STUDIES REGARDING THE NEW PARADIGM OF FIXED CAPITAL DEPRECIATION

Angela Deliu*,

deliuu.angela@gmail.com

Gabriela Ignat,**

gabitu03@yahoo.fr

Nicu Şargu***

nicu.sargu@mail.ru

Abstract: *The present research consists in creating the new paradigm design of fixed capital depreciation. The scientific approach summarizes direct and indirect effects regarding the profitability, risk and value of a company, dictated by the investment in fixed assets. The authors' solution to the presented problem is based on a specific research methodology that includes a series of methods and techniques, consequently representing an essential dynamic for a company, based on the new economy of knowledge. The new paradigm substantiated by the authors and defined the depreciation of fixed capital, is the investment in rigid assets, being decisive for the survival of a company under the conditions of economic internationalization.*

Keywords*: paradigm; depreciation; fixed capital; economic activity; financial result.*

JEL Classification: G40, G53

Introduction

In the literature works of great economists we find the term fixed capital. David Ricardo developed this term and was then taken over by a number of thinkers of the time. Fixed capital is in fact an element of architecture built by the total capital of a business, invested in physical

* **PhD., lecturer, Department of Economy, University of European Studies of Moldova, Chisinau, Republic of Moldova, ORCID ID: 0000-0002-0142-2972.**

** **PhD. Associate professor, Department of Accounting, Ion Ionescu de la Brad "Ion Ionescu de la Brad" University of Life Sciences of Iaşi, Iaşi, Romania ORCID ID: 0000-0003-1184-4172.**

*** **PhD. student, Doctoral School of the Academy of Economic Studies of Moldova (University), Chisinau, Republic of Moldova ORCID ID: 0000-0002-3766-4498.**

assets, which remain in activity almost permanently or, more technically, more than one financial year. On the other hand, working capital also appears in construction. Marx considered the distinction between fixed and working capital to be relative, as it refers to the comparative turnover times of different types of physical capital assets. We can say that fixed capital "circulates", except that the duration of turnover is much longer.

A number of authors have been concerned with the situation of fixed capital and the role of amortization, including Pulvino[1], Schlingemann[2] et al, Alderson and Betker, Shleifer e Vishny, Muscettola[3].

In total fixed capital and mobilizations usually occupy the main share. The final results of the company's activity largely depend on the quantity, cost, technical level, efficiency of use: production, its cost price, profit, profitability, financial stability. For the general characteristics of the efficiency of the use of fixed assets, there are indicators of profitability (ratio of profit to average annual value of fixed assets), capital productivity (ratio of value of products manufactured or sold, after deducting VAT, excise duties to average annual value of fixed assets), capital intensity (inverse indicator of capital productivity), specific capital investments per money to increase production. In the economic life, manifested within the exchange economy, all producers work / activate in order to obtain its current amount of money that it provided at the beginning of the economic business, which consists in the production and marketing of production[4].

However, in order to carry out the economic activity within the exchange economy, each producer must involve certain economic resources, which depend on the production capacity and the specificity of the activity or business developed. In this way each undertaking must have certain means of production [2 - T.1.][5], Namely:

➢ *work objects* - what are the means of production or the objects which directly or indirectly participate in the production or performance of the production, are the means which can only be used, and

it is reflected as current / circulating capital → which objective can be used only in a single production process, depending on the loss of its initial-material value and form;

---

[1] T.C. Pulvino, *Do Asset Fire Sales Exist? An Empirical Investigation of Commercial Aircraft Transactions*, The Journal of Finance Vol. 53, no. 3: 1998, pp. 939–978.

[2] F.P. Schlingemann, R.M. Stulz, R.A. Walkling, *Divestitures and the liquidity of the market for corporate assets*, Journal of Financial Economics 64, 2002. pp. 117–144.

[3] A. Shleifer, R.W. Vishny, *Asset Sales and Debt Capacity*. NBER Working papers series, 1991.

[4] M. Alderson, B. Betker, Liquidation Costs and Capital Structure. Journal of Financial Economics 39: 1995, pp. 45-69.

[5] A. Smith, translation, Wealth of Nations: Research on Nature and Its Causes, Bucharest, ARRP Publishing House, 1965.

➢ *means of work* - what are the means of production or the objects that directly or indirectly participate in the exercise of the economic process of production, in the development of the economic activity, are the means that can still be used, and it is reflected as fixed capital → which objective can be used for several production processes and a period of time of the order of years, depending on the loss of its value and initial-material form.

Therefore, all these elements are necessary for the exercise of economic activity and, respectively, for the achievement of the ultimate goal of any producer[6], but to achieve them these factors must be modified in current economic quantities in order to form the cost or price of production, provided by producers for marketing to consumers, as it is the basis of all revenues:

- *the current economic size of working capital* - the product of the quantity of materials according to the recipe and according to the consumption norm and the unit price of consumed materials;
- *the current economic size of fixed capital* - is the level of depreciation or wear and tear of fixed capital[7],[8],[9],[10] used by producers according to the nature of the business.

Respectively, we see that the working capital in the company's income is included directly, without transformations, while the fixed one is included in a special way, under the name of depreciation.

The starting point of our approach scientifically consists in reinterpreting the term fixed capital viewed from the perspective of amortization. For this reason, we consider the process of capital amortization it must be given a different essence, a different interpretation, in fact a new paradigm. The authors tried to find answers to some essential questions, namely what is the use of amortization and what kind of indicator it is?

➢ what does the component part refer to and how one must interpret its role in economic life.
➢ what kind of amortization is beneficial
➢ how we subtract completely depreciated assets from management
➢ sinking fund VS non-depreciable,

---

[6] J.B. Say, translation into ro., *Treaty of Political Economy*, Bucharest D Publishing House, 2011, 568 pp.

[7] E. von Bohm-Bawerk, translation in ro., Theory of Capital and Interest, The Didactic Publishing House, 2008, 644 pp.

[8] K. Marx, *Capital,* Chisinau, Central Typography, 1980, 860 pp.

