International Conference KNOWLEDGE-BASED ORGANIZATION
Vol. XXVIII No 2 2022

PRACTICAL ASPECTS REGARDING THE TECHNIQUE OF THE METHOD OF CALCULATION AND ACCOUNTING OF PRODUCTION COSTS

Mariana Rodica ȚÎRLEA

"Dimitrie Cantemir" Christian University, Bucharest, Romania
rodicatirlea10@yahoo.ro

***Abstract*:** *The method of calculating costs by manufacturing phases is limited to the range of classical methods of calculating costs. Basically, the "classical methods of calculating costs" refers both to direct costs but also to indirect costs related to a unit of product. The method on calculation phases of manufacturing costs consists in determining the actual cost on each production phase, partly deepened to the product level at the end of the production process, respectively at the end of the management period. The aim of the research is the practical application of the method of calculating costs on manufacturing phases in order to establish the opportunity to use it in practice. The result of the research concludes in the fact that, typical of these methods, we discuss costing only at the end of production, materialized at this time in a posthistorical action, an action that requires information from the company's accounting based on real costs, which is also a shortcoming of these methods, motivated by the fact that it is a final moment after which it is no longer possible to intervene with actions in any way.*

Keywords: Costs, Production Process, Production Phases, Cost Calculation Method, semi-finished products

1. Introduction

The technique regarding the method of calculating the costs on production phases without semi-finished products

From a technical point of view, the method involves comparing the full cost (actual, post-calculated) with the standard full cost (estimated, pre-calculated) [4].

The literature presents the manufacturing phase as fulfilling the role of some sectors or centers of expenditure such as: workshops, sections, farms, construction sites, etc. reason why they can not be confused with bearers of expenses and costs [1].

The manufacturing phase itself has a static character, while the products and semi-finished products have a dynamic character, as a result of their movement on the internal and external flow of use values, carrying their value created in the work process within the phases of manufacturing of the enterprise [1]. Labor and production overheads are considered to be conversion costs. The motivation is based on the fact that both types of expenses are usually generated uniformly during the production process, being made either at the beginning of the process (basic raw material inputs) or at the end of it (packaging raw materials). Due to these differences, the number of equivalent units corresponding to raw materials will not be equal to the number of conversion costs [2]. The stages that this method incubates, on manufacturing phases, presuppose:

1. the determination of the direct production expenses on each phase of production separately, using in this sense for the

DOI: 10.2478/kbo-2022-0054
© 2015. This work is licensed under the Creative Commons Attribution-Non Commercial-No Derivatives 3.0 License.

registration in the managerial accounting the account that reflects the direct expenses with the basic production, respectively:
- account 921 “Basic activity expenses” which are developed according to the need on the calculation phase;
2. the determination of the direct production expenses on each finished product in part using for this purpose for the registration in the managerial accounting the account that reflects the direct expenses with the basic production, respectively:
- account 921 “Basic activity expenses” which are developed as needed on each finished product;
3. the determination of the direct production expenses on each semi-finished product, using in this sense for the accounting registration the account that reflects the direct expenses with the basic production, respectively the account 921 “Expenses of the basic activity” which is developed according to the necessity , or semi - finished products or products. Collection of indirect manufacturing costs for each stage of production in part by means of accounts: 923, 924. 925.
Account 923 is detailed in the accounts as follows:
– analytical by types of expenses at enterprise level;
– analytical by types of expenditure at the level of production phase;
– analytical by types of indirect section expenses
Account 924 is detailed in the accounts as follows:
– analytical by types of indirect expenses
Account 925 is detailed in the accounts as follows:
- analytical by types of indirect expenses.
4. Production costs in progress shall be determined.
5. The distribution of indirect expenses is done at the end of the period in this way:
– by types of indirect section expenses;
– by production stages [5].
It is imposed with speed the internal management of each undertaking, i.e. depreciation policies and accounting policies; depreciation of fixed capital; management accounting [3].

2. Practical aspects regarding the technique of the method of calculating costs in production phases without semi-finished products

Presentation of the problem:
The commercial company AX S.A., has as main object of activity the production of office Tables. From their production they obtain two products: “Office Table Q"; “Office desk Y”.
We consider: the end of the previous management period on 30.11.2021; the beginning of the management period dated 01.11.2021.
The following data are known:
Composition of costs on expenditure items related to production in progress at the beginning of the management period, ie on 30.11.2021 according to Table number 1;
Composition of expenditure on phases of production in progress at the beginning of the management period on 30.11.2021, according to Table 1;
Salary data, according to Table 2 below.

