Online tananyag Gazdaságtudomány

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Accounting Analysis



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CHAPTER 1

1.1. THE OBJECT, PURPOSE AND TYPES OF ANALYSIS

Analysis: the totality of activities aimed at exploring the connections between socio-economic processes, thereby helping to:

- management decisions,
- the management of the enterprise,
- purposeful activities of business management and employees.

The subject of analysis: all spheres of the production process, which are always determined on the basis of information needs.

Purpose of analysis:

It can be in many directions:

- preparation of corporate decisions,
- measuring the fulfilment of the set tasks, exploring the reasons for the differences,
- comprehensive analysis of corporate activity,
- developing and supporting the operation of the internal interest system.

The task of the analysis:

The analysis must prepare:

- recognizing the need for a decision,
- making the decision in time,
- choose the most favourable of variants,
- implementation of the decision,
- monitoring the results of decisions.

Types of analysis:

- Based on the function played in the management process, we can group according to:
 their purpose,
 - their subject,
 - periodicity,
 - periodically recurring
 - aperiodic and
 - one-time decision-maker.
- By scope:
- *comprehensive*: analysis of the management of the entire company.
- partial: an examination of the management of each organizational unit.

- Based on its nature:

- *descriptive-predictive*: the emphasis is on the relationships between the facts.
- decision preparation: analysis that prepares managerial decisions.

– By approach:

- *technical-economic (quantitative):* examines the connections that can be described with the natural sciences e.g. fuel consumption.
- economic (value) analyzes: analysis of the factors influencing the result of the enterprise.

– In terms of process status:

- static: examines the event or phenomenon in a standing position..
- dynamic: examines the development, change.
- In terms of time:
 - Pre-decision analysis: the purpose of decision-making and the basis of the action.
 - *in the implementation phase*: the aim is to ensure the optimal completion of the task.
 - *ex-post study:* the aim is to make use of the analytical experience at a later stage.

I.2. METHODOLOGY OF THE ANALYSIS, THE MAIN STAGES OF THE ANALYTICAL WORK

THE ANALYSIS CAN BE PERFORMED:

in an inductive way: when we move from the more comprehensive result to the partial results, we break down the studied phenomenon into its parts.

in a deductive way: then the study moves from a simpler activity to a more comprehensive, more complex one.

The main stages of the analytical work

1. Defining the object and purpose of the analysis

Objective can be:

- comprehensive, where the goal is to explore critical points,
- analysis of the result of the previous analysis, because if we did not receive a response in the previous analysis, then a new objective is needed.
- 2. Designation of information sources

The information must be verifiable and constantly available.

- 3. Consider possible direct causes (factors)
- 4. Economic analysis of regularities and connections (relations between the examined phenomenon and its environment)
- 5. Choice of methods for analysis
- 6. Information collection and processing

- 7. Data processing, grouping
- 8. Decide on synthesis or new objective

RESULTS

if we come to the solution of the task formulated in the objective, we will explore the connections, draw conclusions, make proposals.

if we do not get to the task, the necessary information is insufficient or a problem arises that requires further analysis, then it is necessary to set a new goal.

I.3. GROUPING OF DATA

As a result of grouping the data, **statistical series** are created.

A line that contains **different but related data** is called a *"descriptive line."*

INDICATORS:

Data that can be used to statistically characterize a regularly recurring social or economic phenomenon.

STATISTICAL GROUPING

Grouping is the division of a population according to a distinctive criterion characterizing the units of the population.

Any classification is expected to:

- be complete
- be non-overlapping
- result in homogeneous classes.

The characteristic of grouping a population is called the grouping criterion.

Types of grouping by type of criteria:

- Time grouping: statistics are sorted by periods or dates.
- Territorial (spatial) grouping: statistical data are sorted by territorial (geographical) attribute.
- Qualitative grouping: statistical data are sorted by quality designation.
- Quantitative grouping: statistical data are sorted according to their quantifiable properties.

STATISTICAL SERIES

Types:

- Grouping line: specifies the size of a main population and a given subset..
- Comparison line: the purpose of the listing is to compare in time / space.
- Descriptive line: contains different types of data.

Examples of grouping

1.) Spatial series: A set of data describing the size of different populations in space.

Olympic Medal Count

🔒 All	Sports - All Medalists - Q	Search					
Rank	Team/NOC		• ¥1	÷ ¥2	š 3	Total	Rank by ÷ Total
1	United States of America		39	41	33	113	1
2	People's Republic of China		38	32	18	88	2
3	Japan		27	14	17	58	5
4	🗮 Great Britain		22	21	22	65	4
5	₹ ROC		20	28	23	71	3
6	🍋 Australia		17	7	22	46	6
7	Netherlands		10	12	14	36	9
8	France		10	12	11	33	10
9	Germany		10	11	16	37	8
10	Italy		10	10	20	40	7
11	Canada		7	6	11	24	11
12	💿 Brazil		7	6	8	21	12
13	New Zealand		7	6	7	20	13
14	per Cuba		7	3	5	15	18
15	Hungary		6	7	7	20	13
16	Penublic of Korea		6	4	10	20	13

Resource: https://olympics.com/tokyo-2020/olympic-games/en/results/all-sports/medal-standings.htm

2.) Time series

Time series: a set of data describing the size of different populations over time that is suitable for comparison.

The serial number of the Olympics	Year, Place	Nuber of medals
XXIV.	1988 Szöul	23
XXV.	1992 BArcelona	30
XXVI	1996 Atlanta	21
XXVII	2000 Sydney	17
XXVIII	2004 <i>,</i> Athen	17
XIX	2008, Peking	10
ХХ	2012 London	18
XXI	2016, Rio de Janeiro	15
XXII	2021, Tokio	20

Resource: http://www.mob.hu

3.) Quantitative series

Quantitative series: a set of data that gives the size of quantities that differ in quantity.

Results of the Basic of Finance course (in 2021. autumn semester)

Grade	Number of Students
5	15
4	13
3	12
2	20
1	10
Signature Denied	14
Total	84

Resource: Neptun system 2021

4.) Quality series

Quality series: a set of data describing the size of different populations in a quality. The composition and structure of a multitude can be displayed with quality lines.

The Dunaferr S.E. handball team's player frame by posts in the 2005-2006 league year

Játékban betöltött szerep	Játékosok száma (fő)
Kapus	3
Átlövő	4
Szélső	5
Beálló	6
lrányító	3
összesen	21

Resources: http://www.nemzetisport.hu

5.) Descriptive line

Descriptive line: classification of several different populations

Korcsoport (év)	Férfiak (%)
15–19	52,9
20–24	30,7
25–29	26,8
30–34	17,2
35–39	20,7
40–44	10,8
45–50	8,4
50–54	9,6
55–59	9,7
60–64	9,0
együttesen	21,4

Resource: Életminőség és Egészség, KSH, 2002.

Statistical table

If we compile a table from two statistical rows, it becomes a statistical table, which is a coherent system of statistical rows.

There are three types of statistics table:

- simple, if there is no summation, no addition,
- grouper, if one of the rows has a sum field, we have grouped only for one of the criteria,
- *combination*, if all rows can be aggregated, those in which the data are grouped according to at least two criteria.

CHAPTER 2

2.1. GENERAL ASPECTS OF STATISTICAL METHODS

In this subsection, we will deal with a comprehensive understanding of descriptive statistical analysis.

Descriptive statistical analysis

- Descriptive statistical analysis means that each variable in the data set examining individually with the corresponding statistical indicators.
- Descriptive statistical analysis is also called univariate analysis.
- Its purpose may be to present the characteristics of a variable, but also to provide a primary insight into a larger data structure.

Descriptive statistics are the simplest form of information compression.

- This includes the characterization of the distribution of the observed individuals according to a variable (criterion): the preparation of diagrams, tables, the characterization of the mean values and the standard deviation.
- Descriptive statistics are suitable for organizing and describing the data collected about the target group of the research.

- Its purpose is to organize and compress the data of the sample into a clear form, to graphically display and represent the data and to determine the values of certain characteristics.

COMPARISON OF STATISTICAL DATA

- By **the statistical concept of comparability,** we mean that the phenomena or processes compared to each other can only differ for the reasons we want to analyze in the study. It follows directly from this that in order to ensure comparability, the effect of any other factor that interferes with comparability must be eliminated from the study.
- The operation of comparison is encountered for all criteria, but statistical analyzes are usually dominated by temporal and spatial comparisons.
- The two basic ways of comparing are **quotient and difference** from the data to be compared.

STATISTICAL METHODS

The statistics will be examined from four perspectives, as follows: 1.) Ratios

2.) Mean values

- averages

-positional means

3.) Indices

4.) Other statistical methods

2.2. STATISTICAL METHODS - RATIOS

Ratio definition:

The relationship between two numbers is represented as a quotient. The numbers in the ratio must have the same units of measurement or represent similar quantities.

During the analysis, the data are compared where

- The part is compared to the whole,

- The data at different times related to each other

The quotient of two data that are related to each other is called a ratio.

 $V = \frac{A = relative \, data}{B = reference \, data}$

There are 5 types of ratios:

1.) distribution: which always compares partial data to the total population.

2.) coordination ratio: resembles a subset to a subset. (eg. proportion of girls per boy).

3.) dynamic ratios: The time and period on which the comparison is based are usually called the base period, while the object of the comparison is usually called the reference period. If we have data for more than two periods or dates, the basis of comparison may be constant and variable.

a.) Base Ratio: If the basis of the comparison is constant, then we are talking about a **base ratio**.

b.) Chain ratio: If the basis of the reference is variable, then we always consider the data of the previous period (date) as the basis of reference, in this case, we calculate the **chain ratio.**

4. Power ratio: It is used to measure the fulfilment of the task prescribed in the plan.

5. Intensity ratio: A number with a unit of measure, since it is a quotient of two data that are distinct but in some way related to each other.

2.3. STATISTICAL METHODS – MEAN

Mean is a numerical characteristic of the mass of data of the same kind.

There are two major groups of means:

- averages:
 - arithmetic,
 - harmonic,
 - geometric
 - square.
- Positional averages:
 - median
 - mode.

ARITHMETIC MEAN

The arithmetic mean is the quotient of the sum of the observed values and the number of elements.

– Simple form:



- Data set to be averaged: X1, X2, X3,, Xn

n

– Total number of scores:

- Weighted formula:



- Frequency in each class: fi,

MEDIAN

Median is the middle number in a sorted list of numbers. To determine the median value in a sequence of numbers, the numbers must first be sorted, or arranged, in value order from lowest to highest to lowest.

- If there is an odd amount of numbers, the median value is the number that is in the middle, with the same amount of numbers below and above => (n+1)/2.
- If there is an even amount of numbers in the list, the middle pair must be determined, added together, and divided by two to find the median value. \rightarrow (n/2 and ((n/2)+1)): 2

MODE

The mode is the value that appears most frequently in a data set.

A set of data may have one mode, more than one mode, or no mode at all.

Mode is most useful as a measure of central tendency when examining categorical data, such as models of cars or flavors of soda, for which a mathematical average median value based on order can not be calculated.

The mode of a quantitative criterion with discrete values is the most common criterion in the population.

STANDARD DEVIATION

- In statistics, we call the standard deviation of the data from each other or from the value that characterizes the population as a whole.
- VARIATION: the root mean square of the deviations of the basic data from the arithmetic mean.
- Unweighted:

$$\sigma = \sqrt{\frac{(y_1 - \overline{y})^2 + (y_2 - \overline{y})^2 + \dots + (y_n - \overline{y})^2}{N}}$$

- Weighted (from inter-class frequency):

$$\sigma = \sqrt{\frac{\sum_{i=1}^{n} q_{i} (y_{i} - \overline{y})^{2}}{\sum_{i=1}^{n} q_{i}}}$$

RELATIVE SCREENING

The quotient of the standard deviation and the mean :

$$V = \frac{\sigma}{\overline{x}} \cdot 100$$

If the value of the relative standard deviation is:

- Below 10%, the data set is constant (homogeneous), so the data are close to each other and to the average calculated from them,
- if between 10% and 20%, it is moderately variable,
- if between 10% and 20%, it is moderately variable,
- if it is above 30%, we are talking about a data set with extreme variability, where the average no longer characterizes the data set well.

