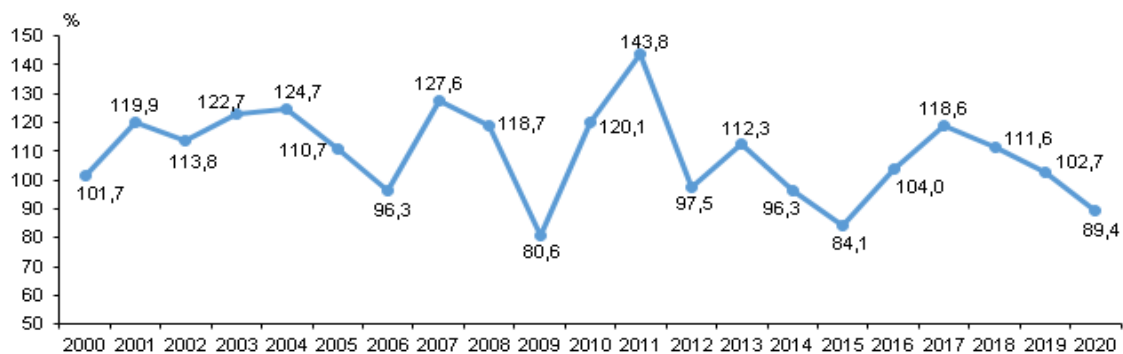
Fig. 1. Monthly evolution of value indices of exports of goods in the years 2019-2020 (%)



The National Bureau of Statistics informs that the exports of goods made in December 2020 had a value of 218.3 million US dollars, 16.7% lower compared to November 2020 and similar to that recorded in December 2019 (Fig.1.).

In 2020, exports of goods amounted to 2485.2 million US dollars (Figure 16), their value being 10.6% lower than in 2019.

Fig. 2. Evolution of value indices of exports of goods in the years 2000-2020.



The exports of local goods in 2020 amounted to 1905.2 million US dollars (76.7% of total exports), decreasing by 4.6% compared to 2019, thus influencing the decrease in the total value of exports by 3.3% (Fig. 2.).

Re-exports of foreign goods (after processing and classic) in 2020 amounted to 580.0 million US dollars (23.3% of total exports), or 25.8% less compared to 2019. This decrease contributed to the decrease in total exports by 7.3% (Tab.1).

Table 1. Evolution of trade in agri-food products in 2020.

The analyzed categories	Year 2020		Structure, %		The degree of influence of groups of goods on the increase (+), decrease (-) of exports, %	
	Thousand USD	in % compared to 2019	2019	2020	2019	2020
<b>EXPORT - total</b>	<b>2 485 159,94</b>	<b>89,42</b>	<b>100,00</b>	<b>100,00</b>	<b>2,70</b>	<b>-10,58</b>
from which:						
Food products and live animals	525 921,19	82,59	22,91	21,16	0,88	-3,99
Oils, fats and waxes of animal or vegetable origin	103 447,72	147,84	2,52	4,16	0,12	1,20
<b>IMPORT – total</b>	<b>5 415 671,45</b>	<b>92,69</b>	<b>100,00</b>	<b>100,00</b>	<b>1,43</b>	<b>-7,31</b>
from which:						
Food products and live animals	658 539,04	107,86	10,45	12,16	0,85	0,82
Oils, fats and waxes of animal or vegetable origin	12 094,65	107,13	0,19	0,22	-0,01	0,01
<b>COMMERCIAL BALANCE</b>	<b>2019</b>	<b>2020</b>	<b>2020 in % compared to 2019</b>			
total, thousands USD	-3 063 319,87	-2 930 511,51	95,66			
from which:						
Food products and live animals	-132 617,85	-133 710,13	99,15			
Oils, fats and waxes of animal or vegetable origin	26 190,88	-132 617,85	x			

As an example for the analysis of the agri-food distribution market we propose the analysis of the sales market for each subsidiary of the METRO store, for which data are presented based on the

achievements in the previous year 2019 - "0" and the actual achievements marked with "1". We will perform market segmentation on three types of consumers:

Consumer I- final consumer;

Consumer II- reseller;

Consumer III- HoReCa.