Table 1 Quantity of products obtained on 30.11.2021

NNo. crt	Product	Number of units	Number of units	TOTAL:
1.	Office Table Q	1000	1000	1000
2.	Office Table Y	1000	1000	1000
3.	TOTAL:	1000	1000	2000

The distribution of water and energy consumption was distributed according to the information of the operating hours. Energy and water value is 80.775.
The value of the indirect expenses is 3.000 RON
For the current management period 01.11.2021 - 30.11.2021, the following data

are known:

Table 2 Composition of expenditure based on production phases for the management period

No. crt	Indicators	PHASE 1			PHASE 2			TOTAL	
	Type of expense	Product code	Product Q	Product Y	Product code	Product Q	Product Y	Product Q	Product Y
1.	Raw materials	01	500000	400000	01	500000	400000	1000000	800000
2.	Inventory expenses	02	2000	1500	02	2000	1500	4000	3000
3.	Expenses for maintenance and repair of equipment	03	20000	20000	03	20000	20000	40000	40000
4.	Expenditure on equipment depreciation	04	400	600	04	628	1372	1000	2000
5.	Salary expenses	05	2750	2250	05	2750	2250	5500	4500
6.	Labor Insurance Contributio 2.25%	06	62	50,5	06	62	50,5	124	101
7.	Energy and water	07	16150,4	24225,6	07	17817,21	28581,79	40376	46399

Regarding the two types of products, the composition of the expenses by production phases is presented as follows:

Table 3 Composition of cost by item of expenditure relating to production in progress at the beginning of the management period

Type of expense	Q			Y			Total production	In progress
	Quantity	Price	Value	Quantity	Price	Value	30.10.2021 (inventory)	01.11.2021
1	2	3	4	5	6	7	8	9
Raw Materials	1000	600	600000	1000	400	400000	1000000	1000000
Inventory expenses	10	400	4000	1	3000	3000	7000	7000
Expenses for maintenance and repair of equipment	10	4000	40000	10000	4000	40000	80000	80000
Expenditure on equipment depreciation	10	1000	10000	10	60	6000	16000	16000
Salary expenses	1	5500	5500	1	4500	4500	10000	10000
Labor Insurance Contributio 2.25%	1		124	1		101	225	225
Other expenses	1	40376	40376	1	46399	46399	86775	86775
TOTAL EXPENSES	X	X	700000	X	X	500000	1200000	1200000

The production in progress is determined by the inventory of the unfinished production at the end of the period in terms of quantity and value.

The inventory is made by technical methods of ascertaining the degree of completion or the stage of carrying out technological operations and its evaluation at production costs.

Table 4 Composition of cost by item of expenditure relating to production in progress at the beginning of the management period

No. crt	INDICATORS	PHASE 1			PHASE 2			TOTAL	
	Type of expense	Product code	Product Q	Product Y	Product code	Product Q	Product Y	Product Q	Product Y
1.	Raw materials	01	300000	200000	01	300000	200000	600000	400000
2.	Inventory expenses	02	2000	1500	02	2000	1500	4000	3000
3.	Expenses for maintenance and repair of equipment	03	20000	20000	03	20000	20000	40000	40000
4.	Expenditure on equipment depreciation	04	5000	3000	04	5000	3000	10000	6000
5.	Salary expenses	05	2750	2250	05	2750	2250	5500	4500
6.	Labor Insurance Contribution 2.25%	06	62	50,5	06	62	50,5	124	101
7.	Energy and water	07	20188	23199,5	07	20188	23199,5	40376	46399
8.	TOTAL:		350000	250000		350000	250000	700000	500000

Table 5: Salary data

No. crt.	Indicators	Salary 5500 lei (C)	Salary 4500 lei(B)	Obs.
1	CAS	1375	1125	
2	CASS	550	450	
3	Salary tax	358	293	
4.	Total employee deductions	2.283	1864	
	Labor Insurance Contribution	124	101	Employer obligation

At the beginning of the management period considered to be dated 01.11.2021 in the managerial accounting at AX S.A., the composition of the expenses by phases of the production in progress is presented as follows:

The collection of expenses in managerial accounting was done during the production phases on primary elements of expenditure using the second degree synthetic accounts:

921„Basic activity expenses”	=	933„Cost of production in progress” 1200000

How it is reflected in the managerial accounting, the composition of the expenses for the products: Office Table Q and Office Table Y, on the two production phases and on expenditure elements In Phase 1:

