Value created, expression and analyze indicator of an enterprise efficiency

University Lecturer PhD. Ioan Marian Miclăuş, Satu Mare Commercial Academy, Romania
email: academiacomerciala@yahoo.com
University Lecturer Alexandru Bologa, Satu Mare Commercial Academy, Romania
email: academiacomerciala@yahoo.com
University Lecturer Ioan Doroş, Satu Mare Commercial Academy, Romania
email: academiacomerciala@yahoo.com
University Lecturer Liliana Todor, Satu Mare Commercial Academy, Romania
email: academiacomerciala@yahoo.com

Abstract:
In order to define the enterprise system efficiency, we have started from the system efficiency concept as being an economic category which defines the system quality, its capacity to transform the input into output at the expected level.

We are asking now some questions: What is the expected level? What is the indicator that defines the expected level? How does this indicator help us to find the factors involved in its achievement and to analyze the enterprise efficiency?

The modern indicators of quantifying the performances at microeconomic level are built using Value Creation concept which insures the desired trend of development. If the enterprise doesn't generate earnings / profit before interest and taxes (PBIT) more than the capital cost used, it doesn't create wealth, but it destroys it.

Keywords: *System, Value Creation, expected level, earnings before interest and taxes, value creation threshold.*

1. Created Value, an efficiency measure of the enterprise system

In order to analyze the efficiency of the enterprise system, we start from the concept of efficiency as an economic category which defines the system (enterprise) quality, their capacity to turn input into output at the expected level.

According to the very definition of the system efficiency, it reaches its finality only if the actual output is at the expected or ordered level. This characteristic measure is **the system norm**, the quantified expression of finality.

We are now at the point of raising some questions:

- What is the expected level?
- What is the indicator that defines the expected level and what does it stand for?
- What is the unit of measurement unit for this indicator?
- Who contributes to its accomplishment and who benefits from it?
- How does this indicator help us analyze the enterprise system and identify the factors that take part in its accomplishment?

The ultimate purpose of any enterprise is naturally to yield profit. But is it enough for an enterprise to make profit – no matter how small – in order to be called efficient?

The modern indicators for quantifying performance at microeconomic (company) level are built on the concept of **Value Creation**. Value creation is an objective of highly efficient systems, which ensures the desired development trend. This indicator highlights a surplus value, which appears after the cost of the invested capital has been covered by the operation results. In economic terms, this surplus value is called **Added** or **Value Created**. As long as the enterprise does not generate a profit higher than the cost of the capital employed, it functions at a loss. The enterprise continues to yield less output to the economic environment than the input it uses as resources. Consequently, it does not generate wealth (it does no create value), but it **wastes** it.

The value Created (VC) or Value Added (VA) indicator acknowledges the fact that the use of capital – irrespective of their source – implies costs that have to be paid. Irrespective of the origin of capital and of the form in which it is supplied, its use is not free. The real earnings that add value to the enterprise start being recorded after all costs have been covered.

The value Created indicator is measured in money (units of value) and is calculated according to the following formula:

$$VC = PBIT – NAC \text{, where:} \qquad (1)$$
VC = Value Created;
PBIT = Profit Before Interests and Taxes;
NAC = Net Asset Cost

$$PBIT = R – Cms \text{, where:} \qquad (2)$$
R = Revenue from sales;
Cms = manufacturing, marketing and sales Costs.