2.4. STATISTICAL METHODS – INDICES

In this subsection, we will deal with indices. We get acquainted with the essence, formula and calculation of value, price and volume indices.

Index Calculation

In general, an index number is a measure that helps to compare temporally or spatially related variables in some way, a complex comparative ratio.

THE VALUE INDEX (IV):

...is a complex index, unit prices and changes in quantities over time are quantified simultaneously from the base period to the current period how the value changed together, on average. Based on value: The product of value (v), quantity (q) and unit price (p):

v = q * p.

UNIQUE VALUE INDEX SIGN: iv



THE PRICE INDEX (Ip)

Price Index: It shows how the total value of the products produced by the company would have changed from the base period to the current period if only unit prices had changed with the quantities remaining unchanged. Or it expresses the combined, average, change in unit prices over time.

UNIQUE PRICE INDEX (ip)

It only examines the change in value as a function of the change in the unit price – it takes the quantity constant.

– Taking the amount of the base period as constant :



– Taking the amount of the reference period as constant :



VOLUME INDEX (Iq):

...shows how the total value would have changed from the base period to the current period if only quantities had changed with unit prices unchanged. Or it expresses the combined, average, change in quantities over time.

UNIQUE VOLUME INDEX (iq):

It examines the change in value only as a function of quantity - it takes the unit price as a constant.

– Taking the amount of the base period as constant :



– Taking the amount of the reference period as constant



Methods for quantifying deviations

We examine the differences between the two periods because we are interested in the reasons for the change in the data of the two periods. To what extent was the production value influenced by the factors determining it (quantity, price)? Several methods can be used to investigate this difference, which is based on a similar principle but differ in their calculation.

EXAMINATION OF CHANGES IN PRODUCTION VALUE

When we look at changes in production value, we wonder what of the key components that determined production had a positive effect on earnings and what reduced it. Furthermore, we are able to determine, using the formula, the amount and direction of the change in the production value caused by which component (eg. capacity, average yield, price).

T= Production value

k=capacity

q= average yield

p=price

a.) Chain replacement

One of the very important requirements of the chain replacement method is that only one factor can be changed at a time, and the described order must always be kept. So, step by step, we determine the factors that cause change. We start from the formulas we learned earlier.

In this method, we always change only one factor in the formula and so we can determine the extent of the change.

Change in production value: $T_v = k_1 q_1 p_1 - k_0 q_0 p_0$ Reasons for change: - Capacity change: $k_1q_0p_0 - k_0q_0p_0$ - Yield change: $k_1q_1p_0 - k_1q_0p_0$ - Price change: $k_1q_1p_1 - k_1q_1p_0$

b) Absolute difference method

In the case of the method of absolute deviation, we start from the previous formula (k0q0p0) and always substitute only the change of one of the factors participating in the determination of the result, its absolute value.

K change $K_{u} = K_{1} - K_{0}$

 $k_v q_0 p_0$

q change: $q_v = q_1 - q_0$

 $k_{1}q_{v}p_{0}$

p change : $p_v = p_1 - p_0$

 $k_1 q_1 p_v$

c) Percentage differences

When determining the percentage difference, only the relative change of the values in the two periods is examined. So how much change has occurred from the base period to the current period.

The essence of the index calculation.

 $K_1/K_0 = K\%$

 $Q_{1}/Q_{0}=Q\%$

 $P_{1}/P_{0} = P\%$

Other statistical Methods:

- trend calculation,

– asymmetry,

- correlation studies (correlation, regression),

- statistical balance sheet

Specific methods of analysis

- ABC analysis: the most costly product is "A", this is worth analyzing in detail, "B" can also be important and "C" is negligible.
- Product life cycle
- Portfolio analysis
- Value analysis

2.5. Calculation Examplex

1. sample example: The following table shows the gender distribution in a course education. Calculate the distribution ratios!

Gender	Number of group (people)	Distribution Coefficient form	Distribution %
Boys	17		
Girlsk	23		
Total			

Solution:

Total = Boys + Girls = 17+23 = 40

Boys distribution = 17/40= 0,425 → 0,425 * 100= 42,5%

Girls distribution = $23/40 = 0.575 \rightarrow 0.575 * 100 = 57.5\%$

Gender	Number of group (people)	Distribution Coefficient form	Distribution %
Boys	17	0,425	42,5
Girlsk	23	0,575	57,5
Total	40	1	100

2. *sample example*: Calculate the coordination ratio (the number of girls per boy!) Based on the basic data in the previous table.

Solution:

23/17=1,35 girls get 1 boy in the group.

But there is no 0.35 girl, so it is advisable to multiply this value by 100 ==> 135 girls get 100 boys

3. sample example: The table shows the number of high school graduates between 2015 and 2018. Calculate the base ratios.

Years	Person	Base ratio 2005=100%
2015	50	
2016	45	
2017	67	
2018	43	

Solution:

2015 \rightarrow the first year = I share the value with myself

Years	Person	Base ratio 2005=100%
2015	50	50/50*100=100
2016	45	45/50*100=90
2017	67	67/50*100=134
2018	43	43/50*100=86

4.	sample example:	The table shows the number	of high school	graduates between	2015 and 2018.	Calculate the chain ratios!
	I I I I I I I I I I I I I I I I I I I			0		

Years	Person	Chain ratio (previous year = 100%)
2015	50	
2016	45	
2017	67	
2018	43	

Solution:

Years	Person	Chain ratio (previous year = 100%)
2015	50	50/50*100=100
2016	45	45/50*100=90
2017	67	67/45*100=148
2018	43	43/67*100=64

5. sample example: The results of a grade exam are as follows:

3, 5, 3, 1, 2, 4, 5, 5, 3, 2

Calculate the arithmetic mean!

Solution:

The simple arithmetic mean can be obtained by dividing the sum of the data by the number of elements added:

$$\bar{x}_a = \frac{3+5+3+1+2+4+5+5+3+2}{10} = \frac{33}{10} = 3,3$$

In the previous section, we noticed that a grade occurs more than once. This presupposes the possibility of simplification. the sum of the tickets can also be calculated as the product of the rating (xi) and their frequency (fi). Thus, the arithmetic mean can be obtained as follows:

$$\bar{x}_a = \frac{1 \cdot 1 + 2 \cdot 2 + 3 \cdot 3 + 1 \cdot 4 + 3 \cdot 5}{1 + 2 + 3 + 1 + 3} = \frac{33}{10} = 3,6$$

6. sample example: Determine the median value of the price of bread on the basis of the following market prices (HUF / kg) observed in bakeries: :

230, 222, 233, 210, 200, 235, 215.

Solution:

Order of size: 200, 210, 215, 222, 230, 233, 235,

Median (middle element): 222

7. sample example: Determine the modal value of the price of bread on the basis of the following market prices (HUF / kg) observed in bakeries:

230, 222, 230, 245, 210, 200, 230, 215.

Solution:

The modal price is the most common price, in our example it is 230 HUF/kg.

8. sample example: We know the following cost data in the different operating units of a company (thousand HUF / ton): 28, 29, 13, 36. Calculate the standard deviation and the relative standard deviation from this data set!

Solution:

Arithmetic average of cost data:

$$\bar{x}_a = \frac{28 + 29 + 13 + 36}{4} = 26,5$$
 thousand HUF/t,

of which the standard deviation is as follows

$$\sigma = \sqrt[2]{\frac{(28 - 26,5)^2 + (29 - 26,5)^2 + (13 - 26,5)^2 + (36 - 26,5)^2}{4}} = 8,38ezerFt/t$$

Thus, the cost data differ from the average by an average of HUF 8.38 thousand / t.

Remaining with the former example, the relative standard deviation is $8.38 / 26.5 \times 100 = 31.62\%$, so the data set has extreme variability.
2.6. Calculation Examples

1. sample example: A company produces 2 types of products. Calculate the value indices!

Product	Iluit of monormo	Base	period	Sub		
	Unit of measure	Quantity (q_0)	Unit price (p ₀)	Quantity (q ₁)	Unit price (p ₁)	
Pasta	Thousand ton	200	200	230	210	
Flour	Thousand ton	450	40	320	45	

Solution:

Value index calculation

Base period value	Current period value
200*200=40000	230*210=48300
450*40=18000	320*45=14400
Sum: 58000	Sum: 62700

$$i_{\nu,k} = \frac{62700}{58000} = 1,08$$

The production value of the company increased by 8% (or 1.08 times or 108%) from the base period to the current period.

current quantity at base price $(q_1 X p 0)$	base period quantity at current price $(q_0 X p_1)$		
230*200=46000	200*210=42000		
320*40=12800	450*45=20250		
Total: 58800	Total: 62250		

$$i_{p_{1}}^{1} = \frac{62700}{58800} = 1,06$$
 $\left| i_{p_{1}}^{1} = \frac{q_{1k} \bullet p_{1k}}{q_{1k} \bullet p_{0k}} \right|$

Unit prices, from the base period to the current period, increased by an average of 6% when weighted by the material quantities.

From base period to the current period, the company's production would have increased by 6% if only unit prices had changed and volumes had not.

$$i_{p,}^{0} = \frac{62250}{58000} = 1,07$$
 $i_{p,}^{0} = \frac{q_{0k} \bullet p_{1k}}{q_{0k} \bullet p_{0k}}$

Unit prices increased by an average of 7% from the base period to the current period, if we weighted them by base volumes.

From the base period to the current period, the company's production would have increased by 7% if only unit prices had changed and volumes had not.

$$\dot{t}_{q,k}^{1} = \frac{62700}{62250} = 1,007$$
 $\dot{t}_{q,k}^{1} = \frac{q_{1k} \bullet p_{1k}}{q_{0k} \bullet p_{1k}}$

The volumes increased from the base period to the current period by an average of 0.7%.

From the base period to the current period, the company's production would have increased by 0,7% if only volumes had changed and unit prices had not.

$$i_{q,k}^{0} = \frac{58800}{58000} = 1,013$$
 $i_{q,k}^{0} = \frac{q_{1k} \bullet p_{0k}}{q_{0k} \bullet p_{0k}}$

Volumes increased by an average of 1.3% from the base period to the current period. From the base period to the current period, the company's production would have increased by 1.3% if only volumes had changed and unit prices had not.

2. sample example: Methods for quantifying deviations

Examination of the change in production value

T=Production value k=capacity, q=average yield, p= price

Show how much the production value deviates from the plan!

Nama	Unit of managemen	Plan data	Fact	
Iname	Unit of measure	Production		
Sowing area	Ha	100	120	
Average yield	t/ha	4	5,6	
Price	HUF/t	3450	3300	
Production value	HUF	1380000	2217600	

Quantify the deviation by the reasons that affect the production value:

a) chain substitution method,

b) by the method of absolute differences,

c) by the percentage difference method.

Solution

Discrepancy between plan and factual data: 2.217.600 - 1.380.000 = 837.600 HUF

a) Chain substitution method:

Change in production value: Tv=k1q1p1 – k0q0p0

Reasons for change: Capacity change: k1q0p0 - k0q0p0 Yield change: k1q1p0 - k1q0p0 Price change: k1q1p1 - k1q1p0

Yield area: **120** x 4 x 3450 – 100 x 4 x 3450 = 276.000 HUF Yield average: 120 x **5,6** x 3450 – 120 x 4 x 3450 = 662.400 HUF Price change: 120 x 5,6 x **3300** – 120 x 5,6 x 3450 = -100.800 HUF Total: 837.600 HUF

b) Absolute differences method:

```
K Change K_v = K_1 - K_0

k_v q_0 p_0

q change: q_v = q_1 - q_0

k_1 q_v p_0

p change: p_v = p_1 - p_0

k_1 q_1 p_v
```

Yield area: 120 - 100=20 20 x 4 x 3450 = 276.000 HUF Yield average: 5,6 - 4 =1,6 120 x 1,6 x 3450= 662.400 HUF Price change: 3300-3450 = -150 120 x 5,6 x (-150) = -100.800 HUF Total: 837.600 Ft

c) Percentage differences:

The essence of the index calculation.