[9] P. Samuelson, *Economics,* Bucharest, The Economics Publishing House, 2000, 480 pp.

[10] G. Abraham, *Political Economy,* Paris, The Economics, Publishing House, 1988, 610 pp.

- is the depreciation determined for each fixed capital item or should it have been another depreciation object.
- has the value of determining the monthly depreciation for the accumulation of the annual amount.
- how they are registered expenses incurred in repairing fixed capital items that are subject to deterioration in the process of operation.
- the residual value of fixed capital?.
- it makes sense to change the calculation method in the process.
- which is the fair depreciation calculation methodology and where it needs to be reflected.
- which is the reason for determining the depreciation, after the first year.
- which, however, is the ultimate goal of depreciation.
- does the amortization of fixed capital have a deadline?.

Literature review

The foundation of economic notions represents a doctrinal period in the evolution of the micro-economy. From feudalism to the present, the concept of capital has supported both theoretical-scientific and methodological-practical approaches being found in all economic sciences, and the treatment of the theoretical concept is part of the scope of this concept. Capitating seems like a notion among the three classic factors of production alongside work and earth. Adam Smith in "The Wealth of Nations: Research on Nature and Its Causes" defined capital as a stock of goods that brings or will bring in future revenues, which denotes its function in the present period. Moreover, Smith is the first economist to propose capital accounting, identifying the concept of fixed capital and working capital in 1776. Fixed capital being characterized as a factor producing non-transferable profit and without subsequent conversion that will allow its subsequent accumulation for the purpose of developing entrepreneurial activity, production, expansion and creation of new jobs – hence the wealth of the whole society.

Frenchman Jean Baptiste Say, a follower of classical liberalism, one of the representatives of the French school associated and founded the notion of capital with the theory of distribution in which each factor of production contributing to the production process receives its own reward, in this way demonstrated the direct link between capital and profit in the paper "Treaty of Political Economy" 1803. Eugen von Bohm-Bawerk, one of the neoclassical parents, representative of the Austrian school, in the paper "Capital and Interest Theory" addresses capital as a factor of production obtained from the combination of the other two factors through time. The essence of the theory sums up "that capital increases the productivity of

factors of production", and the contemporary aspect of this theory is the modernization of equipment, machinery, machinery under the conditions of the technical-scientific revolution for a better result.

The capital was a dispute of all doctrinal currents, so the socialist K. Marx in the paper "Capital Theory" deepened the notion of capital with new aspects calling "value containing added value" which allowed the division into two categories "constant" and "variable". Thus, from K. Marx the capital constantly subsequently the fixed capital transmits its value to the goods made and sold to the final consumer.

Highlights of capital are also found in the micro- and macroeconomic thinking approached by the most famous economists of the 19th – 20th centuries such as Samuelson P., Gilbert Abraham, Whitehead G[11]., Didier M.[12], Nordhaus W.[13], Dobson S.[14], Kim, B.[15] etc. which confirm the classical, neoclassical and socialist theories regarding content and destination as a factor of production in obtaining material goods intended for profit-making sale.

Work and land are considered primary or original factors of production, and capital appeared much later in the order of factors of production, in the early 19th century when very quickly the industrialization is being moved and the new economic system is introduced into capitalism. It is in the development of these theories that the economic schools among the first established the relations between the three components, which have not exhausted the actuality even today.

Among the contemporary approaches to capital is mentioned Gavrilash G.[16], "capital represents an economic category of a historical nature being defined as stock of securities or as assets " which can be passed on to any meaning of capital e.g. social, own, financial, economic, etc. At the same time Oprean C. asserts by the definition established the legal tint capital of the concept of capital 'capital comprises all assets possessed by an individual or an entity' which denotes its size or quantitative value.

More recently, as a result of the deepening in terms of the economic areas of professionalization the notion of capital has expanded, and today we have several derivatives such as: capital, statutory capital, capital,

[11] G. Whitehead, *Economics,* Timisoara, Sedona Publishing House, 1997, 460 pp.

[12] M. Didier, *Economy, Rules of the Game,* Bucharest, Humanitas Publishing House, 1994, 380 pp.

[13] W. Nordhaus, *Political Economy*, Bucharest, Teora Publishing House, 2000, 674 pp.

[14] S. Dobson, *Microeconomics,* London, McGraw-Hill Book Company, 1995, 456 pp.

[15] B. Kim, *Manufacturing learning propensity in operations improvement,* Human Factors and Ergonomics in Manufacturing & Service Industries, Vol. 8 (1), 1998, 79–104 pp.

[16] G. Gavrilas, *Cost of Capital,* Bucharest, The Economics Publishing House, (2007), 244 pp.

investment, social capital, commercial capital, advanced capital, natural capital, nominal capital, equity, etc.

In the context of the practical aspect of economic and financial analysis, the approach to the capital structure and the technical modalities of analysis can be found in the works of the authors Saviţcaia G.[17] , Şeremet A.[18] , Melnic M.[19], Grigorenco I., Nederita A.[20], Tiroulnicova N.[21], Cebotareov N.[22], Blanc I.[23] subject to financial source capital. The same is treated in financial-accounting terms in the works of scientists Morellec, E.[24], Helfert Er.[25], Covaneov V.[26], used in the calculation of financial profitability, which reflects ordinary shareholder capital and measures the performance of the holders of shares.

In financial terms, capital is a source for the revolving fund and fixed assets contributing to the development of economic activity under market conditions whose fundamentals are studied by the authors Messer Z.[27], Volcov D.[28], Griaznov A.[29], Koziri I.[30], Rutgaizer V.[31], Krivorotov V.[32], Cobzari L.[33], etc. The financial aspect of the entity summarizes the entity's

[17] G. Saviţcaia, *Economic and Financial Analysis of the enterprise,* Moscow, Infra-M Publishing House, 2011, 536 pp.

[18] A. Sheremet, *Analysis and Diagnosis of the Firm*, Moscow, Infra-M Publishing House, 2011, 367 p.

[19] M.V. Melnic, *Financial Analysis,* Moscow, 2002, 528 p.