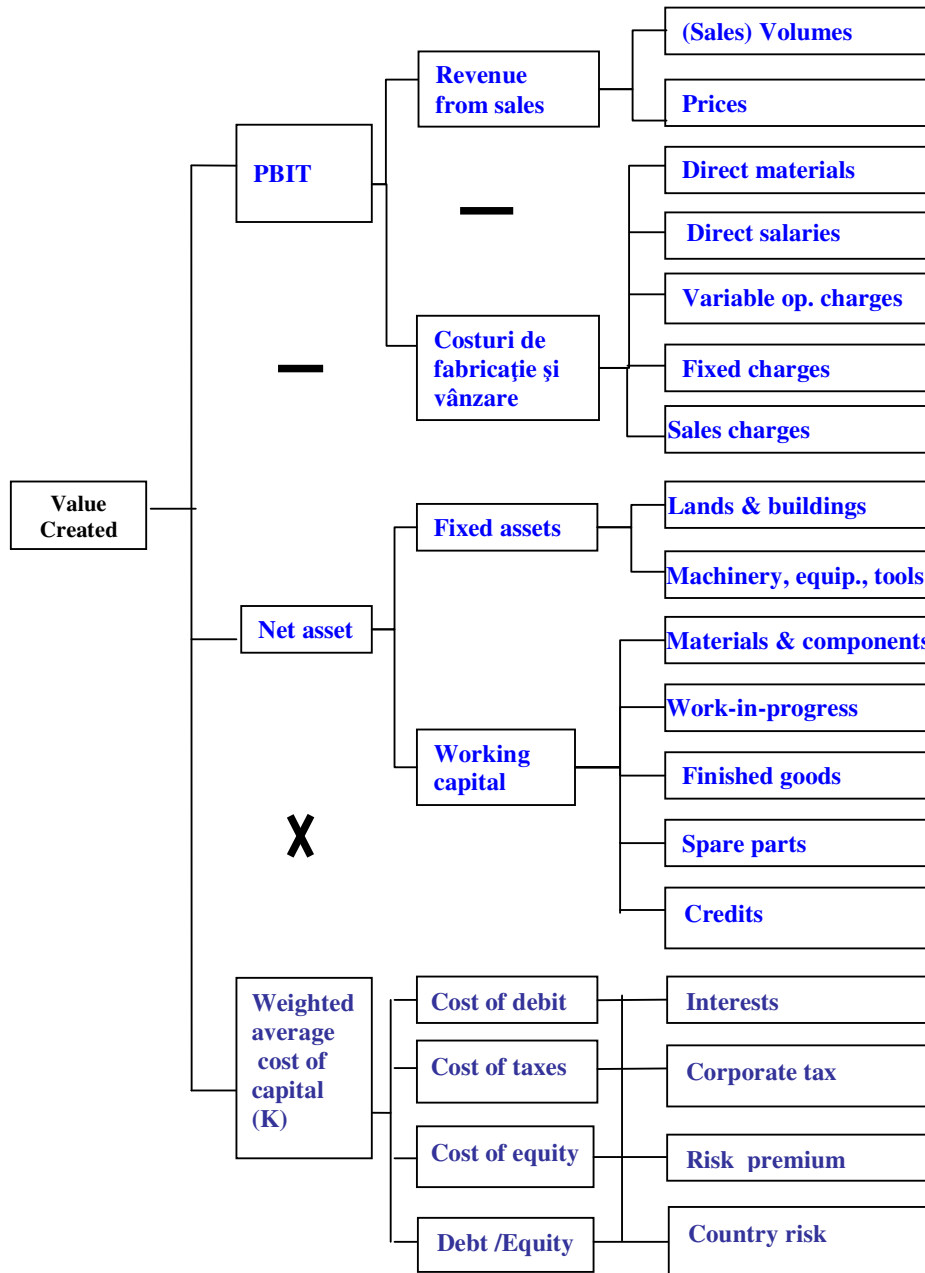$$NAC = NA \times K \text{, where:}$$
NA = Net Assets;

K = average weighted cost of capital (expressed in %)

$$K = CE + CD, \text{ where:} \qquad (3)$$

CE   = Cost of Equity;
CD   = Cost of Debt (interests)

$$VC = PBIT - K \times NA \qquad (4)$$

We will now set out to answer the remaining questions.

From the calculation method above, it becomes obvious that the Value Created indicator is measured in money (units of value) and not in percentages. It is the money earned that adds value to the enterprise.

Value Created is a simple indicator, but it helps us define the factors that contribute to its accomplishment, as well as the economic analysis of the enterprise system (**Fig. 1.**).

The factors that determine an increase in the economic efficiency fall into four major categories:

1. **Sales increase** in volume (quantities)and prices (through a continuous improvement of the structure – mix – of products by means of superior equipment);
2. **Continuous reduction of the manufacturing costs** – through the superior use of raw materials and power, the continuous growth of labor productivity, cutting on the fixed expenses;
3. **Efficient use of assets**, by improving the exploitation of lands, buildings, machinery, equipment and tools, cutting on stocks;
4. A good financial administration of the enterprise, by means of an **optimum ratio between debts and equity**, as well as profitable (advantageous) interest rates.

