EFFICIENCY OF BUDGET-BASED CONTROL IN ACHIEVING SHORT-TERM OBJECTIVES

Svetlana MIHAILA, Galina BĂDICU, Nicolai JIERI[1]*
[1] Academy of Economic Studies of Moldova, University in Chişinău, Moldova,
Strada Mitropolit Gavriil Bănulescu-Bodoni 61, Chişinău 2005, e-mail:
sv_mihaila@yahoo.com, gbadiku@mail.ru, colea93@yahoo.com

Abstract

This article treats some aspects concerning the efficiency of the control through budgets in achieving short-term objectives. Having investigated the specialized literature, we have focused on the following aspects: the role of the budgeting within the entity in terms of performance of the manufacturing entities, the calculation of the indicators that characterize the financial performance, the calculation of the indicators as a measure to ensure the efficiency of the manufacturing process.

This article describes certain concepts related to the key indicators system underlying the entity's efficiency. The authors pay a special attention to the analysis, presentation and elaboration of the main budgets for the manufacturing entities in the Republic of Moldova with a view to elucidating the importance of budgeting both via its characteristics and its application into practice.

Keyword: planning, economic indicators, economic efficiency, profitability

JEL Classification: M41

Corresponding author: Svetlana MIHAILA, E-mail: sv_mihaila@yahoo.com

I. Introduction

There is one single rule to be observed by the manufacturer: manufacturing the best products at the lowest costs while paying the highest salaries it can pay. In this context, our aim is to carry out a study allowing us to identify the optimal variant for increasing the efficiency of the economic activity – a variant which would be sure to lead to an increased profitability.

No matter how perfect the entity's strategy is, the entity should keep control of the provisions in order to identify the reasons that lead to deviations, to set the responsibilities and to foresee corrective measures in case of deviations. The systematical process of organizing the future actions, which contributes to the achievement of the short-term objectives, is called the *budget*.

Budgets are the reflection, in terms of value, of the entity's activity & development plans, and they coordinate and specify in figures the administrators' projects. At the same time, budgets are a fundamental component of the management control that is directly correlated with the structures for planning, tracking & control, and accounting of the overall activity. Well-planned budgets may induce substantial benefits. Their advantages do not arise from the budgeting process, but from their application. A budgeting committee needs to be set up for coordinating the budgeting procedures. Such committee is formed of the representatives of the entity's management that are in charge with elaborating the *Budgeting Guidelines*.

We believe that the entity can control its own future financial performance by means of the management through budgets. Performance in manufacturing entities means a continuous enhancement of the parameters of the manufactured products both in terms of effectiveness and efficiency. Besides, it has a connection with the consumers' needs and expectations. The correlation between the efficiency and the effectiveness is both necessary and problematic as it speaks about the entity's competitiveness. The market share is one of the key indicators of the competitiveness in the market. It shows how resourceful a manufacturing entity is in comparison with its competitors. We are inclined to consider that the evolution of such indicator allows identifying the growth and the decline of the overall market, on one hand, as well as the trends in selecting the consumers, on the other hand.

Budgeting. During the elaboration of the activity plan, the volumes of sales and output are considered as ranking among the most important sections of the plan since the costs and expenses may not be planned ahead of the estimation of the sources and the volume of sales. The other additional budgets are elaborated and calculated both in natural items and in terms of value based on the volume of sales.

The natural indices, the nomenclature, the range of products, the rules and regulations form the basis for the planning of the amount of the financial, human and energy resources needed for achieving the targeted objectives.

The planned volume of production in natural units should be argued based on the entity's production capacity. According to the provisions of the NAS, the production capacity is the volume of production/services that can be achieved on the average during several reporting periods or seasons in normal working conditions, taking into consideration the capacity loss caused by the planned repair (maintenance) of equipment [**Error! Reference source not found.**].

When conducting our research into the role of the budgeting process and its advantages for the optimization of entity's operations, we have used information specific to the meat-processing enterprises, as shown hereinafter.

Considering the fact that an entity can operate in several shifts during a reporting period, in this article we will demonstrate the method of calculating the planned volume of production.