[20] A. Nedriţă, *Financial Accounting,* Chisinau Central Printing, 2003, 640 p.

[21] N. Tiriulnicova, *Analysis of Financial Reports,* II Chisinau Publishing House, ACAP, 2011, 400 p.

[22] N. Cebotareov, *Enterprise Assessment,* Moscow, Daşcov and K Publishing House, 2014, 252 p.

[23] I. Blanc, *Capital Formation Management,* Kiev, Nica Publishing House, 2000, 508 p.

[24] E. Morellec, Asset Liquidity, *Capital Structure and Secured Debt,* Journal of Financial Economics, 61, 2001, 173-206 pp.

[25] Er. Helfert, *Financial Analysis Techniques*, Bucharest, BMT, 2006, 560 pp.

[26] V. Covaneov, *Introduction to Financial Management,* Moscow, Finance and Statistics Publishing House, 1999, 768 pp.

[27] Z.K. Messer, *Integrated Business Assessment Theory,* Moscow, 2008, 288 p.

[28] D.L. Volkov, *Company Value Management: The Problem of Choosing an Appropriate Assessment Model,* Moscow, Vestnik, 2004, 348 p.

[29] A.G. Gryaznov, *Business Assessment,* Moscow, M: Finance and Statistics, 2015, 736 p.

[30] I.S. Koziri, *Company value: evaluation and management decisions,* Moscow: "Alfa-Press" Publishing House, 2009, 372 p.

[31] V.M. Rutgaizer, *Business Assessment Guide,* Moscow, Quintto Publishing House, 2000, 371 p.

[32] V.V. Krivorotov, V*alue management: valuation technologies in enterprise management, manual,* Moscow: Uni-Dana, 2011, 111 p.

[33] L. Cobzari, *Company Finances,* Chisinau: ASEM, 2007, 364 p.

need for the renewal of capital for optimal stocks of materials and products being studied and the possibilities of decreased liabilities.

In conclusion, we establish that the concept of capital is both financial and physical, and the main component for economic activity is, however, the technical capital that generates effectiveness and brings income. Technical capital – fixed capital participating in several economic production circuits bringing income but retaining material form loses value gradually anyway. In modern economic conditions, speaking of attrition we present two factors: physical wear and moral wear. In the authors' view, fixed capital being limited to destinations and alternatives as well as very rigid in use, partially replaced which is sooner or later a depreciation factor.

Research methodology

As a theoretical basis were studied a series of scientific papers, the research was conducted by examining the literature in the field of economics, finance and accounting. At the basis of the theoretical substantiation, were the experiences, analysis, synthesis, deduction. Documentary research has led to an understanding of the theoretical aspects of fixed capital depreciation. The theoretical documentation was made by going through a significant number of specialized works, books and articles, both from Romanian literature and from foreign literature. All the information and ideas that emerged from the theoretical documentation led to the realization of an empirical research, using quantitative methods (case study) that contributed to finding the answers to the research by validating the hypotheses. As research methods used, our study is based on the method of data collection, comparative method, analysis and case study.

Results

As a theoretical basis were studied a series of scientific papers, the research was conducted by examining the literature in the field of economics, finance, and accounting. At the basis of the theoretical substantiation, was the experience, analysis, synthesis, deduction. As mentioned, fixed capital is used in developed business for a long period of years, so according to the principle or rule received in economic practice; the value of fixed capital must be converted into annual amount, because it is included in its cost, production price.

- From the study and research, we followed unrelated moments:
- First, what is the amortization for, what kind of indicator is it.
- What it refers to as a component part, how to interpret its role in economic life.

- Another problem is the annual size, why not all the value invested in equity.
- How to put the depreciation then, after the first year of depreciation.
- As we do with the means whose value has been totally depreciated.
- Another question is about depreciable and non-depreciable capital, how to receive such a thing.
- Is the amortization determined for each fixed capital item or should it have been another depreciation object?
- Has the value of monthly determination of depreciation for the accumulation of the annual amount.
- As well as the costs incurred in repairing the elements of fixed capital that are subject to deterioration in the process of operation.
- There is also a question about the residual value of fixed capital.
- It makes sense to change the calculation method in the process.
- How to calculate depreciation and where it should be reflected.
- It makes sense to determine the depreciation in the other years after the first.
- The annual size by capacity may or may not be completely scrapped.
- Likewise, the question arises, which is nevertheless the ultimate purpose of depreciation.
- Has the amortization of the fixed term capital.

Hence, as we can see, there are many questions and ambiguities, so we will start the presentation of the research on this phenomenon.

We believe that the amortization of fixed capital must be given a different essence, a different interpretation, which has always had it.

Discussions

Depreciation is part of the cost of production; it is a calculating article and refers to the category of indirect consumption and expenditure, which is indirectly distributed in the cost of manufacture.

As a cost element, depreciation is the annual amount of the initial (devaluation) amount of fixed capital used in economic activity, depending on the duration of operation and the depreciation ratio[34].

[34] A. Deliu, Labor productivity - and its calculation in essence. InterConf, (49), 2021, 6-28 pp. https://doi.org/10.51582/interconf.07-08.04.2021.001

In economic practice the current amount of depreciation is determined by several methods, which have been divided along the way, according to certain criteria such as:

- depending on how to recover the initial value; two general methods of depreciation are followed:

(1) linear or regular methods - uniform recovery of the initial value during the useful life cycle.

(2) accelerated or irregular methods - rapid recovery of the initial value during the useful life.

- depending on the form of expression of the duration of use, recovery of the initial value carried out on a straight-line basis and follow two linear depreciation methods:

(1) linear method after years of operation and

(2) linear method after manufacture.

- depending on the accelerated recovery of the initial value and two accelerated depreciation methods are pursued:

(1) the accelerated method after productivity and

(2) the accelerated method after years.

Next in tables T.1, T.3, T.5, T.7., We will set out the essence and the indicators used for each method of calculating the depreciation, and

In tables T.2, T.4, T.6, T.8 - we will present examples of application of the exposed methods.