After addressing all the issues involved, we can therefore say that **each and every employee takes part in the process of value creation**, as well as the **stockholders**, since **the value created benefits not only the stockholders and employees, but also the suppliers and clients, community as a whole**.

To conclude on the Value Created indicator as a measure of the enterprise efficiency, we can sum it up as follows:

• a clear and efficient method of economic and financial administration of the business enterprise;

• a reliable method of quantifying the company performance;

• a motivation lever for both managers and working staff;

• an instrument of improving global administration and strategic planning;

• a simple and efficient method of evaluating an enterprise.

2. The value creation threshold

We are now asking the following question: What is the point in which the business organization does not add value, does not actually grow, but is not destroyed either? In other words, what is the point in which the Value Created indicator is zero?

Let us start from the following equation:

$$PBIT – K \times NA = 0 \quad /: TR \quad (5)$$

By dividing both members in (5) by the total revenues (TR), we get:

$$\frac{PIDT}{VT} - K \times \frac{AN}{VT} = 0 \quad (6)$$

In (6), we have:

$$\frac{PIDT}{VT}$$ is the profit rate before interests and taxes (r_p);

$$\frac{AN}{VT}$$ is the net asset for 1 ROL revenue (a_{nv});

K is the average weighted cost of capital.

Thus, we get the equation:

$$r_p - K \times a_{nv} = 0; \quad (7)$$

or:

$$r_p = K \times a_{nv} \quad (8)$$

We call this, $y = ax$ equation, the equation of the value creation threshold. It is the equation of a straight line starting from the intersection of the axes whose angle is given by the K factor, namely the weighted average cost of capital. **It tells us what the profit rate (r_p) is for a 0(zero) Value Created indicator, for certain levels of the net asset, for 1 ROL revenue and an average weighted cost of the given capital**.

r_p

Value creation
$$\mathbf{r_p = K \times a_{nv}}$$

Destruction

a_{nv}
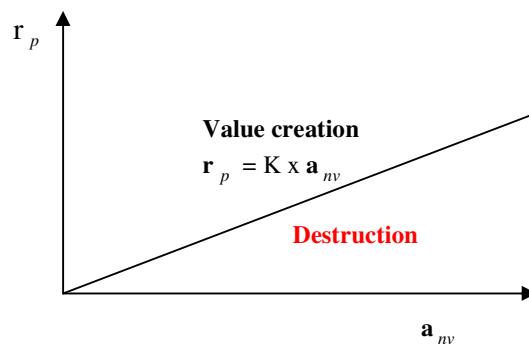
Fig. 2. The chart of the value creation threshold

In what follows, we will take the case a company whose indicators display as shown in the table below:

Table no.1 – The evolution of indicators - factors of value creation

		2002	2003	2004	2005	2006	2007
Total revenue (TR)	Thou. ROL	70000	75000	80000	90000	95000	95000
Net asset (NA)	Thou. ROL	25000	35000	44000	36000	33000	30000
PIBT	Thou. ROL	3000	3500	4000	4700	4500	6500
PBIT Rate (rp)	%	4.29	4.67	5.00	5.22	4.74	6.84
Net asset for 1ROL revenue (nar)	ROL	0.36	0.47	0.55	0.40	0.35	0.32
Average weighted cost of the net asset (K)	%	12.0	12.0	12.0	12.0	12.0	12.0
Value Created (VC)	Thou. ROL	0	-700	-1280	380	540	2900

We will graphically mark the coordinate points (a_{nv}, r_p) and compare them to the value creation threshold.

In Fig. 3, we notice that, between 2000 – 2003, the company did not create any value, although it had an ascending profitability rate.