The production budget is a detailed plan that specifies the products to be manufactured and the needed stocks. Such budget is only elaborated in *terms of volume*. The aim of the production budget is to ensure a sufficient volume to satisfy the consumers' demand and to create an economically rational level of stocks of finished products. There will always be a number of manufacturing processes that will be launched on request, with no finished products available in stock. Yet, the large majority of the manufacturing entities would maintain a certain amount of finished products available in stock. The production budgeting starts with confronting with some constraints related to the manufacturing: possible limitation in the production capacity / human resources / certain costs etc. Table 1 below shows the calculation of the planned volume of production based on the classical method; the authors will also experiment their own suggestions.

Table 1. Production budget per range of products

Production	Method	Volume of production per shift, *kg/shift*	Shifts per day	Working days, *year*	Annual volume of production, *kg*
A	**1**	**2**	**3**	**4**	**5 = 2×3×4**
Sausage Nevskaia	*Classical*	600	1	250	**150 000**
	Suggested by the authors	600	1	250	**150 000**
…………					

Source: elaborated by the authors based on the generalized data received from the meat-processing enterprises (The balance of the finished products is constant both at the beginning and at the end of the periods)

As it appears from the above table, the manufacturing process will include one 8-hour shift, which means 250 working days per year.

Firstly, the natural indices of the production programme are planned, and then the value indicators are elaborated. The volume of sales is calculated based on the volume of production. The sales provision covers all the assessments and research of the potential market that the entity intends to conquer and maintain, taking into consideration a range of factors such as: sales history, pricing policy, competitors' activity, changes in the range of products, marketing research, product advertising and promotion plans etc. The results of such research and assessments will be specified in the estimates about the potential volume of sales and the potential value of receipts. Table 2 shows the potential annual volume of sales, based on the forecasted volume of production.

Table 2. Annual volume of sales

Production	Method	Annual volume, *tons*	Price, *K MDL per ton*	Amount, *K MDL*
A	**1**	**2**	**3**	**4 = 2×3**
Sausage Nevskaia	*Classical*	150,00	125,00	**18750,00**
	Suggested by the authors	150,00	125,00	**18750,00**

Source: elaborated by the authors based on the generalized data received from the meat-processing enterprises
(The balance of the finished products is constant both at the beginning and at the end of the periods)

Following the determination of the number of products, in furtherance of the production programme, the following material / energy / payroll resources are to be determined: *raw material, main and auxiliary materials, water, heat and electricity, technical equipment, labor force, financial resources etc.* In doing so, the production budget data and the planned production efficiency of the range of products will be used.

The raw material and materials are calculated based on the progressive production rules and the product manufacturing scheme. The material costs budget sets out the amount, nomenclature and the value of the raw material as well as of materials needed for the manufacturing of the budgeted volume of production. The unit price for the raw material and the materials is the market price as of budgeting. The total amount of raw material (RM) for the required volume of production is calculated based on the calculation formula (1) shown below:

$$RM = \frac{FP}{_{pl}E} * 100\ \% \qquad\qquad (1)$$

where: FP stands for the amount of finished products manufactured per year, in tons;

$_{pl}E$ *stands for the planned production efficiency for the assortment of the sausage Nevskaia, %.*

Table 3 shows the budget of the material and energy costs for an annual volume of production of 150 tons at 60% efficiency (the product "Sausage Nevskaia", classical recipe)

Table 3. Budget of the material and energy costs for the product "Sausage Nevskaia"

(annual volume of production – 150 tons/year, efficiency – 60%)

No.	Type of costs, analytical	Measurement unit	Unit price, MDL/kg	Materials needed per 1000 kg of products		Materials needed per total volume of production	
				Norm	Amount, MDL	Quantity	Amount, K MDL
A	1	2	3	4	5 = 3×4	6*	7 = 6 ×3