In table T.1, we start with the exposition of the classical method of calculating the depreciation or wear of fixed assets, namely with the linear method or the linear scrapping method.

Thus, in T.2 is shown an application of the linear method after service years. Depreciation was calculated for the current year-20Q5, depending on the "X" machine with an initial value of 40 thousand m.u., which is higher than the unit value established for depreciable fixed assets[35]. A residual value of 10% and a service life of 4 years were expected with the entry into operation in December 20Q1. As we can see, the same size from the initial value is scrapped annually. We note that the remaining value has been forecast, which must be recorded at the end of the last period of the total duration as balance sheet value-MF_{VC} and in summary with the accumulated depreciation value-A_{ac} must reflect the initial value and the difference between the initial value and the accumulated depreciation - accounting.

[35] Catalog of fixed assets, Fiscal monitor, no. 1. 2021, pp. 45-67

Table T.1. Formula for calculating the annual depreciation according to the straight-line method[36]

Formula		Conditions and principle		
0		1		
1	$A_A = (MF_{VA} * n_a)/ 100$ $A_= MF_{VA} / Tn_< MF_{VA} * 1/T_n$	– the amount of annual depreciation/wear, for each period or year of the duration of life cycle, monetary units per year (m.u./year) – is determined for one year and is the same for all the total duration of use		
2		MF_{VA}	= MF_{VI} - MF_{VR} – depreciable value of fixed assets, m.u.	
3			MF_{VI}	–the initial value of fixed assets, m.u.
4			MF_{VR}	= MF_{VI} * %MF_{VR}/100 – residual value, m.u.
5				%MF_{VR} ≤ 10%→MF_{VI} – relative $_{VR\ size,\ \%}$
6		n_a	=1 / T_n * 100 - depreciation norm by linear method, % - weight of depreciable value, determined in proportion to the duration of life cycle, expressed in years:	
7			T_n	– useful operating time set, years
8			1	– one year of use of fixed assets, year

Table T.2 Illustrates an example of proposed application of the linear method.

T.2. Annual depreciation of machine "X" for the current year 20T5 according to the straight-line method[37]

Markers				Marker's value							
				Total	inclusive					*exclusivities*	
					MF_{VA}, mii m.u.	inclusive		n_a, %	inclusive	MF_{VC}, thousand m.u	inclusive
						MF_{VI}	MF_{VR}		Tn,yeras		A_{ac}
0				1	2	3	4	5	6	7	8
1	1. Duration of use, years		T_n	4	-	-	-	-	-	-	-
2	2. Residual value of depreciable asset, %		%MF_{VR}	10	-	-	-	-	-	-	-
3	3. Date of entry into service of the asset „X"		data	01.12. 20T1	-	-	-	-	-	-	-
4	4. Annual depreciation for periods „t", thousands m.u/year:		A_{At}	-	-	-	-	-	-	-	-
5	4.1.	T_1 – 20T_2	A_{A1}	**9** = *36* × *25/100* or 9=*36/4*	36 = 40 - 4	40	4 = 40 × 10/ 100	25 = *1 / 4* × *100*	1	*31=40-9*	*9=9×1*
6	4.2.	T_2– 20T_3	A_{A2}						1	22	18
7	4.3.	T_3 – 20T_4	A_{A3}						1	13	27
8	4.4.	T_4 – 20T_5	A_{A4}						1	*4=40-36*	*36=9×4*
9	5. Total value of aggregated indicators		y_T	-	36	40	4	-	4	4	36

[36] Source: Adapted by the authors according to the sources Fiscal Code, T. II, C.3. Deductions related to entrepreneurial activity, A.26, 1-7. pp.

[37] Note: The values used in the situations in the calculation tables T.2, T.4, T.6, T.8, are conventional but rational - the purpose is to show the calculation methodology.

10	6. Average value of indicators	Ay_i	9	-	-	-	25	-	-	-
11	7. Guaranteed period of use	T_g	10	-	-	-	-	-	-	-
12	8. Capacity of the asset at the end of the service life	-	util fizic and moral	-	-	-	-	-	-	-

***Source**:* Prepared by the authors[38].

These 2-two indicators as balance sheet value and accumulated depreciation → MF_{VC} and A_{ac}, we showed them exclusively in T.2. in columns 7 and 8, to follow the finality of the depreciation process. Next in Table T.3, we will set out the current essence of the linear method after production or the method of production units.

T.3. Depreciation formula according to the combined method of production

Formula		**Conditions and principle**				
0		**1**				
1	**$A_{At} = (MF_{VA} * n_{at}) / 100$** **$A_{At} = MF_{VA} * Q_{it} / Q_{iT}$** **$A_{At}=(MF_{VA}*n_a*K_{ut})/100$**	**- the value of the annual depreciation** - for each year of the term of service life, m.u. / year - is determined for each year of the total duration of use, each year depends on the level of production				
2		MF_{VA}	= MF_{VI} - MF_{VR} - depreciable amount, m.u.			
3			MF_{VI}	- initial value, m.u.		
4			MF_{VR}	= MF_{VI} *%MF_{VR}/ 100 - residual value, m.u.		
5				%MF_{VR} ≤ 10% →MF_{VI} - relative amount of VR,%		
6		n_{at}	= T_t/ T_n × 100	or	= n_{of} × K_{uti}	
			- wear rate according to the production method per year "T" - after the duration of use, as the quantity produced you take the product, %:			
7			T_t	- current use period "t" - annual quantity-Qit of manufacturing "i", production unit – p.u.		
8			T_n	- duration of use - total volume manufactured - QiT produced during service life, p.u		
9			K_{uti}	= Q_{it} / CP_{io} - capacity utilization factor to manufacturing the product "i" in period "t",% / %:		
10				Q_{it}	- production the actual "i" made in "t", up	
11				CP_{io}	= Q_{iT} / T_n - average capacity, p.u. / year	

Source: Adapted by the authors.

In table T.4., we propose an example of the application of the united method of production.

[38] Note: The initial data based on the situation in table T.1., Will be common for the other methods as well.

