

THE PROJECT OF INTRODUCING A NEW TRANSPORT LOGISTICS SYSTEM IN "ARARAT WINE FACTORY" LLC

Armine SMBATYAN

Ph.D. in Economics, Associate Professor of ANAU

Tigran GHILJYAN

Master of ANAU

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Introduction. The production of alcoholic beverages is one of the leading branches of the agri-food system, particularly in the food industry. In the conditions of free economic relations, the market demand is directed towards the production of higher quality alcoholic beverages, the fulfillment of which requires the use of the latest technologies, devices, equipment, modern skills in order to meet the quality standards.

Based on "Ararat Wine Factory" LLC as a leader in the region in terms of procurement, production and sales, has been an object of research.

The purpose of the article is to study the activities of "Ararat Wine Factory" LLC and the technologies used in it, the export volumes and the process, to develop a new project for the introduction of the transport logistics system and to offer the latest ways of its improvement.

The Ararat plant currently produces more than 20 brandies, and plans to expand its range in the next two years. The company controls the whole process of brandy production, from the purchase of the grape to the bottling. At present, the LLC has resumed wine production, for which it has upgraded a number of subdivisions.

Methodology. In the conditions of expansion, deepening of international economic ties, as well as development of production, there is an increase in transport logistics costs [Christopher, 1999]. In this case, the efficient operation of the transport logistics system is required, which should be conditioned by the optimal mode of transport, the choice of the carrier, the conclusion of contracts with logistics partners, the construction of delivery routes, the integration of the transport and storage process, by optimizing the parameters of the turnover process (reducing costs, increasing the speed of transportation) [Pustynnikova, 2016, 316].

Ararat Wine Factory sells most of its products (68-80%) in Russia, some in other CIS countries (19-31%), the remaining 1-4% in Armenia, which is explained by the low level of product recognition. "Ararat Wine Factory" LLC also exports to Ukraine and other CIS countries like Kazakhstan and Belarus.

Ararat factory exported around 3100 tons of alcoholic beverages to Russia in 2018, in 2019 – 1800 and in 2020 - 2600 tons. To other CIS countries and Europe in 2018, 1400 tons of alcoholic beverages were exported, in 2019 - 700 and in 2020 - 600 tons. Sales volumes in Armenia increased by 3% in 2019 compared to 2018, which is due to the fact that the borders were closed in the conditions of the epidemic (COVID-19).

Literature review. There are a lot of studies related to the development of the logistics system. Some researchers point out that understanding logistics innovations is a prerequisite for effectively studying future freight flows and developing transport policies. In particular, Tavasszy, in his article reviewing these innovations, identified the needs for research on freight modeling and focused on the three main dimensions of model improvement: the structural elements of the simulated system, the functional relationships between those elements, and the dynamic properties of the models [Tavasszy, 2020]. Other researchers point out that there is currently no universal method of measuring the efficiency of a logistics system. They claim that there are five main indicators of logistics system efficiency, such as the aggregate logistical costs, the quality level of the logistics service, the overall performance of the business system, the total duration of the logistic processes in the system and the quality of logistics operations [Arshinina, Kiseleva, 2020].

Analysis. "Ararat Wine Factory" LLC exports alcoholic beverages by 12 trucks to the Russian Federation, the CIS and several European countries. Of the mentioned trucks (according to 2020 data), only six are the property of the company, and the rest are used by the company on a lease basis during the export period. Customers use their vehicles to transport alcoholic beverages to almost all regions of the Russian Federation. Customers in the other countries deliver alcoholic beverages at their own expense (freight costs).

In the process of cargo transportation, the vehicles carrying out the cargo are supervised by the company for a period of 2-4 weeks (the period of being on the route). At the same time, goods transported by trucks are insured, which reduces the risk factor of both product failure and stable partnerships.

At present, the production capacities of "Ararat Wine Factory" LLC have 2 bottling lines, each of them has a productivity of 3000 bottles per hour. The volume of the company's output, according to 2020 data, was 3,005,880 liters for brandy and 340,130 liters for vodka, which is approximately 6011.7 and 680.3 thousand bottle, taking into account that an average capacity of a bottle is 0.5 liters. Taking into account the number of work shifts during the year and the duration of one shift, the factory has 10.7 million annual possibility of bottling. Based on the company's output in 2020, it

becomes clear that only 62.2% of the output capacity was used. In our estimation, the LLC has an opportunity to raise the level of utilization of production capacities, as there are all preconditions for that. The company's fixed assets are currently supplemented by innovative cisterns, which will enable the plant to increase production volumes in the future.