1.	Bovine meat c/s	kg	55,00	100,00	5500,00	25000,00	1375,00
2.	Pork meat n/s	kg	60,00	550,00	33000,00	137500,00	8250,00
3.	Pork meat g/s	kg	35,00	350,00	12250,00	87500,00	3062,50
4.	Edible salt	kg	2,00	35,00	70,00	5250,00	10,50
5.	Sodium nitrite	kg	6,00	0,10	0,60	15,00	0,09
6.	Caster sugar	kg	14,00	2,00	28,00	300,00	4,20
7.	Ground black pepper	kg	160,00	1,00	160,00	150,00	24,00
8.	Ground allspice	kg	120,00	0,50	60,00	75,00	9,00
9.	Ground cardamom	kg	300,00	0,30	90,00	45,00	13,50
10.	Ground cinnamon	kg	35,00	1,00	35,00	150,00	5,25
11.	Cognac	kg	90,00	2,50	225,00	375,00	33,75
12.	Natural gut casings	reel-15 m	96,00	55,00	5280,00	8250,00	792,00
13.	Sawdust	kg	18,00	4,30	77,40	645,00	11,61
14.	Clips	01 kg-1000 items	56,00	0,10	5,60	15,00	0,84
15.	Strings	kg	97,00	0,30	29,10	45,00	4,37
16.	Electricity	lei/kwh	1,78	520,00	925,60	78000,00	138,84
17.	Water	m^3	22,96	14,40	330,62	2160,00	49,60
18.	Sewage	m^3	12,31	14,00	172,34	2100,00	25,85
Total	**X**	**X**	**1042,40**	**58349,26**	**X**	**13810,90**	

Source: elaborated by the authors based on the generalized data received from the meat-processing enterprises

$$* \frac{150 \text{ tons} (150000 \text{ kg}) \times 100 \text{ kg} (\text{col. 4, each line separately})}{1000 \text{ kg} (\text{needed amount})} : 60\% (\text{efficiency})$$
$$: 60\% (\text{efficiency})$$

As it appears from the above table, the budget of material and energy materials will amount to MDL 13810900 in order to produce 150 tons of Sausage Nevskaia in

compliance with the production norms, the product manufacturing scheme and the production efficiency level.

In what follows, we will elaborate the budget of the material and energy costs for the above-mentioned product – Sausage Nevskaia – subject to some modifications in the production recipe as well as with the intention of diminishing certain costs (the calculations are analogical with the calculations in Table 3).

Table 4. Budget of material and energy costs for the product "Sausage Nevskaia"

(modified recipe, annual volume of production - 150 tons/year, efficiency - 60 %)

No.	Type of costs, analytical	Measurement unit	Unit price, lei/kg	Materials needed per 1000 kg of products		Materials needed per total volume of production	
				Norm	Amount, MDL	Quantity	Amount, K MDL
A	1	2	3	4	5 = 3×4	6*	7 = 6×3
1.	Bovine meat c/s	kg	55,00	100,00	5500,00	25000,00	1375,00
2.	Pork meat n/s	kg	60,00	550,00	33000,00	137500,00	8250,00
3.	Pork meat g/s	kg	35,00	350,00	12250,00	87500,00	3062,50
4.	Edible salt	kg	2,00	35,00	70,00	5250,00	10,50
5.	Sodium nitrite	kg	6,00	0,10	0,60	15,00	0,09
6.	Caster sugar	kg	14,00	2,00	28,00	300,00	4,20
7.	Ground black pepper	kg	160,00	1,00	160,00	150,00	24,00
8.	Ground allspice	kg	120,00	0,50	60,00	75,00	9,00
9.	Ground cardamom	kg	300,00	0,30	90,00	45,00	13,50
10.	Ground cinnamon	kg	35,00	1,00	35,00	150,00	5,25
11.	Cognac	kg	90,00	2,50	225,00	375,00	33,75
12.	C. starter MF-42-R	kg	89,00	0,50	44,50	75,00	6,68
13.	Ascorbic acid	kg	270,00	0,50	135,00	75,00	20,25
14.	Glucono Delta-Lactone	kg	78,00	0,50	39,00	75,00	5,85
15.	Artificial casings	reel - 15 m	4,80	695,00	3336,00	104250,00	500,40
16.	Sawdust	kg	18,00	2,00	36,00	300,00	5,40
17.	Clips	1 kg-1000	56,00	0,10	5,60	15,00	0,84

		items					
18.	Strings	kg	97,00	0,30	29,10	45,00	4,37
19.	Electricity	lei/kwh	1,78	115,00	204,70	17250,00	30,70
20.	Water	m^3	22,96	8,50	195,16	1275,00	29,27
21.	Sewage	m^3	12,31	8,00	98,48	1200,00	14,77
	Total	**X**	**X**	**1043,90**	**55545,04**	**X**	**13406,32**