T.4. Annual depreciation of machine "X" according to the combined method of production

Markers				Marker's value								
				total	inclusive						exclusivities:	
					MF_{VA}, thousands m.u.	n_{at}, %	inclusive				MF_{VC}, mii m.u	inclusion A_{ac}
							n_a, %	Kuti, %/%	inclusive			
									Tn, years	QiT, p.u.		
0				1	2	3	4	5	6	7	8	9
1	1. A_A, mii m.u../year:		A_{At}	-	-	-	-	-	-	-	-	-
2	1.1.	T_1 – 20T2	A_{A1}	*7,5=36 ×20,83/ 100 or =500 * 36/2400*	36	20,833 *=25*0,83*	25	0,833 = *500/ 600*	1	500	32,5 = *40 -7,5*	7,5 = *7,5+0*
3	1.2.	T_2– 20T3	A_{A2}	10,5		29,167		1,167	1	700	22,0	18
4	1.3.	T_3 – 20T4	A_{A3}	12,0		33,333		1,333	1	800	10,0	30
5	1.4.	T_4 – 20T5	A_{A4}	6,0 = *36 * 16,66/1 00*		16,667 = *25*0,667*		0,667 = *400/ 600*	1	400	4 = *40 - 36*	36 = *6+30*
6	2. The total value of the aggregated indicators		y_T	-	36	-	-	-	4	2400	4	36
7	3. Average value		Ay_i	-	-	-	25	-	-	600	-	-

***Source**:* Prepared by the authors.

Therefore, in T.4., we set out the application of the linear method after production, is the method of production units. As we can see, different sizes from the initial value are scrapped annually, which shows that the level of depreciation depends on the level of current production.

Further in Table T.5, we will set out the current essence of the accelerated method after production or the method of reducing the balance of fixed capital.

T.5. Depreciation calculation formula according to the method of reducing the balance[39]

Formula		Conditions and principle	
0		1	
1	$A_{At} = (MF_{VI} * n_{at}) /100$ or $A_{At}=(MF_{VCt-1}*n_a*K_{ino})/100$	- annual amortization of fixed capital for the current year "t "→ n – t	
		- annual depreciation for the last current year "t "from" n	
	$A_{At} = MF_{VCn-1}$	* if no residual value is provided - VR for assets	
	$A_{At} = MF_{VCn-1} - MF_{VR}$	*if it is VR - differences of MF_{VCn-1} at the end of the penultimate year and MF_{VR}	
2		MF_{VCt-1}	- book value at the end of the previous year "t-1"
3		n_{at}	= n_{of} * K_{ut} - wear rate for years "N-1",% = (100-% MFVR) - K_{at-1} - wear rate per year "N",%:
4			K_{ut} = (K_{ino}* K_{ut-1}) * 100 - coefficient of intensive use,%:
5			K_{ino} - intensive acceleration coefficient → 1.5 ÷ 2
6			K_{ut-1} The degree of utility of the asset in "T-1" = MF_{VCt-1} / MF_{VI} * 100
7			K_{at-1} = MF_{act-1} / MF_{VI} * 100- depreciation coefficient "t-1 ",%
8			n - number of years of use - corresponds in number to the last year

Source: Adapted by the authors according to the sources [4-10].

T.6. Annual depreciation of the "X" machine according to the method of reducing the balance[4·]

Markers				The value of the markers							
				total	inclusive					exclusively:	
					$n_{at,\%}$	inclusive				$MF_{VC,}$ thousand m.u	inclusive
						$n_{of,}$ %	Kut, % /%	Inclusive			A_{ac}
								K_{ino}	K_{ut-1}		
0				1	2	3	4	5	6	7	8
1	1. A_A, thousand um / year:		AA_t	-	-	-	-	-	-	-	-
2	1.1.	T_1 - 20T2	AA_1	20 = 40 * 50/100	50 = 25 * 2	25	2 = 2 * 1	2	1 = *40/40*	20 = *40 -20*	20 = *20 + 0*
3	1.2.	T_2– 20T3	AA2	10 = 40 * 25/100 or 10 = 20 * 50/100	25 = 25 * 1		1.0 = *2 * 0.5*		0.5 = *20/40*	10	30
4	1.3.	T_3 - 20T4	AA3	5 = 40 * 12.5 / 100 *or* 5 = 10 * 50/100	12.5 = *25 * 0.5*		0.5 = *2 * 0.25*		0.25 = *10/40*	5	35
5	1.4.	T_4 - 20T5	AA4	1 = 40 * 2.5 / 100 or 1.0 = 5 - 4	2.5 = (100-10) - (35/40 * 100)		0.1		0.05	4	36

[39] Source: Elaborated by the authors according to the sources FISC.md fiscal monitor, no.6 (61) September. 2020

In table T.6 is proposed an example of applying the balance method. Thus, in T.6 we set out the application of the accelerated method after production. As we can see, different sizes from the initial value are scrapped annually, but it is obvious the moment of acceleration where in the first half of the duration more than 50% was recovered. Next in Table T.7, we will set out the current essence of the accelerated method after years or the numbers / cumulative method.

T.7. Depreciation calculation formula according to the cumulative method

Formula		Conditions and principle			
0		1			
1	$A_{At} = (MF_{VA} * n_{at}) / 100$ $A_{At} = MF_{VA} * T_{ut} / \sum T_t$	- annual amortization of fixed capital for the year current "t "			
2		nat	= n_{of} * K_{ext} - fixed capital wear rate,%:		
3			K_{ext}	= (T_{ut} / T_m)* 100 - extensive acceleration coefficient,%:	
4				T_m	= (n + 1) / 2- the average period of the service life
5				T_{ut}	- useful period / number of years, until the expiration of the operating term for each period "i", years
6				ΣT_t	- the direct sum of the figures for the periods of use

Source: Adapted by the authors according to the sources FISC.md fiscal monitor. no.6 (61) September, 2020, pp.1-7