Table 6 PHASE 1 – product: Office Table Q

921„Basic activity expenses”	=	**933„Cost of production in progress”**	**350000**
921. 1Q.		933. 1Q.	
921. 1Q.01		933. 1Q.01	300000
921. 1Q.02		933. 1Q.02	2000
921. 1Q.03		933. 1Q.03	20000
921. 1Q.04		933. 1Q.04	5000
921.1Q.05		933. 1Q.05	2750
921. 1Q.06		933. 1Q.06	62
921.1Q.07		933. 1Q.07	20188

Table 7 Phase 1 – product: Office Desk Y

921„Basic activity expenses”_	=	933„Cost of production in progress”		250000
921. 1Y.		933. 1Y.		
921. 1Y.01		933. 1Y.01		200000
921. 1Y.02		933. 1Y.02		1500
921. 1Y.03		933. 1Y.03		20000
921. 1Y.04		933. 1Y.04		3000
921.1Y.05		933. 1Y.05		2250
921. 1Y.06		933. 1Y.06		50,5
921.1Y.07		933. 1Y.07		23199,5

How it is reflected in the managerial accounting, the composition of the expenses for the products: Office Table Q and Office Table Y, on the two production phases and on expenditure elements In Phase 2:

Table 8 Phase 2 - product: Office Table Q

921„Basic activity expenses”_	=	933„Cost of production in progress”		350000
921. 2Q.		933. 2Q.		
921. 2Q.01		933. 2Q.01		300000
921. 2Q.02		933. 2Q.02		2000
921. 2Q.03		933. 2Q.03		20000
921. 2Q.04		933. 2Q.04		5000
921.2Q.05		933. 2Q.05		2750
921. 2Q.06		933. 2Q.06		62
921.2Q.07		933. 2Q.07		20188

Table 9 Phase 2 - product: Office Table Y

921„Basic activity expenses”_	=	933„Cost of production in progress”		250000
933. 1Y.		933. 1Y.		
921. 1Y.01		933. 1Y.01		200000
921. 1Y.02		933. 1Y.02		1500
921. 1Y.03		933. 1Y.03		20000
921. 1Y.04		933. 1Y.04		3000
921.1Y.05		933. 1Y.05		2250
921. 1Y.06		933. 1Y.06		50,5
921.1Y.07		933. 1Y.07		23199,5

For the current management period 01.11.2021 - 30.11.2021, the following data are known:

Table 10 Composition of production expenditure by phases of the management period

No. crt	INDICATORS	PHASE 1			PHASE 2			TOTAL	
	Type of expense	Product code	Product Q	Product Y	Product code	Product Q	Product Y	Product Q	Product Y
1.	Raw materials	01	500000	400000	01	500000	400000	1000000	800000
2.	Inventory expenses	02	2000	1500	02	2000	1500	4000	3000

3.	Expenses for maintenance and repair of equipment	03	20000	20000	03	20000	20000	40000	40000
4.	Depreciation expenses for equipment	04	400	600	04	628	1372	1000	2000
5.	Salary expenses	05	2750	2250	05	2750	2250	5500	4500
6.	Labor Insurance Contribution 2.25%	06	62	50,5	06	62	50,5	124	101
7.	Energy and water	07	16150,4	24225,6	07	17817,21	28581,79	40376	46399

Reflection in the Management Accounting of the expenses with the raw materials:

921„Basic activity expenses”	=	**901„Internal expenditure settlements”**	**900000**
921. 1Q.			500000
921. 1Y.			400000

Expenditure on inventory items is allocated according to the information in the supporting documents (50% phase 1)

921„Basic activity expenses”	=	**901„Internal expenditure settlements”**	
921. 1Q.			2000
921. 1Y			1500

Expenses for maintenance and repair of equipment are distributed according to the information in the supporting documents (50% phase 1)

923„Basic activity expenses”	=	**901„Internal expenditure settlements”**	**3500**
923. 1Q			2000
921. 1y			1500

Accounting formula for the recording of expenses with depreciation of equipment phase 1:

923„Basic activity expenses”	=	**901„Internal expenditure settlements”**	**1000**

The distribution of equipment depreciation costs takes into account:

1. Accounting value of equipment;
2. Number of operating hours.
3. The book value of the equipment.

Table 11 The distribution of equipment

No.crt.	Indicator	PHASE 1	PHASE 2	Obs.
1.	Accounting value of equipment	V1 = 20000	V2 = 40000	
2.	Indirect expences	3000		