Source: elaborated by the authors based on the generalized data received from the meat-processing enterprises

It appears from the above table that following the calculations made in Table 3 above we have determined the value of the budget of the material and energy costs (for the classical recipe), which is MDL K 13810,90; as for the modified recipe (Table 4), the value of the budget of the material and energy costs is MDL K 13406,32. Thus, we have managed to save MDL K 404,58.

Another element of the production cost, which synthesizes the working potential of the entity and is of major importance in the entity's operations, is the labor force as a labor market element. The overall human resources operating in an entity form its staff.

The staff of an entity includes the permanent or temporary workers, who are present at their workplace, are on annual leave / on sick leave / on professional training or study leave, are absent for / with no reasonable excuse, have their day off, are detached, are on secondment, are pupils and students who undertake an internship, etc.

The entity's staff includes the following categories of employees: workers, operational staff and management staff. Any entity has a salary fund which is used to motivate its staff. The entity's remuneration fund comprises all the amounts needed for offering emoluments to the staff depending on the extent to which they have contributed quantitatively and qualitatively to the achievement of business tasks. The number of main workers needed for the manufacturing of the planned assortment (in meat-processing enterprises) is determined based on the payroll, shown in Table 5 below.

Table 5. Production staff required for manufacturing the product "Sausage Nevskaia"

(classical recipe and modified recipe)

No.	Workers' qualification	Persons working in a shift, classical recipe	Persons working in a shift, modified recipe	Shifts
A	**1**	**2**	**3**	**4**
1	Reception Operator	1	1	1
2	Meat Cutting / Dosing / Selecting Operator	2	2	1
3	Addition Preparation Operator	1	1	1
4	Wolf + Cutter Operator	2	1	1
5	Stuffer + Binding and Clipping Operator	2	1	1
6	Operator for stuffing + smoking + drying processes	02	1	1
7	Operator for storage + delivery	1	1	1
	Total	**11**	**8**	**X**

Source: elaborated by the authors based on the generalized data received from the meat-processing enterprises

The required number of employees is calculated based on the employee category. The aim of the labor and payroll plan is to ensure the fulfillment of certain tasks, such as:

- ensuring steady high levels in the labor efficiency growth;
- ensuring the efficient utilization of the manpower resources;
- enhancing the labor remuneration methods based on the amount and quality of completed work.

Following the distribution per entity's divisions, the workers should be motivated with salaries and bonuses, which amount on the average up to about 20% of the total

salaries per worker. Salaries are paid depending on each worker's qualification and contribution to the manufacturing and delivery process.

The budget of the staff-related costs is elaborated using the detailed provisions for the needed labor force (required working hours) for a given period of time, and the related costs. The data about working loads, salary rates and the production budget are used at this point.

In Tables 6 and 7 below, the authors have established the needed payroll fund for the classical-recipe workers, modified-recipe workers, as well as the rate per hour per worker depending on his/her position. The rate is updated according to the current prices.

Table 6. Calculation of total salary in classical recipe

Workers	Rate, MDL/ hour	Time pool, hours per year	Base pay, MDL	Bonuses, MDL	Number of workers	Annual salary, MDL	Monthly average salary, MDL
A	1	2	3	4	5	6 = (3+4) × 2	7 = 6/12
Reception Operator	12	2000	24000	4800	1	28800	2400
Meat Cutting / Dosing / Selecting Operator	13,5	2000	27000	5400	2	64800	2700
Addition Preparation Operator	10	2000	20000	4000	1	24000	2000
Wolf + Cutter Operator	15	2000	30000	6000	2	72000	3000
Stuffer + Binding and Clipping Operator	13	2000	26000	5200	2	62400	2600
Operator for stuffing + smoking + drying processes	18	2000	36000	7200	2	86400	3600
Operator for storage + delivery	12	2000	24000	4800	1	28800	2400
Total	X	14000	187000	37400	11	367200	30600

Source: elaborated by the authors based on the generalized data received from the meat-processing enterprises

It appears from the above table that based on the calculations made the annual salary would be of MDL 367200. The following table shows the calculations for the modified recipe.