T.8. Annual depreciation of machine "X" according to the method of figures

Indicators				The value of the indicators							
				total	inclusive					exclusively:	
					n_{at},%	inclusive				MFV, thousand m.u	inclusion A_{ac}
						n_{of}, %	Kext, % /%	inclusive			
								T_{ut}	T_m		
0				1	2	3	4	5	6	7	8
1	1. A_A, thousand um / year:		A_{At}	-	-	-	-	-	-	-	-
2	1.1.	T_1 - 20T2	A_{A1}	14.4 = 36 * 40/100 or 14.4 = 36 * 4/10	40 = *25 * 1.6*	25	1.6= *4 / 2.5*	4	2.5 = (4 + 1) / 2	25.6 = *40- 14.4*	14.4
3	1.2.	T_2– 20T3	A_{A2}	10.8 = 36 * 30/100	30 = 25 * 1.2		1.2 = 3 / 2.5	3		14.8	25.2
4	1.3.	T_3 - 20T4	A_{A3}	7.2 = 36 * 20/100	20 = 25 * 0.8		0.8 = 2 / 2.5	2		7.6	32.4
5	1.4.	T_4 - 20T5	A_{A4}	3.6 = 36 * 10/100	10 = 25 * 0.4		0.4 = 1 / 2.5	1		4.0	36.0

6	2. The sum of the digits	ΣT_t	10= 1 + 2 + 3 + 4	-	-	-	-	-	-	-

***Source**:* Produced by the authors according to the sources FISC.md fiscal monitor. no. 6 (61) September. 2020, pp. 1-7.

In table T.8., we propose an example of the application of the cumulative method.

Therefore, in T.8, I set out the application of the accelerated method after years. As we can see, different sizes of the initial value of fixed capital are scrapped annually, and it is also obvious the moment of acceleration where in the first years more than 50% is recovered.

Thus, with table T.8, we finished the exposition of the depreciation calculation methods, which will be the basis of the further discussion.

As we see the depreciation is determined without considering the volume of work submitted, we see that it is easily determined for each period and in the amount for all elements of the company is reflected in the costs of the corresponding management period.

We mentioned that fixed capital is in the category of labor, which requires that its current, annual size be included in the cost or price of production. Respectively, the price of production and its elements are determined at the start of the business or when an increase in economic resources used to manufacture or provide the production is sought, either by the producer-suppliers or by the producer-business [40]. The cost elements, according to the material and human resources, are included according to the production capacity as the maximum production that can be produced according to the technical-material potential.

Thus, what we see is the price does not change in the next period or periods, because the amount of depreciation is different, the price works further, depending on the value of the depreciation included. The exception is the straight-line method after years, only if it is applied to all elements of fixed capital, because here each period has the same size.

However, we follow, that the enterprises reflect the amortization in its annual size according to the current conditions and movements → inflows-outflows, in consumptions and expenses, in the financial situation of profit and loss. Although let us not forget one thing, depreciation is scrapped as an expense, after which it is still movement.

Thus, we consider that the depreciation has no value to be calculated for each period of use:

➢ *depreciation* must be *calculated* only for the first year of use of the fixed capital to identify the current amount or to be received as a useful

[40] A. Deliu, Labor productivity - and its calculation in essence. InterConf, (49), 2021, 6-28 pp. https://doi.org/10.51582/interconf.07-08.04.2021.001

value the year with the highest level, as in the 1st period in T.6., and will characterize the fixed capital requirement for carrying out the current economic activity or will show the necessary means of labor necessary for the natural person who develops commercial activity →

we consider and propose that in the contemporary economy of trade,

i) the method of calculating depreciation must be one of the accelerated methods, which must be one and be the same for all manufacturers, and

ii) the average duration of recovery or use of fixed capital should be 4-5 years, which must also be identical for all producers → these proposals are aimed at protecting producers, at maintaining the business developed over time, of course only if it wants to get the manufacturer to continue the business.

➢ depreciation should not be calculated on capital objects, because neither they nor the machines impose the production capacity, but the enterprise has the capacity →

we consider and propose that in the contemporary economy of trade,

i) the depreciation must be calculated on the immediate undertaking as a function of single business, i.e. on the productive subdivision which directly provides the production „i", provided with all means of work, in economic and social aspect →

ii) and all changes after outputs and inputs to cover decommissioning in the process of carrying out the current activity, does not change the initial value or the cost of entering fixed capital, as they are related to the replacement and replacement of those physically used or damaged → by this principal companies will not have assets that do not specialize or in addition to existing ones → entry has no value, respectively any entry leads to a new amount of equity, which has no value...;

➢ and all fixed capital repair changes, does not change the cost of entry, but will decrease in the current period of repair, the amount of annual depreciation that had to be scrapped for profit - in this way, we see the essence of fixed capital repairs and its reflection within the company - the size of repairs decreases the annual value of fixed capital, and on this basis the level of profit will change, and this amount can be shown when taxing the income of individuals.

As we have shown, depreciation is an element of price, so it is acceptable that through price the company forms and predicts sales revenues. But what is expected is not always achieved. Therefore, we consider that depreciation must be scrapped according to actual sales revenue, this principle requires that depreciation must depend on the volume of work submitted, which is expressed by the degree of utilization of the company's production capacity, which is expressed by the ratio

between the real income from sales and the production capacity or the expected / expected income, which is expressed as the amount of money to be received from the realization of the marketed production in the current period.

Therefore, the price elements, according to material and human resources, are included according to the production capacity or the value of sales expected from the realization of the production, which is rendered by the production manufactured and destined to be realized in the current period or year.

It is also admissible that fixed capital as part of equity [v. T.9.], Must be recovered after the volume of work submitted and removed from the company as profit, as own income, while working capital remains in operation, as part of foreign income or current expenses, which will allow the reproduction [v. T.9.]. This is argued by the fact that working capital is not capitalized, therefore it remains with each production process in the enterprise, while the value of depreciation shows the capitalized value of fixed capital or long-term assets subject to depreciation and therefore it is excluded not to allow duplication. And respectively the scrapping is performed monthly, according to the scrapping of the natural income.