Following the calculation of this issue, we aim to quantify the importance of each consumer category in the total sales of METRO Moldova.

Table 2: Data for sales in the Metro 1 store

Market segment	Sales METRO 1 (thousand lei)		Total sales METRO (thousand lei)		Distribution share by consumer category		Sales structure		Recalculated share
	0	1	0	1	0	1	0	1	
Consumer I	300000	375000	928000	934000	32,328	40,150	35,352	34,427	11,129
Consumer II	250000	290000	898000	919000	27,840	31,556	34,210	33,874	9,430
Consumer III	260000	265000	799000	860000	32,541	30,814	30,438	31,699	10,315
Total:	810000	930000	2625000	2713000	30,903	34,279	100,000	100,000	30,875

Calculation formulas:

$C_{Dc} = \frac{V_{pi0}}{V_{i0}} \times 100$  - calculating the data in the table presented below through this formula, we will find out the share of sales distributed by consumer category in the previous year.

$C_{Dc} = \frac{V_{pi1}}{V_{i1}} \times 100$  - calculating the data in the table below through this formula, we will find the share of sales distributed by consumer category in the actual year.

$g_i = \frac{V_i}{\sum_{i=1}^n V_i} \times 100\%$  - through this formula and the data presented in the following tables we will find out the sales structure by consumer category in the total sales for the METRO company.

$C_{rDc} = \frac{g_{i1} \times C_{pi0}}{100}$  - this formula allows us to recalculate the share by category of consumer in the actual year compared to the previous year.

Applying the factorial analysis to the sales market carried out under Metro 1:

$$C_{Dc} = \frac{V_{pi0}}{V_{i0}} \times 100 = \frac{300000}{928000} \times 100 = 32,328;$$

$$C_{Dc} = \frac{V_{pi1}}{V_{i1}} \times 100 = \frac{375000}{934000} \times 100 = 40,150;$$

$$g_i = \frac{V_i}{\sum_{i=1}^n V_i} \times 100 = \frac{300000}{2625000} \times 100 = 35,352;$$

$$C_{rDc} = \frac{g_{i1} \times C_{pi0}}{100} = \frac{34,427 \times 32,328}{100} = 11,129;$$

$$\sum_{Cpi} Cdc = \frac{11,129 + 9,430 + 10,315}{3} = 30,875$$

Table 3. Data for sales recorded in the Metro 2 store

Market segment Consumer category	Sales METRO 2 (thousand USD)		Total sales METRO (thousand USD)		Distribution share by consumer category		Sales structure		Recalculated share
	0	1	0	1	0	1	0	1	
Consumer I	32500 0	36000 0	928000	934000	35,02 2	38,54 4	35,352	34,427	12,057
Consumer II	29000 0	31000 0	898000	919000	32,29 4	33,73 2	34,210	33,874	10,939
Consumer III	30100 0	31500 0	799000	860000	37,67 2	36,62 8	30,438	31,699	11,942
Total:	91600 0	98500 0	262500 0	271300 0	34,99 6	36,30 7	100,00 0	100,00 0	34,938

From the analysis of the data from the exposed tables we notice that for Metro 1 the achievements on sales exceeded the values provided by 120 thousand USD.

$$\Delta V_p = V_{p1} - V_{p0} = 930000 - 810000 = 120000;$$

For Metro 2, sales exceeded the forecast values by 69 thousand USD:

$$\Delta V_p = V_{p1} - V_{p0} = 985000 - 916000 = 69000;$$

For Metro 3, sales exceeded by 32 thousand USD

$$\Delta V_p = V_{p1} - V_{p0} = 771000 - 739000 = 32000.$$

Table 4. Data for sales recorded in the Metro store 3.