Table 7. Calculation of total salary in modified recipe

Workers	Rate, MDL/ hour	Time pool, hours per year	Base pay, MDL	Bonus es, MDL	Number of workers	Annual salary, MDL	Monthl y average salary, MDL
Reception Operator	12	2 000	24 000	4 800	1	28 800	2 400
Meat Cutting / Dosing / Selecting Operator	13,5	2 000	27 000	5 400	2	64 800	2 700
Addition Preparation Operator	10	2 000	20 000	4 000	1	24 000	2 000
Wolf + Cutter Operator	15	2 000	30 000	6 000	1	36 000	3 000
Stuffer + Binding and Clipping Operator	13	2 000	26 000	5 200	1	31 200	2 600
Operator for stuffing + smoking + drying processes	18	2 000	36 000	7 200	1	43 200	3 600
Operator for storage + delivery	12	2 000	24 000	4 800	1	28 800	2 400
Total	**X**	**14 000**	**187 000**	**37 400**	**8**	**256 800**	**21 400**

Source: elaborated by the authors based on the generalized data received from the meat-processing enterprises

Based on the calculations shown in the Table 6 above, it appears that the value of the payroll budget, as established by us for the classical recipe, is of MDL 367200, while the same for the modified recipe (see Table 7 above) is of MDL 256800. Thus, we have managed to save MDL 110400.

It is well known that the entity has various categories of employees and they have an indirect impact on the work in process. These are both the workers and the managers working in the management apparatus. Table 8 below shows the job title list and the payroll fund for the management staff.

Table 8. Management staff – job title list and payroll fund

No.	Job title	Number of positions	Monthly salary, MDL	Months worked	Total salary, K MDL
A	1	2	3	4	5 = 3×4
1	Director + Accountant	1	7 000	12	84,00
2	Technologist + Microbiologist	1	5 000	12	60,00
3	Mechanic + Electrician	1	3 800	12	45,60
4	Cleaning Lady	1	2 000	12	24,00
5	Driver + Porter	2	6 000	12	144,00
6	Guardsman	1	1 600	12	19,20
Total		7	X	X	**376,80**

Source: elaborated by the authors based on the generalized data received from the meat-processing enterprises

The calculations shown in the table above indicate that the payroll fund for the management staff will amount to MDL 376800 per year.

Following the budgeting of the payroll costs and expenses, it is necessary to specify the payroll fund per entity. The total payroll fund is composed of the main payroll fund and additional payroll fund. The *main payroll fund* includes the following: salary rates fund, payroll fund bonuses, night shift benefits, hard work benefits, harmful work benefits etc. The *auxiliary payroll fund* includes the leave allowances and other payments established by the legislation.

To calculate the amount of the main payroll fund, it is necessary to add the above-listed benefits to the rate fund. The fringe benefits are calculated in percentage terms and can range between 8 and 10%. The table below shows the total payroll fund for the total number of employees per categories.

Table 9. Entity's staff and total payroll fund

Staff category	Source	Number of workers for the classical recipe	Number of workers for the modified recipe
A	1	2	3
Manufacturing staff	Table 5	11	8
Management staff and auxiliary workers	Table 8	7	7
Total payroll fund, K MDL	Tables 6,7,8	744,000	633,600
Social and medical insurance contributions, K MDL	According to the rates established by the legislation	200,88	171,072
Total, K MDL		**944,88**	**804,672**

Source: elaborated by the authors based on the generalized data received from the meat-processing enterprises

The next stage is the planning / budgeting of the production cost, current costs and financial results. It is considered to be a key section in the budgeting process as it allows determining the efficiency of the budgeting process.

For a better and more accurate planning, it is necessary and mandatory to be familiar with the structure of the production cost, that is, with its components and the weighting of each component in the total production cost per product.