Based on the above, regarding depreciation, it is acceptable that its value in price is conventional, but it is necessary to be known, because its basis is working capital that returns as foreign income, in addition to the labor attracted, and the difference between the price, in aggregate aspect, and the foreign income is the profit, rendered as general natural income or the payment for the work deposited in the exchange economy, which imposes in it the direct natural income, and payment for business support.

Table T.9. The balance sheet for the period 01.01.-31.12.20T5

Item value, thousands um					Item value, thousands um			
of liabilities			of assets		of liabilities		of assets	
at the beginning of the year					at the end of two years			
0			1		2		3	
1	I. Capital:	632500	I. Active:	632500	I. Capital:	464000	I. Active:	464000
2	1. Equity:	632500	I. Materialized assets:	428000	1. Equity:	464000	I. Materialized assets:	428000
3	1.1. Fixed assets - capitalized capital:	428000	I.1. Long-term assets:	394000	1.1. Fixed assets:	428000	I.1. Long-term assets:	394000
4	1.1.1. Investitive - capital	11500	* own sources	382500	1.1.1. foreign capital:	3500	* own sources	390500
5	- loan	8000	- loan	11500	- loan	0	- loan	3500
6	- consumpti	3500	I.2. Current assets:	34000	- consumpti	3500	I.2. Current assets:	34000

	on				on			
7	1.2. Reserves - monetary capital:	204500	- materials ...	34000	1.2. Reservations:	36000	- materials ...	34000
8	* money in the house	0	II. Monetary and financial assets	204500	* money in the house	0	II. Monetary and financial assets	36000
9	* money on account	36000	-	-	* money on account	36000	-	-
10	* income receivables	168500	-	-	-	-	-	-
11	TOTAL LIABILITIES	632500	TOTAL ACTIVE	632500	TOTAL LIABILITIES	464000	TOTAL ACTIVE	464000
12	Annual profit	168500 = 632500 – 464000						

Source: Retrieved and adapted from source Catalog of fixed assets. Fiscal monitor, FISC. md. MO no. 1. 2021 pp 45-67

So, we have shown that depreciation is part of the profit and can only be obtained through sales revenue, which characterizes the actual work submitted by producers. Thus, it appears that it depends on the volume of work submitted:

* if the level of sales revenue will be lower than the value of production intended for sales, then it appears that the level of depreciation for scrapping will be less than the annual amount of the current period. And in this way, it appears that the given difference will not be recovered in the current period and in the given amount the expected profit will be lower than expected.

As we followed in table T.2., The fixed asset subject to depreciation was identified as depreciable asset, for which the useful life and the residual value were established. As mentioned, equity invested in fixed capital must be recovered. Respectively, in order to know which assets, need to be recovered, it is necessary to know which assets are fixed and which are current. Thus, the division of assets or fixed assets into depreciable and non-depreciable assets has no value. All fixed capital must be considered depreciable. But, if they are objects that are considered of unlimited duration of use but necessary for economic activity, then as they are accepted as economic resources, they must acquire a commercial aspect and be amortized.

As for the residual value, like the non-depreciable assets, it has no value, the money invested must be recovered. And in this way, we consider that the fixed capital must be managed in the company according to the initial value or the cost of entry, until its necessary exclusion from the economic activity, either according to the physical wear or the moral wear.

In Q.2, we have shown that the value of the asset was fully depreciated at the end of the current year 20Q5, and according to the proposed conditions the analyzed asset is in normal physical and moral condition, especially that maintenance lasted 10 years, but in terms of physical wear and tear. However, according to the old theory, the asset is no longer depreciated. In this way, we consider that indeed the initial value must lead the asset further and the initial depreciation plays on and in this way the practicality of the residual value is obvious.

Admittedly, depreciation is not the scrapping of fixed expenses, but it shows that the given share of equity must be excluded from the business. The scrapping of objects and means of labor, as well as labor attracted by the current economic size occurs when their value has been reflected in the cost or price of production, ie at the end of the production process, when the given means acquire the status of finished production.

Thus, it is acceptable that depreciation should be received as an indicator of results, it is a conventional quantity, because it is part of the difference between total income and foreign income, ie own income, profit. Price planning is added to the current economic size by capacity relative to foreign income, and then as much as supply and demand allow or depending on market balance, natural income is added, the direct payment for work done in the exchange economy. If the degree of achievement of production capacity by income is less than 100%, then primarily according to the principle of security, the natural income of producers as individuals and what remains - respectively will be depreciation. In this way, it is well followed that the depreciation depends on the volume of work submitted. It is acceptable that the highlighting of depreciation is necessary for producers to know the limit of personal expenses in social life.

Conclusions

The authors tried to reinterpret through a new paradigm the depreciation of fixed capital, answering the questions that were the starting point of our study, namely:

- depreciation is required *for the planning of the current fixed capital, i.e., of the means of labour necessary for a current period in the development of economic activity in the exchange economy*.
- in economic life depreciation is a *result indicator, is conventionally received part of the profit or general natural income of the individual developing business*.
- *returns as a component part of own income, profit or fixed expenses depending on the recovery of resources, i.e., these fixed expenses are the numerator of the dead centre.*

➢ contributes to the correct planning of the price, of the incomes and of the profit respectively and shows the scrapped size of the own capital that must be excluded from the company, from the business.

➢ *in order not to increase the price of production, in order to be attractive, but the basic moment is that* a current level is required, through which the natural person can to some extent maintain the means of work in the developed business → but the total profit obtained must give the producer their current and future maintenance.

➢ *does not include the size of the first year, which must be chosen according to the highest level of methods known for application, especially since accelerated methods must be applied in business, and characterizes all subsequent periods - i.e., the amortization included initially continues to play, until when the producer changes his production capacity*.

➢ *depreciation continues to work through the expected profit → especially since we have determined that it is not determined on each item or object, but on the enterprise* → but if the capital element after the required useful life (4-5 years) is not useful for use, neither physically nor morally, it changes according to outflows from the amortization of the current period, which respectively will decrease the profit,

→ but if the capital element after the required useful life (4-5 years) is useful for use, it is still used, especially since any capital element has its warranty period set by its manufacturer.

