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RESEARCH ARTICLE

A New Vision on the Investment Assets in Industrial Projects

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Abstract

Fixed assets are named and long-term assets, assets or real estates, including all of the economic value of the investment which has a utility and liquidity period bigger than a year. In the major industrial projects, due the large terms of building, appears very large financial assets, that are blocked until the starting of the project (after which appear the so-called amortizations).This article presents a vision of the industrial investments assets, method of calculating them based on the spending time of the initial investment and the starting period of the project. So, were considering four indicators that reflect the size and losses due to these assets.

Keywords: *Assets, Investment, Industrial project, Indicators, Update technique.*

Introduction

Determination of the investment efficiency involves the study of the results obtained by consuming of them, so it is necessary to analyze the influence of time and during the operation of fixed capital created. For it is made a phase-out period of the research phenomenon: the period in which the material and human resources are consumed without incomes (preinvestment and investment phases) and the period in which investments realize incomes (operating phase) [1, 2]. This is the period in which the funds are consumed without to obtain incomes and is characterized by human resources and materials assets in activities such as: the elaboration of feasibility study, design and execution of objective building-assembly works on excavations.

Work performed at the beginning of this period leads to assets of higher qualified work force, which represents a loss of net income, both for the operator and for the national economy. It is necessary that the duration of the research design to be as short, but large enough to ensure the quality of these works.

But it can have other beneficial effects [3, 4]:

- The reducing the risk of future moral wear products;
- The winning of sales markets;
- Getting a high selling price (at least for a while);
- Recovery of investment in advance of the deadline etc.

During the execution of construction works, it consumes large funds, especially material resources, which are fixed on the site and gradually put in work, and in the end the whole investment fund is immobilized. In the case of these works the assets size is striking influenced by their execution time. The execution duration is that it consumes most of its investment value. The phasing of investments influence directly the funds assets which represent potential losses for the national economy. In general, investments may be sliding in ascending (variant I), uniform (variant II) or descending (variant III). The representation of the investment variations is provided in fig. 1.

Because an amount spent remains immobilized until beginning of the objective function and even over this time, up to the effective recovery, the most convenient is the variant I, in which the assets are the smallest [4, 5].

Time acts as a separate factor on investments and their results, that generate a dynamic analyze in which all values dispersed in time are brought at a single time, process called update. In the update technique are used the two factors: the fructification factor and the update factor, depending on the time for which is made the update. The update calculations may be carried out at any time before or after the period in which the investment works are executed and the date on which is made the update is called reference point [3].

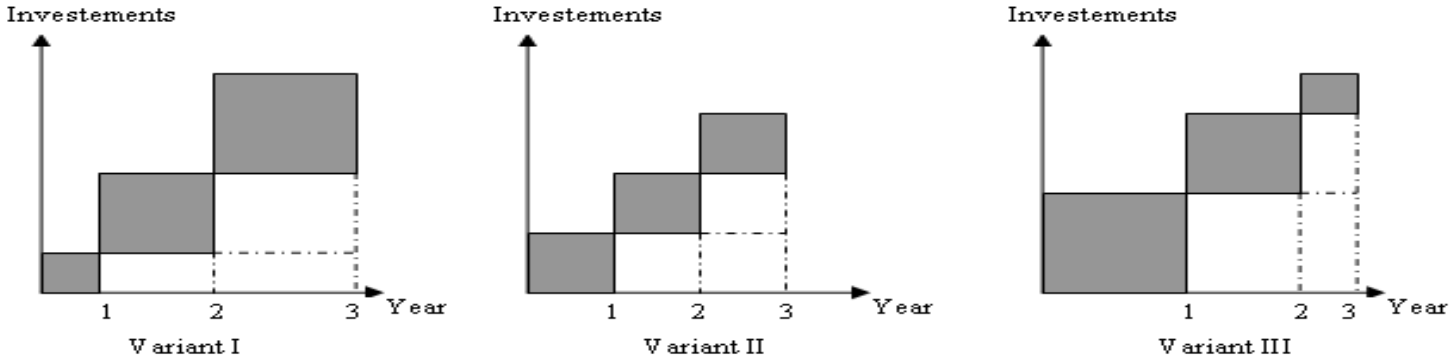

Fig. 1: Ascending, uniform and descending evaluation of investments

Assets Indictors

In the current economic and financial crisis, in the major industrial projects appear an important issue, that of investment assets, that's why in this article is presented a new vision on the size and losses due to these assets in the investments through the use of indicators, such as: [4].