Table 1. Production capacities of "Ararat Wine Factory" LLC in 2020

Indicators	Unit of measurement	Brandy	Vodka
Output volume	thousand bottle	6011,7	680,3
Hourly productivity of bottling machines (2 pieces 3000 bottles per hour)	thousand bottle / hour	6,0	
Shift line	hour	8,0	
Shift capacity	thousand bottle	48,0	
Number of shifts worked per year	turn	224,0	
Production capacity	thousand bottle	10752,0	
Production capacity utilization level	%	62,2	

As the only transport route connecting the Republic of Armenia to Russia, Europe, Central Asia and other CIS countries is the Lars checkpoint, which is overcrowded, in this case there occur many obstacles both for Ararat wine for the normal economic activity of the factory and for the drivers carrying out cargo transportation. The average freight driver delivers the goods to the customer within 12-14 days and returns to the starting point. However, due to the regular traffic jams and accumulations, truck drivers have to stay at the border for extra 5-7 days, which has a negative impact on the partnership between the company and the customers.

It should be noted that the plant procures all the necessary items (bottles, corks, barrels, sugar, etc.) exclusively from the Russian Federation to organize the technological process, and their replacement is carried out by unloaded vehicles, which reduces the logistic costs of the return. For this purpose, the company also carries out transportation for other customers.

In order to keep the brand of its own alcoholic beverages high, the company sets the price of the sold product based on the prices of high-quality vodka and brandy available in the particular country's alcoholic beverages market. It is known that there is an excise tax in Armenia to ensure the process of selling alcoholic beverages. The excise costs for the export of the product range of "Ararat Wine Factory" LLC are borne by the ordering partners. Excise taxes are valid for a certain period of time, which once again emphasizes the need to improve the transport logistics system. One of the main problems of export is the unstable and abrupt changes in the currency, which cause serious economic problems for the normal operation of the company. In particular, most of the

factory's products are sold in Russia and payments are made in rubles, which is known to be as one of the most volatile currencies.

Ararat Wine Factory has signed trade agreements with several large trade organizations of the Russian Federation, which are located in almost all regions of the country. The most famous of these is Magnet, one of the leading food retailers in Russia, the leader in the number of shops and the geography of their location.

The implementation of the project of the new transport logistics system aims to improve the export in "Ararat Wine Factory" LLC, to ensure the optimal mode of vehicle management, to promote uninterrupted, reliable, round-the-clock control of the company's export process, reducing the costs of the turnover process, increasing the speed of transportation.

Given the fact that the plant is expanding its own production year by year, focusing mainly on sales in the CIS and European markets, there is a need to establish the latest level of a logistics system armed with disciplines in accordance with international standards which will provide a clear control over the delivery of manufactured products to the consumer. In this case, the project of the new transport logistics system proposed by us includes a system of several functions:

- upgrading of vehicles (number 5),
- availability of logistics operators (number 3),
- introduction of CRM customer relationship management system,
- use of GPS satellite tracking system to track the movement of cargo at any time along the route and installation of cameras in trucks,
- additional cargo insurance to protect high-value and high-capacity transportation from risks.

The proposed project will require significant capital investment, but at the same time will allow the company to maximize its position in the foreign market, which will increase the awareness of the company's alcoholic beverages among foreign customers and consumers.

In order to implement the project of introducing a new transport logistics system, the Ararat Wine Factory first needs to shape the life cycle of the project. Due to the peculiarity of the proposed project, the company needs to divide the implementation of the project into phases and deadlines. Based on the standard structure of the project life cycle, the initiative phase must first be distinguished.

At the initiative stage, the project manager will be the Executive Director of "Ararat Wine Factory" LLC, as the latter is in charge of the activities of each subdivision of the company, who will identify the needs arising in the whole process of project

implementation and will be able to make some decisions to satisfy that particular needs. After the election of the head, at the initiative stage, the concept of the project will be formulated (the need for the project, the main starting points, the budget needed for the project implementation, the project participants).

The budget needed to implement the design of the new transport logistics system should include the market value of the purchase of 5 new trucks (16 meters, with a capacity of 22 tons). The latter is recommended to be purchased from the VOLVO brand, as the trucks of the mentioned company are tested for cargo transportation on the roads of the Republic of Armenia and the Russian Federation and are more durable (at least 10 years). Because one truck at VOLVO costs approximately \$ 80,000 or about 37 million Armenian drams, a total of 185 million drams will be required from the company's budget for the purchase of five trucks of 2020 production.