➢ *everything is fixed or current, where the fixed capital is the depreciable one*.

➢ depreciation has no value for each element, but is established according to the general object, ie the enterprise → but the records on objects must be to track the company's assets or the size of its own fixed capital.

➢ *it does not make sense as a scrapped expense to accumulate depreciation - but it has value as part of the individual's natural income, which is distributed monthly according to 12 scrapping periods.*

➢ *only if it provides for a larger current size than the previous one and the new method must be common to all producers in different areas of the national economy → this moment will result in price increases and respectively related to the increase of natural income in society - we believe that the change received with the next year or period of activity so that the company can plan its new production capacity and its new work indicators, including prices and profit levels.*

➢ the costs of repairing items of fixed capital which are subject to deterioration in the process of operation may not be *recorded as*

calculation elements - the depreciation must be the one that finances the repair.

➢ *It does not make any sense* - the initial value or the cost of entry leads the capital in the end - but if the object is to be changed, then it must be known that any good goes at a fair or fair price.

➢ *We consider the accelerated calculation method of amortization is reflected as an individual profit between the incumbent producers.*

We consider that the final purpose of depreciation is represented by *natural income planning, definite profit determination.*

We believe that the new paradigm, the new interpretation of fixed capital depreciation proposed by can be successfully implemented in economic practice and life.

References

Alderson, M., Betker B., (1995), *Liquidation Costs and Capital Structure*, Journal of Financial Economics 39: pp. 45-69.

Blanc, I., (2000), *Capital Formation Management,* Kiev, Nica Publishing House, p. 508.

Catalog of fixed assets, Fiscal monitor, (2021), no. 1, pp. 45-67

Cebotareov, N., (2014), Enterprise Assessment, Moscow, Daşcov and K Publishing House, p. 252

Cobzari, L. (2007), *Company Finances*, Chisinau: ASEM, p. 364

Covaneov, V., (1999), *Introduction to Financial Management*, Moscow, Finance and Statistics Publishing House, p. 768

Deliu, A., (2021), *Labor productivity - and its calculation in essence*, InterConf, (49), pp. 6-28, disponible online at

https://doi.org/10.51582/interconf.07-08.04.2021.001

Didier, M., (1994), *Economy. Rules of the Game*, Bucharest, Ed. Humanitas, p. 380

Dobson, S., (1995), *Microeconomics*, London, McGraw-Hill Book Company, p.456

Eugen von Bohm-Bawerk, (2008) translation in ro., *Theory of Capital and Interest*, Bucharest, Ed. Didactica, p.644

FISC. md, fiscal monitor. (2020), no.6 (61) September, pp. 1-7

Fiscal Code, T. II, C.3. Deductions related to entrepreneurial activity, A.26, p. 1-7.

Gavrilas, G., (2007), *Cost of Capital*, Bucharest, The Economics Publishing House, 244 p.

Gilbert, Abraham, (1988) *Political Economy*, Paris, The Economics Publishing House, p. 610

Gryaznov, A.G., (2015), *Business Assessment,* Moscow, M: Finance and Statistics, p. 736

Helfert, Er., (2006), *Financial Analysis Techniques*, Bucharest, BMT, p. 560

Kim, B., (1998), *Manufacturing learning propensity in operations improvement. Human Factors and Ergonomics in Manufacturing & Service Industries*, Vol. 8, 1, pp. 79–104.

Koziri, I.S., (2009), *Company value: evaluation and management decisions*, Moscow: "Alfa-Press" Publishing House, p. 372

Krivorotov, V.V., (2011), *Value management: valuation technologies in enterprise management, manual*, Moscow: Uni-Dana, p. 111

Mansfeld Ed., (1991), *Microeconomics problem*, London, Norton, N.Y., p. 380

Marx K., (1980), *Capital*, Chisinau, Central Typography, p. 860

Melnic M.V., (2002), *Financial Analysis*, Moscow, p. 528

Messer Z.K., (2008), *Integrated Business Assessment Theory*, Moscow, p. 288

Morellec, E. (2001), *Asset Liquidity, Capital Structure and Secured Debt*. Journal of Financial Economics, 61, pp. 173-206.

Nedrita A., (2003), *Financial Accounting*, Chisinau Central Printing, p. 640

Nordhaus, W., (2000), *Political Economy*, Bucharest, Teora Publishing House, p. 674.

Pulvino, T.C., (1998), *Do Asset Fire Sales Exist? An Empirical Investigation of Commercial Aircraft Transactions*, The Journal of Finance Vol. 53, no. 3: pp. 939–978.

Rutgaizer, V.M., (2000), *Business Assessment Guide*, Moscow, ed. Quintto, p. 371.

Samuelson, P., (2000) *Economics*, Bucharest, The Economics Publishing House, pp. 480

Saviţcaia, G., (2011), *Economic and Financial Analysis of the enterprise*, Moscow, Infra-M Publishing House, p. 536

Say, J.B., (2011) translation into ro., *Treaty of Political Economy*, Bucharest, Ed. D., p. 568

Schlingemann, F.P., Stulz R.M., Walkling R.A., (2002), *Divestitures and the liquidity of the market for corporate assets*, Journal of Financial Economics 64, pp. 117–144.

Sheremet, A., (2011), *Analysis and Diagnosis of the Firm*, Moscow, Ed. Infra-M, p. 367

Shleifer, A., Vishny, R.W., (1991), *Asset Sales and Debt Capacity*. NBER Working papers series.

Smith, A., (1965) translation, *Wealth of Nations: Research on Nature and Its Causes*, Bucharest, ARRP Publishing House.

Tiriulnicova N., (2011), *Analysis of financial reports*, ed. II Chisinau, ACAP, p. 400

Volkov, D.L., (2004), *Company Value Management: The Problem of Choosing an Appropriate Assessment Model*, Moscow, Vestnik Publishing House, p. 348

Whitehead, G., (1997), *Economics*, Timisoara, Sedona Publishing House, p. 460