In the same train of thought, we would like to mention the components of the production cost under the Moldovan accounting regulations [1]:

1) direct material and distributable costs;
2) direct and distributable staff-related costs;
3) indirect production costs.

The entity's financial performance is characterized by the obtained financial results, and namely by the profit (loss) calculated as a difference between the revenues and expenses of the reporting period [1]. The financial results generalize the efficiency and inefficiency of the overall economic operations carried out by the entity. The effort

made by the entity for achieving its operational objective is assessed by the accounting division based on the **expense** indicators, while the obtained effect is assessed based on the **revenue** indicators. In the accounting activity, the financial results are determined in a cumulative total amount starting from the beginning of the reporting period. Such results are materialized **in the form of profit**, if the revenues of the reporting period are higher than the expenses of the same period, or **in the form of loss**, when the expenses of the reporting period exceed the revenues of the same period.

The profit is the main financing source for the operations of an entity; it can be earned from the operating activity and other activities.

The operating result can be derived from the following: *sale of products / goods, delivery of services and / or execution of works, construction contracts, operating and finance leases (lease rental), dividends, participations and /or interest, which are treated as operating activity by the entity [1]*.

The financing result can be derived from other activities, such as operations related to the following: *fixed assets outflow, save for the surpluses of assets established upon stocktaking; dividends and / or participations in other entities; interest, save for the interests from the operating activity; favorable exchange rate differences; cost-free assets; losses arising from depreciation; depreciation; operations related to exceptional losses; other economic facts that are not connected with the operating activity [1]*.

In what follows, we will calculate the indicators characterizing the financial performance. The Profit & Loss budget is prepared based on the information about the revenues and expenses expected from the elaborated budgets. In this respect, Table 10 below shows our proposal for the synthesizing of the operating expenses and revenues, save for those derived from other activities of the entity.

Table 10. Entity's economic indicators for the classical and modified recipes

No.	Indicators	Calculation	Measurement unit	Value of indicators for	
				classical recipe	modified recipe
1.	Revenues from sales		K MDL	18 750,00	18 750,00
2.	Cost of sales, including:	(line 2.1+ line 2.2 + line 2.3 +	K MDL	14 522,83	14 084,55

		line 2.4)			
2.1	*Direct material costs*		K MDL	138 140,90	13 407,52
2.2	*Direct payroll costs*		K MDL	186,00	158,40
2.3	*Social and medical insurance contributions*		K MDL	49,30	41,98
2.4	*Indirect production costs*		K MDL	476,65	476,65
3.	Gross profit (gross loss)	(line 1 - line 2)	K MDL	4 227,17	46 65,45
4.	Operating expenses, including:	(line 4.1+ line 4.2+ line 4.3)	K MDL	3 411,83	3 376,76
4.1	*Distribution expenses*		K MDL	2 250,00	2 250,00
4.2	*Administrative expenses*		K MDL	726,14	704,23
4.3	*Other expenses from operating activity*		K MDL	435,68	422,54
5.	Profit before tax*	(line 3- line 4)	K MDL	815,34	1 288,70
6.	Income tax expenses	line 5×12%	K MDL	97,84	154,64
7.	Net profit	(line 5 - line 6)	K MDL	**717,50**	**1134,04**

Source: elaborated by the authors based on the generalized data received from the meat-processing enterprises

In cases where the entity has to make investments during the budgetary period, it is necessary to indicate the amount and destination of such investments. The needs for capital investments in entities are calculated based on the regulations regarding the specific capital investments and the planned production capacity. The entity's fixed assets (machinery, equipment, buildings, means of transport) are the result of an investing activity and are expressed in monetary value; such value was treated as an expenditure for starting up a business with the aim to earn income in the future so that such income exceed the initial costs.

The equipment installation, supply, and payroll costs can be incurred by the investor or by the vendor. Notwithstanding, such costs will eventually be included in the product selling price, no matter who has incurred them. Table 11 below shows the necessary equipment from the entity's divisions along with their purchase price.