 $K_{1}/K_{0} = K\%$

 $Q_{1}/Q_{0} = Q\%$

 $P_{1}/P_{0} = P\%$

Yield area 120/100 = 1,2 = 20 % change 0,2 Yield average: 5,6/4 = 1,4 = 40% change 0,4 Price change: 3300/3450 = 0,9565 = 95,65% 1.380.000 x 1,2 x 1,4 x (-0,0435) = -100.800 HUF Total: 837.600 HUF 1.380.000 x 0,2 = 276.000 HUF 1.380.000 x 1,2 x 0,4 = 662.400 HUF 100 – 95,65 = 4,35% change: -0,0435

CHAPTER 3

3.1. General features of Market Activity Analysis

GENERAL FEATURES OF MARKET ACTIVITY ANALYSIS

In a market economy, the sales process plays an essential role in the life of enterprises, one of the most important functions of the enterprise. At the heart of management is the so-called marketing approach. The main principle is that the needs of customers must be met, therefore market aspects must prevail in all areas of the company's operation.

Nowadays, the goal is no longer just to increase profitability. In order to operate successfully, they do not primarily strive to increase turnover as before, but they want to achieve higher profits and more favorable market positions by satisfying customer needs and achieving consumer satisfaction.

To achieve this goal, the following activities will be carried out:

- develop products and services that meet the needs of customers,
- inform customers of their usefulness,
- make products and services available to users,
- pay close attention to the setting of the offer price, and
- encourage customers to buy,
- strive to establish a long-term, good relationship with customers and users..

In order to maintain the market and increase market share, it is becoming increasingly common for producers not only to sell their products but also to provide full service packages. The package is based on the goods sold, which are supplemented by warranty and other service services, maintenance, repair work and warranty spare parts supply - all of which ensure a long-term relationship between manufacturers and users.

Market activity is a multifaceted, complex activity that significantly influences the market position and competitiveness of the company. For all these reasons, the economic analysis work of all enterprises must help to make favorable market decisions, examine the quality of the activity and its impact on the operation of the enterprise.

The analysis of market activity is extremely diverse, in the curriculum we deal with only a few topics, eg.:

- analyzes preparing market decisions
- analysis of the order
- examination of the procurement activity of trade.

3.2. Preparation of market decisions

The leaders of the company have to make continuous, day-to-day decisions related to the market and sales. In order to make favorable decisions, it is necessary to examine in which markets and at what prices to sell its products, what product mix to develop, how to deliver products and services to consumers.

ANALYZES OF PRODUCT COMPOSITION AND PRODUCT STRUCTURE

Among the various analyzes related to sales activity, calculations and examinations concerning the product composition and product structure occupy an important place. In the framework of these, it is necessary to look for the most favorable sales mix in the short term for the company, as well as to classify its product structure, long-term competitiveness and market position.

ANALYZES THAT CAN BE USED IN SHORT-TERM DECISIONS:

In order to establish short-term decisions related to the product composition, several types of examinations, calculations and analyzes must be performed. Of these, we deal in more detail with studies based on the profitability expectations of the business.

The analysis methods presented can be used to examine the profitability ranking of the product and which product composition provides the most favorable result for the company.

A variety of information is needed to calculate what can be used to determine the best sales composition. Some of the information can be gathered from business records, but most of it needs to be obtained and developed with careful work.

The information essential to prepare decisions can be grouped as follows:

- Market information
- Manufacturing information
- Profitability information

3.3. Decision preparation methods

As mentioned in the previous subsection, the information necessary to prepare decisions can be grouped as follows:

- Market information
- Manufacturing information
- Profitability information

a) Market information

Market information can basically be obtained through market research. As part of this activity, sales opportunities, quantities that can be sold, customers, prices, and sales conditions must be assessed. Market information includes the sales minima and maxima used in the calculations.

There can be several reasons for sales minimums. For example, they may come from a supply contract, be designed by the company to retain a market or consumer segment, or be a minimum sales quantity that the company can even produce economically.

Sales maximums show the upper limit of the quantities that can be sold.

(b) Manufacturing information

The so-called manufacturing information comes primarily from the company's internal information system. These include the size of the scarce resources available as well as the specific uses of the scarce resources available.

An entrepreneur can have multiple scarce resources at the same time.

For example

- the performance of a machine, group of machines, equipment
- number of people with special knowledge and special circumstances (labor force)
- raw materials and components that are difficult to obtain to a limited extent
- possibility of cooperation (contract work, parts)
- energy, water, etc.

(c) Profitability information

The calculations related to the product composition are performed on a product-by-product basis, so the typical profitability indicator that is usually used in the calculations is the coverage of the products.

In order to determine the product coverage, an economic calculation shall be made for each product, taking into account the following relationships:

Planned net selling price – Planned direct (selling) cost Amount of planned specific coverage

Costs of production change differently with changes in the volume and structure of production

- There are costs that are independent of changes in the volume, size, and composition of production, incurring approximately the same amount, approximately fixed costs.

- The other part of the costs largely depends on the change in the volume and composition of production, which are approximately the direct costs.

Fixed costs can be disregarded in the calculations for the short-term optimization of the product mix, as they are incurred in any way, whatever product mix the company develops. As can be seen from the scheme of economic calculations, in order to determine the specific coverage, in addition to the expected prices of the products, the total direct cost must also be planned, and a plan calculation must be compiled.

One version of the calculation scheme:

1.) Direct material expenses(a) Direct material costsb) Material services used

2.) Direct personnel expenses

(a.) Direct labor costs

(b.) Direct wage contributions (taxes)

3.) Other direct costs related to production

(a) Operating costs to be allocated on the basis of characteristics (machine costs)

(b.) Special tool costs (descriptions)

(c.) Other direct eligible costs (rents, leasing fees, etc.)

4.) Re-use of own-produced stocks (use of semi-finished products)

5.) Production cost (1 + 2 + 3 + 4)

6.) Direct selling cost per unit of account

7.) Direct cost (sales) (5 + 6)

Example:

Data from the production of an enterprise

Gross material cost	5475 HUF/pc
Waste recovery	54 HUF /pc
Extra Shipping costs	5 % after material cost
Direct labor costs	675 HUF /hour
Total wage contributions	65%
Specific machnine cost	3750 HUF /hour
Work standard	54 minutes/pc
Machine time required	42 minutes/pc
Manufacturing cost	180 HUF /pc

The company plans to produce and sell 18000 of the product and 40 % of it considers it realistic to achieve a gross result.

Determine the direct cost and the offer price!

Solution:

1. Determination of dierct cost

- 1. Direct material cost (5475 54) = 5421HUF/pc
- 2. The service used: (5475 x 0,05) = 73,75HUF/pc

675Ft/hour x 0,9hour/pc = 607,5HUF/pc

4. Direct wage contribution (607,5 x 0,65) = 394,875HUF/pc

5. Other direct costs 42 minutes x hour 60 minutes 1 hour

42/60 = 0,7 hour/pc

Machine cost: 3750 HUF /hour x 0,7hou/pc= 2625 HUF /pc

Cost of production equipment: 180 HUF /pc

Direct cost 9502,125 HUF/pc

```
direct cost per product (60%) + gross margin (40%) = Offer price (100%) 9502,125 >>> 60%
```

Offer price (x)>>> 100% (9502,125 x100)/60 =15836,875 HUF /pc

Offer price = 15836,875 HUF /pc (with 40 gross result)

3.4. Method of production characteristics

Product characteristics can be used to inform short-term, operational decisions. The product characteristic indicators are the economic parameters and indicators of the products, during their calculation we divide the specific coverage of each product by the specific volume of the scarce resource required for their production. Because a company can have several narrow production resources at the same time, several product characteristics can be calculated. These indicators can be used to establish profitability rankings.

TASK FOR CALCULATING PRODUCT CHARACTERISTICS:

The following plan (annual) information is known about the products and activities of a company that is mainly engaged in manufacturing activities:

Nama	an antitu unita	Product Type					
Ivallie	quantity units	"A"	"B"	"C"	"D"		
Confirmed order – domestic – export	pc pc		8000	2000 4000			
Sales opportunity: – domestic – export	pc pc	12000	20000 10000	10000 5000	4000 _		
Net sales prices: – domestic – export	Ft/pc Ft/pc	14000	8600 8800	18000 17600	5800 -		
Direct cost (sales)	Ft/pc	9100	5000	11000	3200		
Specific resource use in- dicators:				-			

– Machine time require- ment for Machine group 1	Machine hours/pc	0,6	0,5	1,1	0,4
- Machine time require- ment for Machine group 1	Machine hours/pc	0,6	0,7	0,8	0,3
– Use of raw material "X"	m2/pc	14	8,5	18	6
- Specific working time requirement for a special operation	Average hour/pc	0,5	0,4	0,8	0,2

Amount of resources available:

- Performance of Machine group number 1: 56100 Machine hours
- Performance of Machine group number 2: 53520 Machine hours

The performance of the machine groups includes the effects of a development that is expected to increase the number of usable machine hours by 10%.

Quantity of raw material "X" that can be used: 1.000.000 m^2 .

Available "average hours" = sum of total working time used in production: 35600 hours.

a) The calculation of the coverage ratio

This indicator is only used to rank products with a similar cost structure, in the case where the enterprise does not have a factor limiting production.

Finding:

Coverage ratio = (Amount of specific coverage)/(Net selling price) * 100 = %

Based on the data of the above task, we calculate the coverage amount and then the coverage ratio:

Name	Q.u.	A	B _{domestic}	B _{exp.}	C _{domestic}	C _{exp.}	D
Net price	Ft/pc	14000	8600	8500	18000	17600	5800
Direct cost/product	Ft/pc	9100	5000	5000	11000	11000	3200
Coverage amount	Ft/pc	4900	3600	3800	7000	6600	2600

Coverage Amount = Net price – Direct Cost

The data in the first row of the table can be copied from the table containing the basic data for the task. The only thing you need to pay attention to is whether it is domestic or foreign sales.

When filling in the second row of the table, the table containing the basic data must also be used. There is no difference here whether the product will be sold domestically or abroad. They will be produced at the same time, their costs will be the same.

If we deduct the direct cost per product from the selling price, we get the margin amount.

The amount of coverage shows how much we have at our disposal from which we can pay out the fixed costs and the remainder of the benefit.

As the company also plans to sell for B and C products at prices other than domestic prices, two types of margin can be established for the products. For this reason, products entering the domestic market and sold on export markets are included in the calculations as a separate product.

Denomination	Q.u.	А	B _{domestic}	B _{exp.}	C _{domestic}	C _{exp.}	D
Coverage amount	Ft/pc	4900	3600	3800	7000	6600	2600
Coverage ratio (%)		4900/14000 =35%	3600/8600 = 41,9%	3800/8800 = 43,2%	7000/18000 = 38,9%	7000/18000 = 38,9%	2600/5800 = 44,8%
Profitability ranking		6.	3.	2.	4	5	1.

The covering ratio shows what percentage of the net selling price is the coverage amount. The higher the rate, the more favorable it is for the business. As can be seen from the ranking, if there is no factor limiting production, product "D" is the most profitable and product "A" is the least profitable for the company.

b) the amount of cover per machine hour (for both machine group 1 and 2)

This product characterization test is used to rank products when a machine or group of machines is a narrow factor of production so the throughput of that machine should be used to produce products whose sales provide the most coverage for the business.

Method of calculation:

Coverage amount per 1 machine hour = (Specific coverage amount)/(Specific machine hour usage) = Ft/Machine hours

As can be seen from the problem, two types of machine groups can be shortage, so we can quantify them:

Coverage amount per 1 machine hour for machine group 2.

Denomination	Q.u.	Α	B _{domestic}	Bexp.	C _{domestic}	C _{exp.}	D
Coverage amount per 1 machine hour for machine group 1.	Ft/Machine hour	4900/0,6 = 8167	3600/0,5= 7200	3800/0,5= 7600	7000/1,1= 6364	6600/1,1= 6000	2600/0,4= 6500
Ranking		1.	3.	2.	5	6	4.
Coverage amount	Ft/Machine hour	4900/0,6= 8167	3600/0,7= 5143	3800/0,7= 5429	7000/0,8= 8750	6600/0,8= 8250	2600/0,3= 8667
Profitability ranking		4.	6.	5.	1.	3.	2.

c) the amount of coverage per unit of raw material use

With the help of the coverage amount per unit (kg, m3, pcs, etc.) of material consumption, we can form a ranking if the amount of usable raw material is limited.