Total Asset [4, 6]

In the current economic situation is the indicator that interested the more an investor because it wants to know how it will spend until it have production including incomes (investment funds allocated in the h years of execution, remain immobilized until the commissioning of the investment objective).

$$X_j = \sum_{h=1}^{d} I_h (d - h + x), \quad (1)$$

where:

X_j - Total asset of project *j*;

n - Total life duration of project *j*;

$n = d + D$,

d- Execution time of project *j*;

D-Functioning time of project *j*;

I_h - The value of the investment spent in *h* year;

x - Correction factor which takes values in terms of time spent investment;

$x = 1$, if the investment is spent at the beginning of the year;

$x = 0.5$, if the investment is spent at the middle of the year;

$x = 0$, if the investment is spent at the end of the year;

If the investment is spent during the 1, 2, 3, 4 months of year $h \Rightarrow x = 1$.

If the investment is spent during the 5, 6, 7, 8, 9 months of year $h \Rightarrow x = 0{,}5$.

If the investment is spent during the 10, 11, 12 months of year $h \Rightarrow x = 0$.

Thus, depending of the *x* values, the total asset X_j becomes (table 1):

Table 1: Values of the total asset

$x = 1$,	$X_j = \sum_{h=1}^{d} I_h (d - h + 1)$
$x = 0.5$,	$X_j = \sum_{h=1}^{d} I_h (d - h + 0{,}5)$
$x = 0$,	$X_j = \sum_{h=1}^{d} I_h (d - h + x)$

In table 2 is shown the evolution model of the total asset according to execution duration *d*:

Tabel 2: Model de variaţie al imobilizării totale

d (years)	$x = 1$,	$x = 0.5$,
$d = 1$	$X_j = \sum_{h=1}^{1} I_h (1 - 1 + 1) = I_1$	$X_j = \sum_{h=1}^{1} I_h (1 - 1 + 0{,}5) = 0{,}5$
$d = 2$	$X_j = \sum_{h=1}^{2} I_h (2 - h + 1) = 2I_1 + I_2$	$X_j = \sum_{h=1}^{2} I_h (2 - h + 0{,}5) = 1{,}5I_1 + 0{,}5I_2$
$d = 3$	$X_j = \sum_{h=1}^{3} I_h (3 - h + 1) = 3I_1 + 2I_2 + I_3$	$X_j = \sum_{h=1}^{3} I_h (3 - h + 0{,}5) = 2{,}5I_1 + 1{,}5I_2 + I_3$

	$x = 0,$
$d = 1$	$X_j = \sum_{h=1}^{1} I_h(1-1+0) = C$
$d = 2$	$X_j = \sum_{h=1}^{2} I_h(2-h+0) = I_1$
$d = 3$	$X_j = \sum_{h=1}^{3} I_h(3-h+0) = 2I_1 + 1I_2$

There are projects that need to be completed fully to be able to be in use (ex. the production of a certain product, it may not be in use with a lack of equipment) but there are also projects in certain industries which can give partially in use production capacity, which of course will lead to getting a certain productions, respectively to the total asset diminution [5].This will adjust the amount of investment from *h* year with:

$$I_h^{'} = I_h - P_h, \tag{2}$$

where:

$I_h^{'}$ - Adjusted value of investment;

P_h - The profit obtained through the partial implementation of production capacity;

The adjusted value *of total asset* becomes:

$$X_j^{'} = \sum_{h=1}^{i-1} I_h(d-h+x) + \sum_{h=i}^{d} I_h^{'}(d-h+x), \tag{3}$$

where:

i - The year in which it was given in partial use the production capacity;

The adjusted value of *total asset* in terms of *x* becomes:

Table 3: Adjusted values of total Asset

x=1	$X_j^{'} = \sum_{h=1}^{i-1} I_h(d-h+1) + \sum_{h=i}^{d} I_h^{'}(d-h+1)$
x=0 ,5	$X_j^{'} = \sum_{h=1}^{i-1} I_h(d-h+0.5) + \sum_{h=i}^{d} I_h^{'}(d-h+0.5)$
x=0	$X_j^{'} = \sum_{h=1}^{i-1} I_h(d-h) + \sum_{h=i}^{d} I_h^{'}(d-h)$

Annual Average Asset [4, 7]

This indicator is calculated as the ratio between total asset and execution duration and expressing the average value of annual asset.

$$X_{aj} = \frac{X_j}{d_i} = \frac{\sum_{h=1}^{d} I_h(d-h+x)}{d_i}, \tag{4}$$

where:

X_{aj} - Annual average asset of project *j*;

X_j - Total asset of project *j*;

d_i - Execution durations;

Specific Asset of an Investment Project

In the case of an investment objective, in which there are several variants of investments, and these vary by production capacity, most likely the variant with a larger capacity of production will require larger investments funds in comparison with the others and will lead of course to a bigger total asset of funds. So if the investor bases the investment choice on the minimizing of total asset there is a high probability that the decision to be wrong. Therefore the specific asset indicator is used that is express in terms of production capacity and the production value [4, 8, 9,10].

The indicator expression depending on the production capacity:

$$X_{vj} = \frac{\sum_{h=1}^{d} I_h(d-h+x)}{r_{vj}}, \tag{5}$$

where:

X_{vj} - The specific asset of variant *v* of project *j*;

r_{vj} - The production capacity of variant *v* of project *j*;

b) The indicator expression depending on the production value:

$$X_{vj} = \frac{\sum_{h=1}^{d} I_h(d-h+x)}{Vr_{vj}}, \tag{6}$$

where:

Vr_{vj} - The production value of variant *v* of project *j*;

$$Vr_{vj} = \sum_{p1=1}^{m} V_{p1} + \sum_{p2=1}^{m} V_{p2} + \ldots + \sum_{pn=1}^{m} V_{pn}, \tag{7}$$

where:

$p1$ - Type 1 of products from production capacity;

m - Number of products from one type;

V_{p1} - Production value of product $p1$;

In case that is put in partial use the production capacity X_{vj} becomes:

$$X'_{vj} = \frac{\sum_{h=1}^{i-1} I_h(d-h+x) + \sum_{h=i}^{d} I'_h(d-h+x)}{r_{vj}}. \quad (8)$$

$$X'_{vj} = \frac{\sum_{h=1}^{i-1} I_h(d-h+x) + \sum_{h=i}^{d} I'_h(d-h+x)}{Vr_{vj}}. \quad (9)$$

Economic Effect of Total Asset [4, 10]

By immobilization of investment funds over a certain period of time result an unrealized economic effect:

$$E_{xj} = e \cdot \sum_{h=1}^{d} I_h(d-h+x), \quad (10)$$

where:

E_{xj} - Economic effect of total asset;

e - The economic efficiency coefficient of the project (this indicator shows how many euros annual profit will be obtained at an one euro capital invested; it level must be larger)

$$e = \frac{P_h}{I_j}, \quad (11)$$

where:

P_h - Profit of h year;

I_j - Total initial investment of project j;

The economic effect of specific asset is:

$$E_{X_{vj}} = \frac{e \cdot X_{vj}}{r_{vj}}. \quad (12)$$

Conclusions

Investment projects have a great importance for the development of industrial enterprises. Because it prepares the capabilities and future production conditions, these projects influencing long-term competitiveness of enterprises and in consequence the results and fiscal balance.In the assets structure are covered: intangible assets, tangible and financial assets. Intangible and tangible assets specific is the fact that it are sinking fund (amortization). Amortization represents the systematic allocation on the expenses of the amortization value of an asset over its entire useful life. Financial assets represent the long-term financial investments which can register a loss of value. The calculation method of these project assets will show and quantify the projects profitability and will help to minimize the losses of specific assets.This article can be useful for economists, enterprises directors, projects managers who want to achieve an optimum choice for spending the fund's investment.

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