To transport the five new purchased vehicles, the company will need to hire seven experienced drivers (with at least 5 years of work experience). During the freight shift, the workforce of these two extra drivers will be used to relocate the exclusive ordered goods as soon as possible in 24/7 system. As the salary of the company's current drivers is negotiable and it is paid according to the number of orders placed, each driver will be paid approximately 500-700 thousand drams. As a result, from the company's budget, about 4.2 million AMD will be given monthly to the new drivers.

In order to track the logistical flow of alcoholic beverages, the company will also need to hire three experienced logistics operators who will be in constant contact with drivers, develop optimal roadmaps, be responsible for fuel depreciation costs, and be accountable to the company's executive director. Fixed monthly salary will be set for the operators and each of them will be paid around 400-500 thousand AMD. So, the total month salary for these 3 logistics operators will be about 1.4 million Armenian drams.

As the Ararat Wine Factory expands its geographical customer base year by year, it is imperative for the company to create a customer-friendly CRM (Customer Relationship Management) system and equip all the vehicles available to the company (about 20) with GPS (Global Positioning System) and cameras. This innovation will allow customers to track the location of their product and be aware of the exact delivery time. It will also allow the company to follow the movement of its product [Mirotin, 2002]. In order to implement this project, the Ararat Wine Factory will have to completely overhaul the company's website, which should be implemented by the relevant knowledgeable and skilled programmers, which in turn will ensure that customers to follow the location and movement of their orders at any time. The implementation of new technologies will require about 3 million AMD from the

company. In order to equip the company's trucks, about 2 million drams should be allocated apart from the implementation of CRM & GPS costs.

In the final stage of the project, the Ararat Wine Factory will have to insure the trucks transporting cargo and the alcoholic beverages transported through them, which is due to the fact that the climatic conditions of the Caucasus, especially in the winter months, have a very dangerous impact on the cargo process, which increases the probability of crash and damage to the transported goods. Therefore, an annual insurance of the cargo and vehicles should be included in the company's project in order to avoid risks. Despite the fact that the mentioned project will require quite large investments, they will ensure the uninterrupted cargo transportation of the company until it is delivered to the customer. Examining the insurance market, we found that it would cost the company \$ 2,000 a month, or about 1 million AMD, to insure a single freight truck. Therefore, it will require from the company to pay about 220 million AMD for the total annual insurance of the trucks.

At the planning stage, the company must set clear deadlines for the project, which are presented in Graph 1 by days. It can be seen from the diagram that the company will need 20 full days to fully implement and test the design of the new transport logistics system. In addition, the CEO must obtain all the necessary documents for insurance at the specified time, sign contracts with VOLVO, new drivers and operators. From the analysis of the production-economic indicators of "Ararat Wine Factory" LLC for 2018-2020, it becomes clear that the capital expenditures required for the implementation of the project of the proposed new transport logistics system will make about 430 million AMD.

Table 2. The life cycle of the new transport logistics system (initiation and planning)

Days	1	2	3	4	5	6	7	8
Start								
Initiation and planning								
Compilation of the project concept		2 days						
Signing purchase agreements with VOLVO company			1 day					
Signing employment contracts with new drivers				2 days				
Signing employment contracts with new operators				2 days				
Agreement with the developers and technical team					2 days			
Sign contracts with insurance companies						3 days		

Based on the cash flow discount methodology (NPV-Net Present Value), through the efficiency of the investment project was calculated and substantiated the effectiveness of the introduction of a new transport logistics project in "Ararat Wine Factory" LLC. As a result of the project implementation, the cash flow was estimated to calculate the net present value. The capital value was determined, that is the discount rate at which the Ararat Winery can attract financial resources. To justify the introduction of a new

transport logistics project, we have made a dynamic calculation, which shows the period in which the company will reimburse the costs required for the project. The forecast is calculated for the next ten years, which shows the corresponding increase in the expected profit and revenue of the Ararat Winery.

Table 3. The life cycle of new transport logistics system (implementation & monitoring, end)

Days	9	10	11	12	13	14	15	16	17	18	19	20
Implementation and monitoring												
Parking of the acquired trucks	1 day											
Room cleaning & provision for drivers and logistics operators	2 days											
Upgrading the company's website with CRM system	4 days											
Equipping trucks with GPS & cameras	2 days											
Technical inspection of trucks		2 days										
End												
Testing after project implementation					8 days							
Final report					3 days							

Based on the industry indicators of the Ararat Wine Factory, that is, as of 2020, the company's net profit amounted to more than 1 billion AMD [Annual financial reports of "Ararat Wine Factory" LLC for 2020], it can be stated that for the required about 430 million AMD for the implementation of the project the company has the opportunity to allocate the expenses from its own resources.