Method of calculation:

Coverage amount per unit of raw material use= (Specific coverage amount)/(Specific material use) = Ft/kg,m3,db etc. Denomination

Denomination	Q.u.	Α	B _{domestic}	Bexp.	C _{domestic}	C _{exp.}	D
Coverage per 1 m ² of material consumption	Ft/Machine hour	4900/14= 350	3600/8,5= 424	3800//8,5= 447	7000/18= 389	6600/18= 367	2600/6= 433
Ranking		6.	3.	1.	4.	5.	2.

d) on the basis of the amount of coverage per normal hour of use!

If the available labor force (eg. a group with some special skills) is a constraint on production (this is a scarce available tool), then this tool should be considered. To assess how profitable the sale of each product is for the company, the margin amount per standard hour among the product characteristics is used.

Method of calculation

Coverage amount per 1 standard hour = (Specific coverage amount)/(Specific standard hourly requirement) = Ft/standard hour

Denomination	Q.u.	Α	B _{domestic}	Bexp.	C _{domestic}	C _{exp.}	D
Coverage amount per 1 standard hour	Ft/Machine hour	4900/0,5= 9800	3600/0,4= 9000	3800/0,4= 9500	7000/0,8= 8750	6600/0,8= 8250	2600/0,2= 13000
Ranking		2.	3.	1.	4.	5.	2.

As can be seen from the task, the profitability rank of the products can be established on the basis of the product characteristics calculated per product. The ranking takes into account which product is the most profitable to produce, with the most coverage available using the scarce assets per unit.

Knowledge of rankings is important for managers when making operational sales decisions. With the help of this examination, it can be determined for which products it is expedient to obtain an order and for which products it is more reasonable to accept the order only if the company can no longer expect the right.

3.5. Determination of product composition

Within the framework of short-term market decisions, the management has to decide how much of a product (service) to sell and produce. For these decisions, it is not enough just to know the rankings, calculations must also be made for the product composition. With the help of the analyzes, it is necessary to look for the products, production and sales volumes that, taking into account the resources, market obligations and opportunities available to the company, are expected to provide the highest amount of coverage and thus provide the company with results.

The planning of the most favorable product composition for the company can be based on the already known and estimated market opportunities, the developed product structure, the existing production conditions and limitations. The specific method of calculation depends on the number of production constraints.

- a) if the company does not have a factor limiting production, it is advisable to plan a quantity (sales maximum) that satisfies the market needs from all products with a positive margin. Of the products with negative coverage, only the quantity corresponding to the delivery obligations or, in some cases, the volume corresponding to the strategic objectives.
- b) If there is a kind of factor limiting the production, the product composition providing the maximum coverage for the enterprise can be determined using the product characteristics. In the calculations, after planning the sales minimums, the quantities of the products must be planned according to the rankings established on the basis of the characteristic product characteristics, keeping in mind the available resources and the sales opportunities.

EXAMPLE BASED ON WHAT HAS BEEN LEARNED:

Continuing with the example data derived in the previous subsection, let's review the resources needed to meet sales maximums

Resources required for sales maximums					
Products	Machines of Group 1 (machine hours)	Machines of Group 2 (machine hours)	"X" raw material	Manpower (standard hours)	
А	12000*0,6=7200	12000*0,6=7200	12000*14=168000	12000*0,5=6000	
В	30000*0,5=15000	30000*0,7=21000	30000*8,5=255000	30000*0,4=12000	
С	15000*1,1=16500	1500*0,8=12000	15000*18=270000	15000*0,8=12000	
D	40000*0,4=16000	40000*0,3=12000	40000*6=240000	40000*0,2=8000	
Total	54700	52200	933000	38000	
Available resource	56100	53520	1000000	35600	

The first step in filling in the table is to check how long it takes for each machine group to produce 1-1 products (the data can be found in the basic table - in the previous subsection).

The second column examines the machine life of machine group 2.

In the third column, the raw material needed to produce product 1-1 is multiplied by the planned amount of product.

In column 4, we examine labor demand, i.e., how many hours workers work to produce 1-1 products.

Once the table has been prepared for products A-B-C-D, aggregate the quantities required for each product in the "Total" row. Then we get the full demand.

In the "Available Resource" row, enter the quantities that are available in the maximum quantity from the given asset.

Once we have completed the table, the last two rows should be compared. The optimal situation is if there is no amount in the last row that is less than its counterpart in the penultimate row.

In the present task, we have found that the last resource, labor, is scarce at our disposal. This means that if we want to produce all the planned products, we will not have enough manpower to do so.

Here the manager can choose from two options:

- employs or hires workers to carry out the work
- -reduces the quantity of product so that it can be produced.

If he decides to reduce the amount of product, he needs to consider which product is worth reducing. That is, when he loses less on change.

Comparing the last two rows of the previous table, we therefore obtain which is the asset that can be a factor limiting production (scarcely available source).

Machines of Group 1 (ma- chine hours)	56.100 machine hour
Machines of Group 2 (ma- chine hours)	53.350 machine hour
"X" raw material	1.000.000 m3
Standard hour	35.600 machine hour

Based on the data in the table, it can be stated that the company has a factor limiting production, the number of standard hours that can be performed by the group of employees performing a special operation, which is 35,600 Machine hour.

So we will have to solve our calculation based on the ranking of the workforce from the rankings made in the previous subsection.

However, before we calculate ont he basis of ranking alone, we must first examine how much of our product was tied up at the time of the calculation. We must definitely fulfill these previous contractual obligations. We either win over it or lose.

Part of this quantity of machine hours must be used to fulfill previously agreed delivery obligations (contracts).

Standard hours required for confirmed orders:

B: 8000*0,4 =3200 standard hours (sh)

 $C_{\text{domestic}} + C_{\text{exp}}$: (2000+4000)*0,8=4800 sh

Remain: 35600-8000=27600 sh

In addition to the standard hours required to meet the delivery obligation, the company will have free resources: 27.600 sh. This should be used to achieve as much coverage as possible.

Using this based on ranking:

D: 40000*0,2=8000 sh

A: 12000*0,5=6000 sh

B_{exp}: 10000*0,4=4000 sh

B_{domestic} 12000*0,4=4800sh

Remain: 27600-22800=4800sh, which is used to produce C_{domestic} : 4800/0,8=6000 pc. (The total $C_{\text{domestic}} = 10.000 \text{ x}$ 0,8 =8000 sh should be, but it's only 4800sh!)

So the production has the following composition:

A: 12000 pc

B_{belf}: 20000 pc

B_{exp}: 10000 pc

C_{domesti}c:2000+6000=8000pc

C_{exp}: 4000 pc

D: 40000pc

CHAPTER 4

4.1. Selection of sales channels, partners

In modern market economies, manufacturers do not sell their products directly to consumers (end users) but deliver them to users through different distribution channels (retail and wholesale). These sales channels take many very specific forms.

Typically, sales patterns differ for consumer goods, capital goods, and services. The different level of profitability and market share is significantly influenced by the form of sales; therefore all companies must look for which sales methods would be the most suitable for them. The selection of the sales channel requires careful examination, as these decisions, due to their close relationship with profitability, are among the most important management decisions.

On the other hand, the validity of the quality of the decision is also influenced by the fact that the decision usually has a long-term effect, as in a short time significant changes in this area cannot usually be implemented by the company.

Before making decisions about sales channels, the following should be done:

- consumer needs need to be assessed
- determine what goal the company wants to achieve through the sales channel
- account must be taken of the sales methods used to achieve the given objective
- then the sales methods that the company considers appropriate should be assessed taking into account several aspects.

Possible sales channels need to be assessed from an economic point of view. The economic assessment must compare the prices applicable to the various distribution channels, the size of the distribution, the distribution, transport, packaging and other costs associated with the sales channel and their effect on the company's results.

4.2. Method of examining prices

Pricing decisions play an important role in market decisions, as they are encountered by the company on a daily basis. E.g.:

- if the company launches a new product on the market, it must determine the price at which it offers the product to customers
- decide on the price of its products in business negotiations with old and new customers
- if the business makes a business offer to its potential partners, it is essential to determine the price
- in some cases, it has to offer discounts or offer a low price, in which case it must to know the lower price limit at which it is still sell worth selling the product

The prices to be validated and the pricing policy of the company can be influenced by many factors. E.g.

- the direct cost of the product
- what proportion of profitability the company wants to achieve?
- the limited resources and limitations of the enterprise
- storage facilities in the event of a temporarily poor price level
- the production possibilities and relationship of the enterprise
- the effect of the price of a given product on the price and sales volume of another product
- number of similar products and competitors on the market

- the competitive situation on the market
- the buyer's reaction to price changes, the elasticity of demand
- delivery, payment terms

Although, as can be seen, the price of products is influenced by many factors, but in the end the price is formed during business negotiations and agreements. Which of the listed factors prevails depends on the market position, strength and market competition of buyers and sellers?

4.3. The formation of the offer price

When a company comes to market with a new or modified product, it calculates a price. It determines what price enforcement would be beneficial to him. (Whether he will be able to sell the product for more or less depends on market forces.)

The determination of the offer price is closely related to the cost calculation, as it is clear that the company wants to get a price for its product that can cover the reasonable costs and the expected benefits associated with the production or sale of the product.

Based on this expectation, the offer price can be determined by increasing the planned, calculated direct cost of the product by a so-called with gross margin (profit). Gross profit, which may differ from product group to product group or possibly from product to product level, provides coverage for costs other than direct costs, expenses and the company's result. In the case of a new product, the calculation can be a calculation based on technical standards, if it is not a completely new product, so the company has already produced a similar one, then the so-called difference calculation.

Example

We know the following information about a new product in a manufacturing business:

Gross raw material – usage standards		
"X" raw material	3,5 kg/pc	
"Y" raw material	2,4 kg/pc	
Net raw material usage standards:		
"X" raw material	3,3 kg/pc	
"Y" raw material	2,1 kg/pc	
Purchase prices of raw materials		
"X" raw material	1200 HUF/kg	
"Y" raw material g	1600 HUF/kg	

Waste generated during production is sold at a price of HUF 100 HUF/kg. (For all raw materials.)

Shipping and loading costs (extra charge)	4%	
Total operation time	90 minutes	
– in this machine time	60 minutes	
Planned wage	350 HUF/hour	
Additional cost paid aHUFer salary in relation tot he regular salary in %	70%	
Machine cost per product	1500 HUF /machine hours	
Production equipment cost	235 HUF/pc	

- 3 semi-finished products are used for each finished product, the production cost of which is 200 HUF/pc.

- It is planned to sell 15,000 pieces of the product.
- The company is planned to spend HUF 900 on advertising the product, and the other costs related to the sale of the product are expected to be HUF 1,500.
- The company's gross profit on similar products is 40%.

What price would cover the costs and the level of profitability achieved for similar products? Review the calculations that can be used to determine the offer price through a task.

Solution:

To answer this question, we first determine the direct cost of the product.