Moreover, in 2004, it is placed in the value creation area, with a 4.67 % profitability rate, because the profit was achieved with a lower net asset, unlike 2002, when it is placed in the destruction area, although it scored a 5% profitability rate.
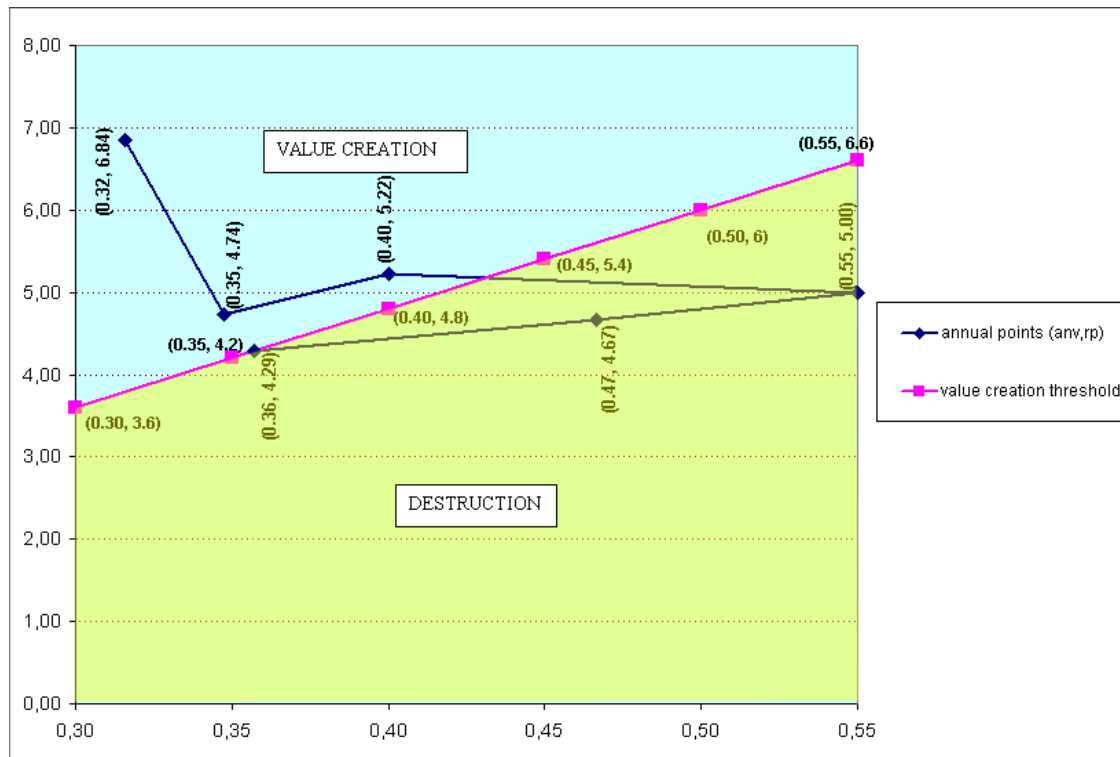
Fig.3. The evolution of the coordinate points (a_{nv}, r_p) as compared to the line of the value creation threshold

3. What if?

The equation of the value created threshold allows us to tempt a series of simulations and answers to hypothetical ("What if?") questions.

For instance, what are the necessary revenues that ensure the value creation threshold for a given (forecast) net asset and a given (forecast) profit rate (r_p)?
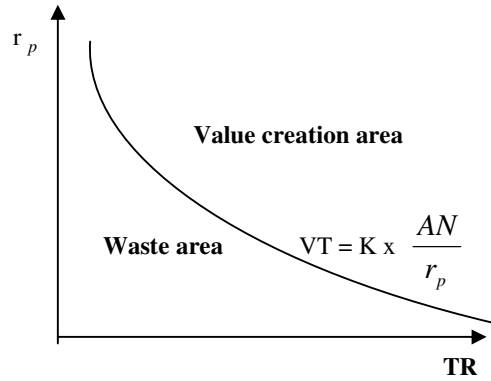
To answer this question, we make the equation:

$$r_p = K \times a_{nv}, \text{ thus:}$$

$$r_p = K \times \frac{AN}{VT}, \text{ where:}$$

$$TR = K \times \frac{AN}{r_p}, \text{ the equation graph is as shown}$$

below:

Fig. 4. The chart of the necessary revenue according to profit rate

The equation of the revenue curve according to the profit rate shows what the minimum level of the necessary revenue is – over a given period of time – in order for the company to start growing, to place itself in the value creation area.

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