Table 11. Calculation of the capital expenses for the re-equipment of the manufacturing departments

Equipment	Model	Quantity, items	Price per item, K MDL	Transportation expenses, MDL	Installation expenses, MDL	Amount, K MDL
A	**1**	**2**	**3**	**4 = 3×5%**	**5 = 3×5%**	**6 = 3+4+5**
Clipper	KN+22	1	150,00	7 500,00	7 500,00	165,00
Drying and smoking room	KWE-2	1	720,00	36 000,00	36 000,00	792,00
Sanitary room	LNC 1	1	180,00	9 000,00	9 000,00	198,00
Total	**X**	**3**	**X**	**X**	**X**	**1 155,00**

Source: elaborated by the authors based on the generalized data received from the meat-processing enterprises

It appears from the above table that the amount needed for the re-equipment of the manufacturing departments is MDL 1155000. The expenses related to the transportation and installation of the equipment amount to 10% of its price. The term for the capital expenses recovery is calculated as follows:

$$rT = \frac{totI}{netP} = \frac{1155000}{1235760} = 1 \ year$$

where: $_rT$ stands for the term for the capital expenses recovery;

$_{tot}I$ stands for the expenses related to the upgrading investments, MDL;

$_{net}P$ stands for the entity's annual profit after upgrading, MDL;

Note! The time factor is not taken into account.

The varied aspects of the economic objectives of an entity, the efforts made for achieving them, and the obtained results lead to the conclusion that there is a wide range of indicators that needs to be applied when expressing the economic efficiency of an entity. Those indicators point out the relationships within the branch in regard to the overall commercial activity and the various aspects of such activity. The most relevant way of expression consists in benchmarking the profit-related (result-oriented) effects against the financial efforts caused in the process of earning such profit. The assessment of the performance based on the rate system is a form of synthetical assessment of the

activity efficiency using the effort/result ratio; it involves the application of the profitability rates. In our opinion, profitability is the key requisite for an entity to have a successful business activity. Profitability is assessed based on the criterion of the positive results arising from the comparison between the financial effects and the financial efforts involved.

The calculation of indicators is an assessment of the manufacturing process efficiency (see Table 12 below).

Table 12. Efficiency indicators of the manufacturing department activity

No.	Indicators	Measurement unit	Value of indicators for	
			classical recipe	modified recipe
1.	Profitability of sales	%	22,54	24,88
2.	Profitability of production	%	39,10	33,12
3.	Labor efficiency based on output	K MDL	4 167,00	5 000,00
4.	Costs per 1 MDL of output	bani	0,78	0,75

Source: elaborated by the authors based on the generalized data received from the meat-processing enterprises

According to the data indicated in the table, the following formulas have been used for calculating the indicators:

- **Profitability of sales** (P_s), %, between 20-25 %;

$$P_s = \frac{_gP}{VS} \times 100\%$$

where: $_gP$ stands for gross profit;
VS stands for the volume of sales.

- **Profitability of production (Ppr),** %, between 30-35 % ;

$$P_{pr} = \frac{_gP}{_{pr}C} \times 100\%$$

where: $_gP$ stands for the gross profit;
$_{pr}C$ stands for the production cost.

- **Labout efficiency** based on the output (v), K MDL/man;

$$v = \frac{\sum q_i \times p_i}{aM}$$

where: q_i stands for the quantum of **i**-type production;

p_i stands for the price for the **i**-type production;

$_aM$ stands for the average manpower;

- **Costs per 1 MDL of output** (C_o), bani, between 0,6 - 0,8 :

$$C_o = \frac{C_i}{Pm}$$

where: C_i stands for the total production cost;

P_o stands for the output.

We consider that the results of the analysis of the key economic indicators are relevant and applicable in the decision-making process in regard to the entity's managers, shareholders/investors etc. in order to assess the efficiency in the utilization of the available resources; the increase of the profitability is the target to be achieved by the managers because it is the only way for them to make best use of their skills.

Table 13 below shows the calculation of the key economic indicators based on the available data from the meat-processing entities.