Calculation of the new product (based on standards):

1. Direct material expenses	8 312 HUF/pc
a) Direct material costs "X" raw material	= 4 200 HUF/pc = -20 HUF/db
Gross material cost: 3,5 kg/pc * 1200 HUF/kg Waste recovery: (3,5-3,3)kg/c * 100 HUF/kg	4 1 80 HUF/ pc = 3 840 HUF/ pc = -30 HUF/db
"Y" raw material Gross material cost: 2,4 kg/pc * 1600 HUF/pc Waste recovery: (2,4-2,1)kg/db * 100 HUF/kg	3 810 HUF/ pc 7 990 HUF/ pc
	= 168 HUF/db = 1 54 HUF/db
	322 HUF/ pc

2. Direct personnel expenses	893 HUF/pc
a) Direct labor cost 1,5 hours/pc * 350 HUF/hour b) Contributions to direct wages: 525 HUF/pc * 0,7 Altogether	= 525 HUF/ pc = 368 HUF/ pc 893 HUF/ pc
3. Other direct costs related to production	1 735 HUF/ pc
a) Machine cost: 1 hour/db * 1500 HUF/hour	= 1 500 HUF/pc = 235 HUF/pc
b) Cost of capital goods:	1 735 HUF/pc
4. Re-use of self-produced stocks	600 HUF/pc
The production cost of the semi-finished products in- cluded in the product is 3 pcs 3 db * 200 HUF/pc	= 600 HUF/pc
5. Cost of productions	11540 HUF/ pc
6. Direct selling costs	1 60 HUF/ pc
a) Advertising cost per unit of product 900 EHUF : 15000 pc	= 60 HUF/pc = 1 00 HUF/pc
b) Other costs related tot he sale of the product 1500 EHUF : 15000 pcs Altogether	160 HUF/ pc
7. Direct cost	11700HUF/ pc

Starting from the calculated direct cost, we determine the offer price taking into account the 40% gross margin:

11700HUF/piece (60%) flat cost+ gross margin (40%)= offer price (100%)

11700=60%>>>> 100%=x (gross margin is based on the price!)

(11700x100)/60=**19500HUF/pc offer price**

A price of HUF 19.500 would ensure the recovery of the costs reasonably incurred and the profitability achieved with similar products!

4.4. Method of examining prices

THE METHOD OF PRICE TRACKING

Businesses, given that the prices of the resources used for products change frequently, regularly examine what price increases would be required to ensure that changes in the prices of resources do not reduce the weight of the result that can be achieved. These calculations are called price tracking.

Method of pricing

When a company develops a new product, but also in other cases (eg. in the context of market decisions), the question may arise as to how much the company's product is worth compared to similar products on the market, at what price it can still be competitive. We can estimate how much the new product is expected to sell for the so-called by the method of pricing.

Pricing can be applied if there are similar products on the market and we know their domestic and world market price, as well as the technical characteristics and useful properties demanded and recognized by the customers (the criteria that the customers formulate in relation to the product).

Several methods can be used for price calculation, one possible method of calculations is presented with the help of the following task.

TASK FOR PRICING:

A manufacturing company wants to appear with a new colour television. The company examines how valuable or less valuable the product under investigation is compared to similar products on the market (including product characteristics) and is thus expected to be able to sell its own product at a much higher or lower price than its competitors.

Pricing can be used to answer this question. During the price calculation, the following tests and calculations must be performed:

(a) The important technical characteristics, and useful properties of the product concerned, which are relevant to customers, needs and evaluations, must first be identified. A maximum value should then be set for each characteristic, so that the magnitude of the value associated with each characteristic is proportional to the importance
The following table describes the specific example:

	Important features of colour television	Maximum score
1	Characteristics of the picture tube (e.g. angled, flat projected surface)	20
2	The clarity of the image	40
3	Energy consumption	20
4	Easy to use	30
5	Number of receivable channels	25
6	Sound	40
7	Design	10
8	Additional features (e.g. picture in picture, picture stop, surround sound etc.	15
	MAXIMUM SCORE	200

(b) The next step is to examine whether there are similar (competing) products on the market

- how, to what extent they meet the criteria listed in the previous point,
- how much they are worth in relation to the specified maximum score;
- the price of the products on the market,
- what is the price per point of the criteria.

(c) The product developed by the company must then be subjected to a technical analysis to determine whether the product has all the important characteristics required by customers. Furthermore, how much each feature is worth against the maximum points.

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- what is the total score of the product (this is the sum of the scores given to the criteria)

The following table sets out points (b) and (c):

	Important features of colour television	Scores of the	Score of competing products			
	Characteristics of the picture tube (e.g. angled, flat projected surface)	developed product	II/1.	II/2	N	J
1	The clarity of the image	20	15	20	20	20
2	Energy consumption	30	30	35	25	30
3	Easy to use	15	10	10	15	20
4	Number of receivable channels	20	30	20	30	25
5	Sound	20	20	20	20	25
6	Design	30	30	30	40	35
7	Additional features (e.g. picture in pic- ture, picture stop, surround sound etc.	10	10	10	5	5
8	Important features of colour television	10	5	5	10	15
	TOTAL SCORE	155	150	150	165	174
	Price HUF/pc		310.000	300.000	350.000	400.000
	Price per 1 point (Ft/point)		2067	2000	2121	2286

d) Next, determine the average price of 1 point for competing products, which in our case

$\frac{2\ 067\ Ft+2\ 000\ Ft+2121\ Ft+2\ 286\ HUF}{4} = 2119\ HUF$

then, using all the scores established for the new product, it is possible to estimate the price of the product, the price at which the product can still be competitive.

Estimated price: 155 points 2119 HUF/point = 328445 HUF

If there is a competing product, e.g. the product marked J, it is possible to determine the extent of the deviation from its standard.

In the task it is : <u>155 point</u> * 100 = 88,6%, thus, the company can expect a price 11,4% 175 point

lower than the price of product J.

4.5. Determining the lower limit of the business price

All companies may find themselves in a situation where they have to reduce the prices of their products and give them a discount in order to keep the market or win new customers due to poor capacity utilization.

In such situations, the question arises as to how much discount the company can give, what is the minimum price below which sales are no longer appropriate for it. In order to make a favorable decision, business leaders need to know these minimum prices.

The minimum price depends on the costs, which are closely related to the volume and composition of production and sales. Theoretically, the lower limit of the entrepreneurial price is the marginal cost of the product, its proportional cost.

The method of approximate calculation that can be used can be determined as follows:

Unit:HUHUF/pc

Cost of production

+Cost of selling the product

+Coverage of warranty costs

+Expected additional costs of R&D costs

+Other indirect costs arising from the manufacture of the product cost, expenses per product unit (eg. additional inventory costs)

The lower limit of the entrepreneurial price

In addition to the production cost, the lower limit of the entrepreneurial price, ie. the minimum price, must also cover those indirect costs and expenses that, although not part of the production cost, were incurred due to the sale or production of the product.

EXAMINATION OF PRICE ELASTICITY

The relationship between the price and demand of products cannot be ignored in market decisions, as a very close relationship can be observed between these factors.

The following indicator can be used to quantify the relationship between demand and prices:

Price elasticity of demand = <u>% of change in sales volume</u> % of change in sales price

Demand and prices are generally inversely related, so the above indicator is negative.

Excercise

One company plans to produce 10,000 pieces of products.	Known:
the production flat cost of the product is	5000 HUF/pc
the selling cost per product unit is	300 HUF/pc
additional inventory cost	100 HUF/pc
based ont he data of previous periods, the expected warranty cost is	200 HUF/pc
the planned net sales price is	8000 HUF/pc

Questions:

a) A buyer would buy 12.000 pieces of product if he gets a discount. How much discount can the seller give the buyer?

b) he buyer is willing to accept a price of HUF 6,400. At this price, is the weight of the collateral lower or higher than planned?

c) With such a discount, what percentage increase in volume is required for the firm to reach the gross margin?

Solution:

The first step is to set a lower limit on the entrepreneurial price:the production flat cost of the product is5000+ the selling cost per product unit is300+ additional inventory cost100+ Warranty cost200The lower limit of the entrepreneurial price is:HUF 5. 600 /piece

The contract can give a maximum discount of HUF 2400 (8000-5600).

b) The buyer is willing to accept a price of HUF 6,400. At this price, is the weight?

Solution:

The planned:

Net sales revenue: 10000 pcs*8000 HUF/pc=80.000 thousand HUF <u>Direct cost: 10000 pc*5000 HUF/pc=50000 thousand HUF</u> Planned coverage: 30000 thousand HUF

With the price accepted by the buyer: Net sales: 12000 pc*6400 HUF/pc=76800 thousand HUF Direct cost: 12000 pc*5000 HUF/pc=60000 thousand HUF Actual coverage: 16800 thousand HUF

Coverage will be lower than planned.

c) With such a discount, what percentage increase in volume is required for the firm to reach the gross margin?

Solution:

If the contractor accepts the price accepted by the buyer:

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The coverage of the product will be: 6400HUF/pc – 5000HUF/pc = 1400 HUF/pc .
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Planned total coverage: 30.000 thousand HUF

30.000 thousand HUF/1400 HUF/pc = 21429 pc the required amount, ie. 21429 pc / 10000 pc = 214, 29%, ie. 114,29% volume increase would be required for the planned gross weight.

CHAPTER 5

5.1. Analysis of finished product order

A large proportion of manufacturing companies work to order. Therefore, it is an important task of the sales organization to obtain an order of a size and composition that ensures a level of utilization that meets the business's profitability expectations.

The level of activity of a sales organization is characterized by the fact that

- what proportion of the planned sales revenue is tied up with orders at a given time, or
- whether the coverage content of the live order book is in line with the company's profitability procedures

Examining these aspects is an ongoing task for all businesses.

In addition, it is advisable to do it periodically

- dynamic analysis of the finished product order
- the evolution of the finished product order,
- examination of its change.

5.2. The break-even point

A business's break-even point is the stage at which revenues equal costs. Once you determine that number, you should take a hard look at all your costs – from rent to labour to materials – as well as your pricing structure.

How to calculate your break-even point

There are a few basic break-even point formulas to help you calculate break-even point for your business. One is based on the number of units of product sold and the other is based on points in sales dollars.

How to calculate a break-even point based on units:

Divide fixed costs by the revenue per unit minus the variable cost per unit. The fixed costs are those that do not change no matter how many units are sold. The revenue is the price for which you're selling the product minus the variable costs, like labor and materials.

Break-Even Point (Units) = Fixed Costs ÷ (Revenue per Unit – Variable Cost per Unit)

WHEN DETERMINING A BREAK-EVEN POINT BASED ON SALES DOLLARS:

Divide the fixed costs by the contribution margin. The contribution margin is determined by subtracting the variable costs from the price of a product. This amount is then used to cover the fixed costs.

Break-Even Point (sales dollars) = Fixed Costs ÷ Contribution Margin

Contribution Margin = Price of Product – Variable Costs

To get a better sense of what this all means, let's take a more detailed look at the formula components.

FIXED COSTS:

As noted above, fixed costs are not affected by the number of items sold, such as rent paid for storefronts or production facilities, computers, and software. Fixed costs also include fees paid for services like graphic design, advertising, and public relations.

CONTRIBUTION MARGIN:

The contribution margin is calculated by subtracting an item's variable costs from the selling price. So if you're selling a product for \$100 and the cost of materials and labor is \$40, then the contribution margin is \$60. This \$60 is then used to cover the fixed costs, and if there is any money left after that, it's your net profit.

CONTRIBUTION MARGIN RATIO:

This figure, usually expressed as a percentage, is calculated by subtracting your fixed costs from your contribution margin. From there, you can determine what you need to do to break even, like cutting production costs or raising your prices.

PROFIT EARNED FOLLOWING YOUR BREAK EVEN:

Once your sales equal your fixed and variable costs, you have reached the break-even point, and the company will report a net profit or loss of \$0. Any sales beyond that point contribute to your net profit.

How to use a break-even analysis

A break-even analysis allows you to determine your break-even point. But this isn't the end of your calculations. Once you crunch the numbers, you might find that you have to sell a lot more products than you realized to break even.

At this point, you need to ask yourself whether your current plan is realistic, or whether you need to raise prices, find a way to cut costs, or both. You should also consider whether your products will be successful in the market. Just because the break-even analysis determines the number of products you need to sell, there's no guarantee that they will sell.

Ideally, you should conduct this financial analysis before you start a business, so you have a good idea of the risk involved. In other words, you should figure out if the business is worth it. Existing businesses should conduct this analysis before launching a new product or service to determine whether or not the potential profit is worth the start-up costs.

BREAK-EVEN ANALYSIS EXAMPLES

A break-even analysis isn't just useful for startup planning. Here are some ways that businesses can use it in their daily operations and planning.