Market segment Consumer category	Sales METRO 3 (thousand USD)		Total sales METRO (thousand USD)		Distribution share by consumer category		Sales structure		Recalculated share
	0	1	0	1	0	1	0	1	
Consumer I	26900 0	27300 0	928000	934000	28,98 7	29,22 9	35,352	34,427	9,979
Consumer II	25000 0	26000 0	898000	919000	27,84 0	28,29 2	34,210	33,874	9,430
Consumer III	22000 0	23800 0	799000	860000	27,53 4	27,67 4	30,438	31,699	8,728
Total:	73900 0	77100 0	262500 0	271300 0	28,12 0	28,41 9	100,00 0	100,00 0	28,138

According to the data presented in the tables we can perform a deeper factorial analysis based on the following criteria:

The influence of sales distributed in stores on the total sales recorded by the company.

$$\Delta V_p = [V_1 - V_0] \times \frac{C_{p0}}{100} = [2713000 - 2625000] \times \frac{30,903}{100} = 88000 \times 0,309 = 27194,64 \text{ th.m.u.}$$

The exceeding by 221000 thousand m. u. of the sales on stores than the ones actually realized, on the one hand, was caused by the increase of the total sales by 88000 m.u., and on the other hand it was influenced by the modification of the company's sales volume by increasing them by 27194.64 thousand m.u.

The influence of the structure by consumer categories on the company's sales.

$$\Delta V_p(g_i) = \sum_{i=1}^n \left[ \frac{\sum_{Crdc1} C}{100} - \frac{\sum_{Crd0} C}{100} \right] = 2713000 \left( \frac{31,317}{100} - \frac{31,340}{100} \right) = -623,99 \text{ th. m. u.}$$

Unfortunately, the positive influence from criterion 1 was annihilated due to the distribution of sales across the three consumer categories, different each year and per store. The company expects to increase turnover in the HoReCa category and resellers.

The influence of the market shares of each store.

Metro 1.

$$\Delta V_p(C_{pi}) = \sum_{i=1}^n V_{p1} - \sum_{i=1}^n V_{i1} \times \frac{\sum_{i=1}^n C_{rpi}}{100} = 930000 - 2713000 \times \frac{30,875}{100} = 550501,25 \text{ th. m. u.}$$

Metro 2.

$$\Delta V_p(C_{pi}) = \sum_{i=1}^n V_{p1} - \sum_{i=1}^n V_{i1} \times \frac{\sum_{i=1}^n C_{rpi}}{100} = 985000 - 2713000 \times \frac{34,838}{100} = 602000,64 \text{ th. m. u.}$$

Metro 3.

$$\Delta V_p(C_{pi}) = \sum_{i=1}^n V_{p1} - \sum_{i=1}^n V_{i1} \times \frac{\sum_{i=1}^n C_{rpi}}{100} = 771000 - 2713000 \times \frac{28,138}{100} = 546439,96 \text{ th. m. u.}$$

Thereby, the negative influence in point 2 was offset by the positive influence determined by the market share of each store.

Following the calculations performed, we reach the following conclusion: METRO Moldova still has to work hard on covering with products as needed and advantageous prices for each category of consumers. Being a company with a policy that is mainly based on HoReCa customers and resellers, METRO should invest more in attracting these types of customers, which is very difficult to maintain due to fierce competition, but also other external factors created. state and business environment in the Republic of Moldova. The promotion, distribution and pricing policy allows it to maintain its current market share and also tries to expand on each customer segment.

## Conclusions:

Both market dynamics and high consumer demands on product quality and availability have profoundly influenced the way the current economy operates. Those requirements have contributed to the evolution of the supply process concept from pro-active operation, which focuses on a forecast of demand and standard material flow, to reactive operation. In such a way, the sub-compartments involved in the supply chain distribute real-time information to increase the visibility of demand and reduce inventory.

The implementation of the supply-delivery chain plays a well-defined role in the development of the entity, due to which the production process is maintained. The external environment influences the choice of a strategy. The perceptions of managers at all levels, as well as the culture and experience of the entity will influence the effectiveness of the strategies adopted.

Each type of customer plays an important role in the company's activity and objectives in the short and long term. Thus, marketing policies and strategies are developed in such a way as to have an effect on the target audience – final consumer, reseller and HoReCa customer.

The factorial analysis of the company's distribution market allowed us to estimate and calculate the impact of each type of consumer on sales per store and total METRO Moldova. From the calculations we noticed that the largest market share belongs to the final consumer, followed by resellers, and HoReCa customers constitute the lowest percentage without total sales. The company's strategy involves expanding the number of HoReCa customers, but it is influenced by external factors, such as state fiscal policy, competition, slow development of this type of business in the Republic of Moldova, etc.

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