3.	K = Ci:[V1+V2]	K =3000:[20000+40000] =0,05		
4.	Distribution of expenses	20000 x 0,05 = 1000	40000 x 0,05 = 2000	

Tabelul 12 The distribution of equipment

No. crt	**INDICATORS**	**PHASE 1**			**PHASE 2**		
	Type of expense	Distribution base	%	Distributed expenses	Distribution base	%	Distributed expenses
		Hours of operation			Hours of operation		
1.	Office Table Q	200	40%	400	500	38,4%	628
2.	Office Table Y	300	60%	600	800	61,6	1372
3.	TOTAL:	500	100%	1000	1300	100	2000

Recording of depreciation expenses:

923„Basic activity expenses”	**=**	**901„Internal settlement of expenditure”**	**1000**
923. 1Q			400
921. 1y			600

Reflection in managerial accounting of expenses, salaries:

921„Basic activity expenses”	**=**	**901„Internal settlement of expenditure”**	**5000**
921. 1Q.			2750
921. 1Y.			2250

Energy and water costs:

923„Basic activity expenses”	**=**	**901„Internal settlement of expenditure”**	
		901. 1Y.	10000

Table 12 Distribution of expenses by products

No. crt	**INDICATORS**	**PHASE 1**			**PHASE 2**		
	Type of expense	Distribution base	%	Distributed expenses	Distribution base	%	Distributed expenses
		Hours of operation			Hours of operation		
1.	Office Table Q	200	40%	16150,4	500	38,4%	17817,21
2.	Office Table Y	300	60%	24225,6	800	61,6	28581,79
3.	TOTAL:	500	100%	40376	1300	100	46399

Conclusions

The specificity of the "Manufacturing Phase Costing Method" is recommended for companies where:

1. the finished product is the result of several successive stages of production;
2. a homogeneous mass production is achieved;
3. the cost calculation shall take place at the end of the production period;
4. the cost of each product is determined by a relatively small number of computational steps.;
5. the costing phase may comprise one or more technological phases;
6. the manufacturing phases are the reference bases for the calculation of the costs for the finished products;
7. the calculation phases will take into account the specifics of the production organization at the level of the respective company, which generates two variants of the method of calculating the production costs.

We note that this method:

1. limits the companies in terms of the type of production, in the sense that it aims to achieve only one type of product, namely mass production, homogeneous production;
2. Sometimes it is not possible to achieve a correct delimitation of the manufacturing phases, as a result the cost cannot be established correctly and consequently the determined cost will not be able to be a correct source of information for decision makers;
3. at the time of calculating the cost, it is no longer possible to intervene on the cost due to the fact that the determination of the cost is made on the basis of the financial accounting documents;
4. the established cost is a historical cost;
5. on the trajectory of the manufacturing phases, the costs can be traced, as a result of the fact that the release of raw materials and materials is made on the basis of consumption vouchers. However, there may be situations that require the consumption to be exceeded in the manufacturing technology.
6. the final result of the cost can offer positive or negative variants;
7. assuming we are talking about positive values that exceed the level of technological consumption, the product is unprofiTable. Basically, we only find that the product is unprofiTable;
8. the historical information provided by the cost result only allows us to make decisions about future costs for that product:

- reduction of expenses;
- Replacing some materials with cheaper ones provided that they will not affect the quality of the product.
- even taking the product out of the factory when the situation leads us to the conclusion that the product is unprofiTable;

The determination of the actual cost is made for each phase by types of products and by types of expenses as a direct result of the production process. The cost of the finished products is determined by summing up the costs of raw materials, the direct materials to which we add the indirect production costs related to each phase of production in relation to the realized production.

References List

[1] Baciu A. Costs, Cluj Napoca, Ed. Dacia, 2001, pp. 73-75.
[2] Bâtcă D.G.C. Managerial accounting, Bucharest, 2021, Ed. CECCAR, p. 122.
[3] Birca I et al. Conceptual aspects and the most used practices in obtaining the reliability of entity value estimation, https://doi.org/10.36004/nier.es.2021.1-02 https://es.ince.md/index.php/Economy_and_Sociology/article/view/16 2021, p. 22.
[4] Dragomirescu S.-E. Classical calculation methods of costs and their limits in actual frame of Romanian economy. Present tendencies in costs accountancy, Bucharest, Edition: Economics, 2008, p. 13, p. 34.
[5] Țîrlea M.R. Managerial accounting, Course support, Bucharest, 2022, pp. 87-99.