Table 4. Dynamic calculation of the implementation project

Discount interest rate	2.5 %	AV	4.3 Billion AMD	Equity –100%	Borrowed capital - 0%
Years	T0		T1	T10	T11
In revenue	0		5.72 Billion AMD	8.84 Billion AMD	9.19 Billion AMD
Out investment	-4.3 Bln AMD		-	-	-
production costs	-		3.23 Billion AMD	5.55 Billion AMD	5.81 Billion AMD
fixed costs	-		840 million AMD	1.09 Billion AMD	1.09 Billion AMD
Cash flow 1	-4.3Bln AMD		1.64 Billion AMD	2.19 Billion AMD	2.28 Billion AMD
discount rate	1		0.95	0.76	0.74
discounted CF 1	-4.3 Bln AMD		1.56 Billion AMD	1.67 Billion AMD	1.69 Billion AMD
NPV	16 Billion AMD				
Accumulated funds	-		1.21 Billion AMD	17.7 Billion AMD	20 Billion AMD
Redemption Period	0 years (1-3 months)				

For the dynamic calculation of the implementation of the new transport logistics project in the first year (T₁) we took as a basis the company's income and expenses for

2020. It should be noted that the project implemented in the calculation has been implemented since the second year (T_2).

According to the dynamic calculation of the investment project (Table 4), more than 6 million produced bottles of vodka and brandy will reach about 10 million in the next ten years in "Ararat Wine Factory" LLC based on the production capacity of the factory. At the same time, according to forecasts, in 2030 the company will record about 9.2 billion AMD revenue due to a significant expansion of production volumes, instead of the previous 5.7 billion and more than 2.2 billion AMD cash flows of, instead of former 1.65 billion money.

Scientific novelty. Thus, studying the transport logistics system of "Ararat Wine Factory" LLC, the article proposes ways to improve the latter as a scientific novelty. In particular, it is proposed to establish a logistics system in the company, which will be equipped with experienced drivers, logistics operators and modern trucks. It is recommended to equip all the vehicles available at the factory with GPS, CRM systems and insure them monthly, including the freight inside.

Conclusions. It is clear from the indicators in Table 4 that after the introduction of the project in the company, the fixed costs will be changed only in the 2nd year (+230 million AMD), and in the next 9 years these costs will remain the same. The reason for the latter is clear, as the company, by introducing the project, has to allocate certain funds for the operation of 5 new trucks (fuel, lubricants, de-cooling, maintenance, etc.) every year. In addition, "Ararat Wine Factory" LLC should include the annual depreciation costs of trucks, the annual staff costs of new drivers and operators. Fixed costs for fuel will be AMD 87,716,000 for the 5 new trucks per year. It was taken into account that a 16-meter-long truck consumes an average of 35-40 liters of fuel (diesel) to cover a distance of 100 km. According to the project, trucks will transport cargo (about 4000 km) twice a month, so one truck will cover 96,000 km per year. Based on the mentioned road section as a norm for all trucks, we will get that more than 17 million AMD fuel and lubricating oils will be spent for the operation of each truck in a year (96000×420 AMD).

As the project offers the company to purchase 2020 VOLVO trucks, it is expected to be operational for at least 15 years, after which it will be sold for 10 million in drams as a worn-out vehicle for the purpose of buying new goods. The depreciation cost of trucks was estimated at 1,133,000 drams per year for a single truck (37 million- 10 million)/15, and per 5 trucks - 5,650,000 drams. The total fixed annual expenses of the company (230 million AMD) will include the salaries of new drivers and operators, respectively 50,400,000 and 16,800,000 AMD.

The mentioned indicators prove that the investment of the proposed new transport logistics project is fully justified (NPV, net present value > 0), as the net profit of "Ararat Wine Factory" LLC by 2030 will make about 2.2 billion AMD, instead of the previous 1.6 billion drams. At the same time, the company will dynamically repay the investment of 430 million AMD in the same year, as in 2020 alone the company provided more than 1 billion AMD net profit.

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Armine SMBATYAN, Tigran GHLIJYAN

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The growth of the production of alcoholic beverages is conditioned by the close cooperation with foreign markets and the introduction of the latest technologies in the domestic production. This is a signal for the exporters of alcoholic beverages of the Republic of Armenia to discover new markets to conquer, to improve their own logistics system, to improve and to strengthen the competitive position in the foreign market.

The article examines the activities of "Ararat Wine Factory" LLC and the technologies used in it, the export volumes and the process, based on the latter's analysis a new project for the introduction of a transport logistics system and has been developed the latest ways of suggested improvement. In particular, the new investment project is a set of actions through which the winery will be able to increase the volume of production export of its products, thus contributing to the increase of the company's funds and the discovery of new opportunities.