PRICES:

If your analysis shows that your current price is too low to enable you to break even in your desired timeframe, then you might want to raise the item's cost. Make sure to check the cost of comparable items, though, so you're not price setting yourself out of the market.

MATERIALS:

Are the cost of materials and labor unsustainable? Research how you can maintain your desired level of quality while lowering your costs.

New products: Before you launch a new product, take into account both the new variable costs as well as the fixed ones, like design and promotion fees.

PLANNING:

When you know exactly how much you need to make, it's easier to set longer-term goals. For example, if you want to expand your business and move into a larger space with higher rent, you can determine how much more you need to sell to cover new fixed costs.

GOALS:

If you know how many units you need to sell or how much money you need to make to break even, it can serve as a powerful motivational tool for you and your team.

5.3. Examination of the coverage period of the finished product order stock

The management of the companies needs to know up-to-date whether the company's stock of finished products is developing in accordance with the profitability expectations. We can find out this information, which is essential for management, by examining the coverage period of the live finished product order stock.

Let's review the process of calculations through an exercise!

You know the following information about the products and activities of a company:

a) Information on the main activity of the enterprise (planned):

Denomination	Unit	Products				
Denomination		Α	В	С	D	
Net selling price						
domestic	HUF/pc	14 000	8 600	18 000	5 800	
import	EUR/pc	_	80	160	_	
Direct cost per product (sales)	HUF/pc	9 100	5 000	11 000	3 200	
Planned sales						
domestic	рс	12 000	20 000	8 000	40 000	
import	pc	_	10 000	4 000	_	

b) Other information (planned):

- Planned indirect cost of sales
- Coverage of commercial activity
- Cover for transport activities
- Balance of other income and expenses
- The result of financial procedures
- Other result

180 000 Thousand HUF 14 000 Thousand HUF 3 000 Thousand HUF -12 000 Thousand HUF -15 000Thousand HUF 0 Thousand HUF

In addition to order data, we also use information from the profit plan to monitor the coverage period of the live finished product order stock.

In the course of the calculations, it must first be determined at least how much coverage must be achieved with the products for loss-free management. The break-even point must be quantified.

Determination of Break-even point:

 Planned indirect cost of sales 	180 000 Thousand HUF
 Coverage of secondary activities 	
 Coverage of commercial activity 	14 000 Thousand HUF
 Cover for transport activities 	3 000 Thousand HUF
– Balance of other income and expenses	+12 000 Thousand HUF
 The result of financial procedures 	+15 000Thousand HUF
– Other result	0 Thousand HUF

BREAK-EVEN POINT 190.00

190.000 Thousand HUF

In addition to the coverage point, we also need to know the planned coverage of the products, thus the amount (amount) of collateral to be achieved with the products with which the enterprise its pre-tax profit is as planned

Planned coverage of products:

Planned net sales: Planned direct cost: PLANNED COVER 874 400 Thousand HUF 519 200 Thousand HUF 355 200 Thousand HUF

CHAPTER 6

6.1 Innovation

Innovation is the process of creating and introducing a new product, technique, technology, and related knowledge. However, it also includes the organizational and management changes (including, business policy too) that underpin them and are essential for their implementation.

It can be seen from the definition that innovation covers a very wide range of concepts, encompassing a wide range of activities that fall within the scope of creative intellectual work.

A common feature of these activities is that they enable the corporate system to innovate and thus better adapt to ever-changing management conditions. Also, with their help, it is able to realize the latest achievements of scientific and technical development.

Nowadays, businesses are motivated or forced by several factors to accelerate the innovation process.

These factors can be summarized as follows:

- 1.) external and internal management conditions have been tightened:
 - Quality-sensitive markets predominated,
 - intensified competition,
 - prices of materials, energy and other services purchased increased significantly,
 - central deductions have been tightened,
 - wage policy and profitability expectations within companies have increased,

2.) customer needs are constantly changing. This necessitates the development of each product family.

3.) Advances in science and technology have led to a deterioration in the relative technical standard of products,

4.) strong market competition, companies are constantly inventing new strategic, tactical catches, which forces companies to step in. Companies are interested in innovation profits, which are achieved through higher-profit, lower-cost products created as a result of successful developments.

Based on the above, it can be stated that monitoring the development is an essential task for all enterprises.

6.2. Methods of preparing development decisions

During the preparation of development decisions, we look for the product and technological development solutions that are the most favourable, taking into account the short-term (profitability, return, etc.) and strategic (increasing market share, leading technical level, achieving quality, etc.) goals of the company.

Accurate, professional information is crucial in the analysis. An incorrect estimate or incorrect information (due to a decision made using it) can have an adverse effect for years, even jeopardizing the survival of the business.

Gathering or creating information is a serious task before making any decision. On the one hand, because the technical plans prepared before the decisions (e.g. the development of a new product) do not provide a completely accurate basis for economic studies (however much they strive for).

These plans, which were drawn up in advance before the decision, can be considered as a planned model for future development. For this reason, the conclusions that can be drawn from the preliminary plans cannot be considered as real results that can be realized with complete accuracy.

On the other hand, a significant part of the information required for decisions is based on forecasts (e.g. sales volume, expected sales prices, etc.), the realization of which also depends on the development of factors outside the companies.

Based on all this, it can be concluded that all development decisions involve uncertainty and the risk arising from uncertainty. The risk is even increased by the fact that many times the decision and the effect of the decision are separated in time.

When performing calculations that underpin development decisions, the aim should be to minimize the risk. To reduce risk, for example, it is common for economic analysis to be performed by computer simulation **from three perspectives** before making decisions that include uncertainties:

- from a pessimistic point of view (assuming the most unfavourable changes)

- based on the most likely environmental response,

- from an optimistic point of view.

Accounting Analysis

In order to reduce uncertainty and risk, sensitivity tests can also be used, which can be used to show the role of individual factors in the development of expenses and results. The final results of the sensitivity studies also point out which factors need to be given special attention in the planning due to their importance. In addition to the various calculations, the surest way to reduce the risk is for the company to give preference to the developments that best suit its capabilities and circumstances.

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- adjusts the size of investments and the characteristics of the product to be developed to market needs,

- plans the material and technical composition of the development sparingly,
- ensure the orderly execution of exports,
- ensures the conditions of efficient production and operation, and
- ensures that the new product reaches customers.

Due to the complexity of the preparation of development decisions, in all cases team work, engineers, traders, economists, etc. requires coordinated work.

Following the technical decision-making, financial and economic studies must be carried out. On the one hand, liquidity calculations have to be made to check whether the financial coverage of the development is provided.

On the other hand, it is necessary to examine how the outcome is affected by the development. Does the money invested by the business pay off? Is it economically feasible to implement the development?

Several calculation methods can be used for the economic analysis, including:

- economic calculation,
- economic indicators,
- scoring

6.3. Time factor and Net Present Value

The role of the time factor in the economic calculations that prepare development decisions

The implementation of development decisions (eg a major technological development, the development of a new product) often takes months and years, and the decision can affect the economic activity of the company for years. This should be kept in mind when performing economic studies, the so-called **time factor**.

The time factor

In economic life (including our daily lives), we value a unit of pre-existing funds more than a unit of funds that can be acquired in the future because we can invest the pre-existing funds sooner, and so it pays us interest or a different kind of return.

We also value our funds today more because of the uncertainty of the future and inflation.

Time factors

- the interest factor,

- the discount factor,
- the repayment factor.

The interest rate factor shows that a unit of today's investment, development expense, income, return, and so on. how much is it worth in t years.

Formula: K, = $(1+i)^*t$

where:

 $-K_{t} = t$ -th annula interest rate factor

-i = interest

- t = number of the years

The discount factor shows how much you need to invest today to grow to a unit value in year *t*.

STATIC AND DYNAMIC INDICATORS THAT CAN BE USED TO ASSESS THE ECONOMY AND EFFICIENCY OF DEVELOPMENT

Economic calculation is an indispensable tool for the preparation of development decisions, as it is not possible to make a decision without showing the impact of development on the result. However, the calculation alone is not enough to make a decision, as it does not include such important factors as e.g. the payback period of the investment, the development of the economy and efficiency of the operation, etc.

The calculation should therefore be supplemented by indicators that the company considers important and that express significant correlations.

In the literature and in corporate practice, we can find many types of economic indicators that can be used for development decisions. Indicators are usually characterized by the relationship between the results generated by the development and the expenses incurred in connection with the development.

However, these results and expenses occur at different times (often with a difference of several years). Depending on the principles used to compare results and expenses at different times, two groups of indicators can be distinguished.

We can talk:

- static or

- dynamic indicators.

Accounting Analysis

Static indicators are characterized by the fact that they do not differentiate between current payments and future results. These indicators usually refer to a single period, assuming a representative year, or using average data. Static indicators are used for preliminary, generous studies.

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The dynamic indicators take into account the entire life of the development and include the so-called time factor. In determining the dynamic indicators, the interest expenses calculated and the discounting make the expenses incurred and the results generated at different times comparable. Economic indicators that can be used in the preparation of development decisions:

NET PRESENT VALUE:

One of the most important indicators that should be calculated for all development decisions. Net present value is the difference between the discounted amount of cash inflows from development and development costs (initial investments). Based on the indicator, it can be determined whether the amount spent on development will be returned during the entire life of the development (taking into account the time factor), and whether additional income will be generated.

On the basis of the net present value, developments for which this indicator is positive can be accepted. If this indicator is negative, it means that the investment will not be recouped from future income. If zero, the investment will just pay off in terms of income. And if it is positive, then the income generated by the development will exceed the funds paid for the development. When comparing several development variants, we consider the variation at which the net present value is higher to be favourable.

PAYBACK TIME:

shows how long development costs are recouped from the cash income generated by the development. Its calculation is justified by the fact that it is closely related to risk and liquidity, as the shorter this period, the lower the risk, the sooner the company can re-invest its money in improvements (or invest it elsewhere). When calculating the indicator, we compare the net development-related expenditure with the annual net cash income generated by the development. The recovery time can be calculated in both static and dynamic ways.

In addition to the above, a wide variety of indicators can be established, which correspond to the nature of the enterprise and the peculiarities of development.

Thus, the impact of development affects:

- the annual average result,
- the annual cash flow,
- asset efficiency indicators,
- labor productivity indicators,
- material and energy demand indicators,
- on the return on equity,
- the number of staff,
- for product characteristics indicators, etc.

When making a decision on a development issue, of course, during the decision-making process, the calculation of both the economic calculation and the economic indicators, keeping in mind the general principles, must be adapted to the given development topic.

PREPARATION OF PRODUCT DEVELOPMENT DECISIONS

Product development means the development of a new product, as well as the modernization and further development of an existing product. It can be implemented with your own development or by purchasing a license.

Before product development, it is essential to conduct a market research and brainstorming, during which the existing and potential needs of potential customers and users are assessed. In addition, it is necessary to examine which of these needs the company aims to meet and which product development would be needed for this. Of course, the study should also assess the financial capabilities of the company too. In addition, the examination of product life curves is an essential task.

In addition, the examination of product life cycle is an essential task. From which stage of a product's life cycle a product can be deduced, it can be deduced which product needs to be developed instead of a new product, and for which products the stage of maturity can be extended by modernizing and consequently making the product more marketable. These tasks are primarily the responsibility of market researchers, traders, design engineers, and technologists. This is followed by an economic analysis, in the framework of which it is considered which of the development possibilities would be expedient for the company. Accurate, all-encompassing economic studies are very important because a possible mistake, the development of a not-real-ly-marketable product, costs a lot of money and wasted time for the business, and is a big loss even if they miss a promising development opportunity.

PREPARATION OF PRODUCTION (TECHNOLOGICAL) DEVELOPMENT DECISIONS

Production development, technological development includes the development and introduction of new production processes, the application of more modern, higher technical and technological solutions. There can be several specific ways to improve technology.

Technology can be upgraded:

- new machinery, equipment,
- more modern production equipment,
- new production processes,
- using more modern production systems,
- production organization,
- modernization of material handling, etc.

Regarding production development, we need to know that the relationship with product development activity is very strong. These tasks should be performed by development professionals in close collaboration.