Table 13. Entity's key economic indicators

No.	Indicators	Calculation formula	Measurement unit	Classical recipe	Modified recipe
1.	Net sales	$_nS$	K MDL	18 750,00	18 750,00
2.	Production volume	$_pV$	ton	150,00	150,00
3.	Cost of sales	C_s	K MDL	14 522,83	14 084,55
4.	Manufacturing staff	$_mS$	man	11	8
5.	Total payroll fund	$_pF$	K MDL	744,00	633,600
6.	Costs per 1 MDL of output	$C. \ 1 \ MDL \ O = C_s/_nS$	MDL	0,78	0,75
7.	Profitability of sales	$P_s = \frac{gP}{vs} \times 100\%$	%	22,54	24,88

8.	Profitability of production	$P_{pr} = \frac{gP}{prC} \times 100\%$	%	29,10	33,12
9.	Gross profit	$_gP = nS - Cs$	K MDL	4 227,17	4 665,45
10.	Net profit	$nP = gP$ - expenses of the period	K MDL	717,50	1 134,04
11.	Labor efficiency	$v = \frac{\sum qi \times pi}{aM}$	K MDL/man	4 167,00	5 000,00
12.	Unit cost	$_{un}C = {_{tot}C} / {_{tot}V}$	MDL/kg	96,82	93,90
13.	Unit price	$_{un}P = {_{un}C} + 0,2 \times {_{un}C} + 0,1 \times {_{un}C}$	MDL/kg	125,86	122,06

Source: elaborated by the authors based on the generalized data received from the meat-processing enterprises

Upon completion of our research into the field of efficiency, we are in a position to state that in order to achieve a more effective assessment of the efficiency, entities should use a combination of indicators. Few are the cases where only a set of indicators is needed in a specific situation. In our opinion, the aggregation of indicators makes the efficiency assessment more rational as it ensures the tracking of their evolution based on the strategic objectives of a specific entity. Therefore, the application of combinations of indicators is a tool helping to provide a fair, transparent assessment of the efficiency and the quality of products, the efficiency and effectiveness of the manufacturing process, the supply with complex data and the outlining of efficiency / deficiencies /nonachievements in the entity's operations.

Efficiency stands for the assessment of the activity results through benchmarking against the efforts made during the performance of a given activity, and is obtained as an effect of the experience. Generally speaking, being efficient means performing an activity in the best possible way at the least costs [9]. Efficiency is the expression of the extent to which an activity reaches a given objective or fulfills a certain task.

Thus, we can state that efficiency focuses on the fulfillment of tasks in an economical manner and in the tightest timeframe. Efficiency focuses more on the expected results based on the fulfillment of the established basic tasks. The main

approximations of the effectiveness and efficiency are related to the achievement of specific objectives, that is, of specific performances.

II.   Conclusion

The initial am of this article was to analyze and improve, through the modified recipe, the manufacturing technology of the product under consideration so that the entity's activity reaches a higher level of efficiency and effectiveness. Along with the equipment upgrading and the utilization of food additions, the manufacturing process is getting reduced from 35-40 days down to 12-14 days. In this way, the manufacturer saves substantially on energy resources (electricity, heat, fuel) and material resources (water, detergents). The finished product obtained through the modified recipe has the same efficiency and even more developed organoleptic properties, which is a definitely positive result.

The results obtained and shown in Table 13 above confirm the attractiveness of the investments for the entity upgrading and a minimal level of risk. The feasibility of the proposed investment is guaranteed based on the calculation of the most influential economic indicators such as: simple duration of investment recovery of only one year, the drop in the unit cost from MDL 96,82 to MDL 93,90. It should be noted that the quality of the product remains unchanged. The profitability of sale is of 24,88%, and the profitability of production is 33,12%. Another indicator shows that 1 MDL of income would need 75 bani after upgrading. The entity's net annual profit after upgrading would rise from MDL K 717,50 up to MDL K 1134,04. The annual net profit would be achieved from the delivery of uncooked smoked sausage at a price of 122,06 MDL/kg, with a cost of sales of 93,90 MDL/kg. Please also note that the difference between the prices and the cost of product also includes 2 elements: Value Added Tax – VAT (20%) and the profit margin (10%). And, last but not least, we should note that the labor factor in an upgraded entity would only include 8 employees generating an average revenue from sales of MDL K 5000,00.

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