The same production development task can most often be accomplished in different ways, at different levels, and at different costs. In order to be able to choose from the various development options, an economic calculation and analysis must be performed. The decision requires careful scrutiny, as production development can influence many important factors in a business.

Thus:

- the volume and composition of production,
- prices,
- material demand, energy demand,
- labor productivity, headcount requirements,
- production costs,
- overheads, etc.

6.3.3. Computational task

Excercise:

When calculating the net present value, we assume that the same amount of cash income is generated annually, 12009Thousand HUF. The expected level of profitability is 20% (calculated interest rate)! The amount of the company's net development-related expenses: 22,194 thousand HUF, the duration of the development is 5 years.

Calculate the net present value!

Solution

a)

Time	Discont factor (Dt)	Expenditure thousand HUF E	Income thousand HUF (Ct)	Discounted return thousand HUF
Date of investment	1	22194		
Year 1	1/1,2=0,8333		12009	10008
Year 2	1/1,22=0,6944		12009	8340
Year 3	1/1,23=0,5787		12009	6950
Year 4	1/1,24=0,4822		12009	5791
Year 5	1/1,25=0,4018		12009	4826
		22194		35915

Formula:



Ct: t-th annual income Dt : t-th discount factor n: number of years

NPV: 35915-22194=+13271 thousand HUF

It can be seen that the NPV is positive, the company will get a return on its investment and in addition you can even expect a return of 13271 Thousand HUF at present value!

CHAPTER 7

7.1. Personnel and payroll management

Among the expenses of the enterprise, the expenses related to human resources play a prominent role, especially in the labor-intensive sectors.

In the income statement prepared using the full cost method, we separate payroll costs, other personnel payments and payroll taxes from personnel expenses. When planning the wage cost, the wages and benefits to be paid to the employees are planned after the determination of the required number of employees in the enterprises. This is because labor costs are the expenditures for which an adequate amount of personnel with the required qualifications and experience can be provided to perform the planned tasks.

1. Personnel management

The basis of headcount management is the headcount plan, in which the average headcount of the enterprise is determined by the main (bb) groups, with physical and mental occupations. In the analysis of the composition of the headcount, we distinguish these two large groups by means of distribution ratios.

When preparing the plan, the primary goal is to have a competent, adequate number and composition of dedicated workforce available at the required working hours at all sites, plants and work processes.

Human resource planning can typically be divided into the following parts:

- Situation analysis
- Comparison of labor demand and labor supply
- Action plan (action planning)

In the situation analysis, after assessing the market environment (changes in market demands, new or shrinking markets, competitors, etc.), performance and productivity targets are set, taking into account sales opportunities and strategic objectives. Subsequently, based on the expected sales volumes, the number of employees required for the products or product groups is quantified on the basis of the capacity plan, per plant and job (forecast of labor demand). In determining the number of staff required to achieve the objectives, they shall build primarily on past experience. The basis of labor supply is provided by internal labor supply.

Accounting Analysis

In the optimal case, in addition to the headcount data, the composition of the headcount is also appropriate, i.e. the employees have the qualifications, work experience and all the abilities and skills required to fill each job.

However, any changes, some of which are planned (relocation, redundancies or divestitures, promotions, etc.) or can be planned (eg retirement), may also take into account fluctuations. can be picked up by the business.

The following indicators are used to examine fluctuation:

Entry traffic,% =	Number of entrants Average headcount * 100
Exit traffic,% =	Number of exits Average headcount * 100
Labor turnover,% =	Number of entrants + exits Average headcount * 100

In addition to the fluctuation at the enterprise level, the so-called internal fluctuations, which can occur between individual sites and plants (horizontal fluctuations), either as a result of reorganization or relocation, or as a result of a "spontaneous" employee decision. A typical example of job movement (vertical fluctuation) is the appointment of a group or shift leader.

There is no question that fluctuation induces additional costs. Recruitment and training costs for new entrants, e.g. severance pay may be linked. In addition to quickly quantifiable costs, fluctuations also have an adverse effect on corporate performance.

The ratio of labor demand to available labor can be measured by the labor force coverage indicator:

Coverage of labor needs,% =

the number of staff available in the given field, profession, job group the number of staff required to perform the task

* 100

The value of the indicator is 100% in the optimal case, there is a difference upwards or downwards, intervention is definitely needed. In addition to planning, it is also important to examine the indicator during the analysis, as employing redundant staff means additional costs, and missing staff can cause production losses and / or cost increases (overtime). In addition to the above, the fact that there is actually less work than the number of employees during a given period should be taken into account:

Labor utilization rate (A),% = <u>average number of employees</u> average headcount * 100

In addition to the internal labor supply, the external labor supply must also be mapped, which is especially important if the labor market situation in the company's catchment area is to be expected to be strongly absorbed by one or more companies or higher wages in the neighboring country. If there is a shortage of professions, it is also worth contacting vocational schools.

If labor demand and labor supply are projected to differ, an action plan should be drawn up for coordination. If we find a relatively small surplus of labor, we can decide to freeze the admission as a "painless" solution (natural weight loss due to retirement). A faster intervention is a (temporary) reduction in working hours (either for the site as a whole or for a given unit) or a more drastic downsizing following a serious market loss or automation. In the event of a temporary labor shortage, most companies require overtime and a strong emphasis on making better use of working time and increasing productivity.

A few people can be added to the workforce by recalling mothers on unpaid leave or increasing the working hours of part-time workers, but if this is not possible, recruitment should be advertised for new employees.

In a shrinking labor market situation, student work, subcontracting, temporary employment or simplified employment (casual work, seasonal work) can be a solution.

However, in the case of seasonal work, the aforementioned exhaustive effect must be taken into account in the affected sectors (agriculture, hospitality, construction). In order to meet the need for labor, some companies start their own bus services or even rent workers' accommodation or rent flats for people moving from other regions of the country to get people to work in more distant places.

The business can also choose from additional atypical employment opportunities to influence its labor costs. Among these, temporary employment is an increasingly popular solution, the peculiarity of which is the creation of a three-party legal relationship (lender, borrower and temporary employee). The employer is the lender who "temporarily transfers the employee employed by him to the borrower for remuneration."

TEMPORARY EMPLOYMENT PAID

The fee does not qualify as a salary cost and the recruitment and selection process is also handled by the temporary employment partner.

If the measures listed do not strike a balance, a review of organizational goals and "redesign" will inevitably lead to a change in the technology used so far (eg automation).

rmance = Load x Quality Score

7.2. Analysis of time utilization and performance of live work

To determine the available working time limit, the number of working days (the number of calendar days minus the number of days off and paid holidays) is fixed each year and the number of days that can be completed (performed in the analysis) by group of employees is determined according to the working time schedule.

Labor utilization indicator (B) =

Number of working days completedNumber of working days according to the working schedule* 100

The indicator can be used to calculate the rate of absences throughout the day:

```
Full-time absenteeism rate,% = 100% - Labor utilization rate (B)
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Full-time absence also includes justified and unjustified absences from scheduled days. In addition to all-day absences, the size of absences on a Friday can be quantified and the proportion of:

Average length of working day, hour / day =

Number of hours completed without overtime Number of days completed

Knowing the average length of the working day, the degree of utilization of working time can also be calculated:

Time utilization rate

<u>Average length of working day</u> Legal length of working day

or

```
Working time utilization rate (B),% = Number of hours completed
```

```
,
where
Number of hours completed = Number of days completed x Legal length of the working day
```

and

Ratio of absences on Friday,% = 100% - Working time utilization rate.

The combined ratio of full-time and part-time absences is characterized by the utilization rate of the working time fund, which can also be used to calculate the ratio of total absences:

Working time utilization rate,% = Number of hours completed working time base

where

Working time base = number of working days x legal length of working day (8 hours / day)

and

Total absenteeism rate,% = 100% - Working time utilization rate

The combined ratio of full-time and part-time absences is characterized by the utilization rate of the working time fund, which can also be used to calculate the ratio of total absences: Working time utilization rate, %:= Number of hours completed working time base

where

Working time base = number of working days x legal length of working day (8 hours / day)

and

Total absenteeism rate,% = 100% - Working time utilization rate

Based on the above: Time Base Utilization = Labor Utilization x Time Utilization

However, an employee present at his or her place of work does not work full-time, with shorter or longer downtime to be expected. The resulting "loss time" can be caused by a power outage, failure of the machines and equipment involved in the work process, mandatory rest periods (due to the nature of the work), work organization problems, or the employee's indiscipline. A special group of loss time includes time spent on repairing and replacing scrap, which also involves additional costs.

Businesses set a performance requirement (work standard) for physical jobs, which can be a time standard or a performance standard. The time standard refers to the amount of time required to perform a given job (process) under the specified technical and work organization conditions in the required quality, and the performance standard refers to the amount (eg pcs) that must be produced in a given unit of time.

The quotient of the time actually used and the work standard is the average power percentage, which is 100% in the case of optimal (ie proper standard setting and work).

In addition to the legal working hours of 8 hours a day, there are also short-time (part-time) employees, the proportion of which could be potential for the company in the face of growing demand for live labor. If, under current contracts, the company is (temporarily) unable to meet its targets during legal working hours, it may order overtime for a particular job or shift. However, efforts should be made to keep overtime rates to a minimum, as overtime pay (as well as switching public charges) can result in significant additional costs, and performance is typically lower after 8 hours of work lower.
7.3. Payroll management

In addition to determining the number of employees, the other pillar is the management of payroll when planning the company's personnel expenses. The remuneration for the work of the employees is the salary, which can be supplemented by the employer with fringe benefits.

Wages include, but are not limited to:

- Basic salary in connection with the performance of the job
- Allowances due to the special nature of the job (eg night shift)
- Premium (if a pre-determined goal is reached)
- Reward (ex-post recognition of outstanding performance)

Basic wage definitions are typically fixed for the time wage (monthly wage, daily wage, hourly wage), but performance pay may occur when specifying the wage form. Costs can be planned using time wages, but do not usually include a performance requirement per se, but only oblige the employee to be "present". In the case of performance pay, the quantity to be produced in a given time (eg pcs) is recorded, which can be supplemented with quality parameters (eg at least the proportion of class I).

Key indicators used to analyze payroll management

When analyzing the wage cost, it is necessary to examine the discrepancy between the plan and the actual data, as well as the change compared to the previous periods, with the emphasis on finding the reason for the discrepancies.

The question also arises as to whether the given level of wage outflows was justified and whether it is possible to reduce it and, if so, which elements of wage costs can be reduced or increased.

Accounting Analysis

The average wage can also be determined on the basis of monthly or annual data:

Average wage =

labor cost number of employees

Enterprise-level wage bill data are also worth evaluating and quantifying the impact of changes in headcount and wage growth (average wages) on the group of manual workers or on individual plants, cost bearers, and jobs.

Changes in the structure of corporate costs are important information for business leaders.

As part of this, we can also compare the magnitude of expenses related to live labor to corporate costs, the most commonly used indicators of which are the following:

Wage demand,% = labor cost Total cost or labor cost Total cos

In the course of the analyzes, it is especially important to examine the wage cost in terms of how much sales and profit the company is able to achieve at a given wage level. Suitable indicators for measuring this are the wage ratio (or wage level,%) and wage efficiency (reciprocal of the wage ratio).

Wage share,% =labor cost net income Wage efficiency = net income

labor cost

Accounting Analysis

The result per unit (1 EUR) wage cost can be quantified with the wage-rate profitability indicator:

Profitability on wages,% = <u>operating profit</u> labor cost

or

profit after tax labor cost

The denominator of the indicator may also include all personnel expenses at the discretion of the business. In addition to the above, a specific profitability indicator is the profitability in proportion to labor, which shows the result per capita:

Profitability in proportion to live labor, EUR / person =

<u>Operating profit</u> number of employees

or

profit after tax number of employees

In addition to or instead of the above, given the specific nature of commercial work, the following indicators may be informative in the analysis:

Wage share,% = <u>labor costs associated with the sale</u> Sales volume

Performance (Eur/capital) = <u>Sales volume</u> Average number of employees

Work Load = <u>numbe</u> Num

number of customers Number of sellers Quality Score =

<u>Sales volume</u> number of customers

The following relationship can be found between the last three indicators:

Performance = Load x Quality Score

CHAPTER 8

8.1. Tangible Asset management

One of the important areas of the analysis of business activity is the examination of the efficiency and effectiveness of the management of tangible assets. This includes all assets that are in the service of the enterprise in the long run (over a period of more than 1 year), are used to produce new products and add value to the finished product in the long run, in parallel with their wear and tear. value of the services provided.

An important element of the activity of tangible assets management is that the company is able to determine the optimal level of tangible assets required for its production, taking into account the expected life of tangible assets, their capacity (quantity of products that can be produced), economic operation, investment, maintenance and their operating costs and their residual values at the end of their useful lives.

When tangible assets are purchased, their technical condition is considered to be 100%, which, however, decreases continuously during use. We are talking about two types of obsolescence in this regard.

Physical obsolescence is, in fact, an objectively perceptible deterioration in technical condition. Moral obsolescence is affecting the company due to the development of technology in the sector, as its previously acquired machines become less modern with the development of technology, possibly are able to produce in smaller volumes compared to the latest technology, are able to produce products at higher costs, etc. Taking both obsolescences into account, the business must decide how long to use the tangible assets in its possession: when the time comes when they can no longer be considered economical and must be scrapped. Physical obsolescence can be delayed if the business pays due attention to the maintenance of its assets, which of course comes at a cost to it. Typically, the useful lives of tangible assets in terms of physical obsolescence are longer than those that take into account moral obsolescence.

The value of property, plant and equipment at the time of acquisition is called gross value, while its value less its obsolescence is called net value. The extent of obsolescence is indicated by depreciation (also known as depreciation) in the company's financial statements, which can be straight-line, degressive, also progressive or combined (depending on the company's business policy and the nature of the tangible assets).

The classification of tangible assets is possible on the basis of the balance sheet, their function in the activities of the enterprise, and based on their commissioning (Table).

Table: Types of tangible assets

Classification by balance sheet		
Real estate	Arable land, forests, plots, buildings and parts of buildings, other structures.	
Technical equipment, machines, vehicles	Production machinery and equipment, tools, production equip- ment, computer equipment, vehicles directly involved in produc- tion.	
Other plant, equipment, vehicles	Plant machinery and equipment indirectly intended for business activities, other vehicles, office machinery and equipment.	
Breeding animals	The costs of keeping those who are already involved in the produc- tion process (giving off a detachable product) are recouped from the sale of the detachable products.	
Investments, renovations	On the one hand, acquisitions of assets that increase the volume or cost of existing property, plant and equipment, and on the other hand, increase the useful life of depreciable assets. modernization activities.	
Advances on investments	A category that has already been transferred to suppliers but has not yet been reimbursed - in fact, a clearing category for invest- ments that have not yet been physically completed.	
Value adjustments in respect of property, plant and equipment	Accounting category applied to property, plant and equipment for which the market value differs materially from the carrying amount.	

Classification by task		
Means of production	Equipment for the manufacture of other products.	
Operating (business) assets	Assets that are used in the operation of a business or in the conduct of its business	
Administrative tools	The range of tools required to run the business and perform its management functions	
Other social welfare instruments	Assets that are not related to the business profile of the business (eg corporate resort, works of art).	
Classification by use		
Devices used	The installed or range of tools used.	
Disused devices	The range of devices that have not yet been commissioned or have been decommissioned.	

Whatever groupings are considered, it is important to use a division appropriate to the purpose of the analysis. In the following, we only deal with real estate, technical equipment, machinery, vehicles and other plant and equipment.

In the course of the analysis of the management of tangible assets, the analysis activity is based on the composition of the asset portfolio, the analysis of the condition and usability of the asset portfolio, and may cover capacity utilization. The data required for this can be obtained from company analytics, general ledgers, reports and performance statements. Depending on the sector, it may have special areas (e.g. agriculture), but in this chapter we focus on manufacturing companies.

8.2. Examination of the composition and usability of tangible assets

In the earlier subchapter based on the categories presented in Table, the composition of the stock of tangible assets can be examined with distribution ratios. It may be important how much weight each asset type is in all tangible assets at a given time, but it may be even more important what the composition is compared to the industry average. examining changes in internal ratios over time over several periods. It is also necessary to explore the reasons behind the timeliness of change. Changes can be analyzed on a gross and net basis, and even on the basis of depreciation of property, plant and equipment.

The so-called the ratios are very similar to the structural indicators, except that not all tangible assets are presented in their denominator, but only capitalized tangible assets that have already been used as intended (i.e. investments are not). It should be mentioned here that it may be worthwhile to quantify separately the proportion of newly capitalized assets during the period under review, i.e. the tangible assets that the enterprise used in accordance with their purpose.

Indicators of property, plant and equipment

Indicator name	Indicator
Proportion of real estate	<u>Real estate</u> Fixed assets
Machine ratio	<u>Machines</u> Fixed assets
Vehicle share	<u>Vehicles</u> Fixed assets

In general, production machinery and equipment are present in a higher proportion in production companies, while vehicles are present in a higher proportion in transport companies, for example.

However, the composition indicators alone are not sufficient to analyze the structure of tangible assets, as it does not matter what condition these assets are in, how much they are worn out, or what their real net worth is.

Accounting Analysis

For the condition of tangible assets, the **usability degree** indicator is quantified, which shows the extent to which tangible assets are still usable. It is expedient to calculate this separately for each asset group, and it is also expedient to examine their tendency.

Of course, the higher the ratio of this indicator, the more favorable it is, and it is by no means favorable if it shows a steady downward trend, as this indicates that it is worn out due to inadequate replacement of assets.

Degree of usability =	Book value of tangible assets (net)	
	Gross value of tangible goods	$\times 100$

Once the usability is quantified, the rate of wear is also easy to quantify.

Degree of wear (description) = 100 - Degree of usability

In fact, **the depreciation of tangible assets** is the same as in the previous indicator, which shows the condition of tangible assets owned by the enterprise in terms of accumulated depreciation. The closer it is to zero, the more favorable it is, and if it shows an excessively increasing trend, it could result in increased maintenance and servicing costs in the future, as well as a deterioration in the scrap rate for the business.

Depreciation of tangible assets =

Cumulative depreciation of property, plant and equipmentGross value of tangible goods× 100

In the case of indicators that also include the depreciation of property, plant and equipment, it is important to note that their development is fundamentally determined by the company's accounting policy, which determines how the company values the assets it owns, what depreciation method it uses. how to determine the expected useful life of your assets.

Useful information related to usability can be the age of each item of property, plant and equipment. the average age of tangible assets (or groups of tangible assets) and the proportion of assets written to zero.

In connection with the replacement activity of tangible assets, the renewal ratio is calculated, which shows the ratio of capitalized investments and tangible assets. In addition to its high value, the company is making significant investments in its future production, presumably with a positive outlook. An even more accurate picture is obtained by comparing the value of newly activated assets to the value of all activated assets only. (*Table*).

Table. Indicators of the renewal rate of tangible assets

Indicator name	Indicator
Renewal of property, plant and equipment	Value of tangible assets capitalized during the current yearGross value of tangible goods× 100
Renewal of capital goods	Value of tangible assets capitalized during the current yearGross value of capital goods× 100

We consider it favorable if the trend of renewal indicators is increasing, ie old assets are constantly being replaced by new ones. An annual rate of 10-30% already indicates a serious improvement.

When it comes to renewing a company's assets, it's not just the proportion of assets that have already been activated that is the only consideration. The extent of **ongoing investments** should also be taken into account, as the company may not have been able to activate or to complete the investment, but at the same time has embarked on a significant replenishment of assets, which may be promising for the future.

Proportion of investments in progress =

<u>Amount of ongoing investments in the current year</u> Amount of completed investments in the current year

The renewal intensity of property, plant and equipment can be characterized by the replacement rate of assets, for which the rate of depreciation of property, plant and equipment in the current year must be used.

Replacement rate of tangible assets =

Depreciation of property, plant and equipment recognized in the current year Gross value of tangible goods

 $\times 100$

8.3. Capacity utilization and related costs of tangible assets

The capacity utilization of tangible assets can also be examined from a technical and economic point of view. While the former compares production volume to a theoretical performance, the latter examines the impact of capacity utilization on a firm's ability to generate income and its impact on costs. The two need to be considered together because the mere fact that a company's machinery produces at its maximum technical capacity does not guarantee that this level of production will not lead to unrealistically high costs and thus will not have a negative effect on profitability.

9.4. Efficiency and flexibility indicators for tangible assets

Name of the indicator	Indicator
Efficiency of tangible assets used for main activity	Production value of main activity Average net worth of property, plant and equipment used for operating activities
Flexibility of tangible assets	Percentage change in tangible assets Percentage change in production value

Similar to the efficiency indicator of tangible assets, only the efficiency value can be calculated for the main activity using any of the production value categories. (It is important to note here that in the case of the efficiency indicators of tangible assets, the gross value can also be used as a projection basis, if due to the depreciation policy the net value of tangible assets is not closely related to their performance).

The elasticity of tangible assets indicator shows the extent to which there has been a 1% change in the value of production in the stock of tangible assets. It is worth calculating the indicator separately for different groups of tangible assets, so that it can become clear which group of assets is the one that reacts the most to changes in production value.

1. EVALUATION OF TECHNICAL CAPACITY UTILIZATION

The maximum of the technical capacities is the theoretical performance of the equipment owned and otherwise operated by the company. Among the drivers of the effort is the fact that a significant part of the company's capital will be tied up in these assets, which should be recouped as soon as possible. In addition, continuous technological development is accelerating the moral obsolescence of assets, which encourages them to make the most economical use of machinery as long as possible, as if they are obsolete, their continued use is more of a competitive disadvantage for the business. In addition, unused capacities are passive costs - fixed costs related to tangible assets such as depreciation or maintenance - result in a deterioration of the company's results, and the costs of tangible assets, which also mean relative cost savings, do not increase in proportion to the increasing production volume.

The analysis of the capacity utilization of tangible assets can be examined through a system of interrelated indicators. (*Figure*)



The ratio of the assets held by the enterprise to the total utilization rate is summed up, which can be broken down into two further indicators (Table).

Table: Proportion of use of production equipment

Name of the indicator	Indicator
Operational indicator	Average number of operational machines, equipment, vehicles Average number of machines, equipment, vehicles available × 100
Proportion of working machines	Average number of machines, equipment, vehicles in operation Average number of operational machines, equipment, vehicles ×100
Total utilization rate	Average number of machines, equipment, vehicles in operation Average number of machines, equipment, vehicles available × 100
Total utilization rate	Operational indicator × Proportion of operating machines, equipment, vehicles

The solvency ratio shows the proportion of property, plant and equipment that is or could be one of the property, plant and equipment available to the enterprise. The category of working machines is narrower than this and their proportion to the working equipment, respectively. it can also be compared to all available tools. Note that the full utilization rate can be used in two ways, respectively. integrates the operability indicator and the working machine ratio indicator.

Indicators can also be calculated broken down into asset groups. Of course, the goal is for the indicators to be around 100% for the company, and if there is a shortfall, it is important to find out the reasons for this, as the previously mentioned passive costs also occur in the case of non-functional and non-functional assets.

The production time that can be achieved by the available machines, which is taken into account in the total utilization rate, and the ratio of the time spent on the actual production are quantified by the **utilization rate of the useful time base** (*Table*).

Table: Test indicators for the utilization of the time base

Indicator name	Indicator
Useful calendar days base for machines	(365 days \times 3 shifts \times 8 hours) - maintenance, repair time \times Number of machines available
Use of useful time base (extensive use)	Number of hours spent on production Useful calendar time base for machines

When calculating the useful time base, we have assumed in the formula presented that the machines can operate on all days of the year, in three shifts, with 8 hours of work per shift. Of course, it is almost impossible to make 100% use of it, even after deducting maintenance and repair times (e.g. due to changeover times), but it serves as a theoretical assumption.

The extent to which this is exploited depends on the actual work schedule, the number of shifts employed by the company, downtime and other downtime.

In addition to the utilization of the available machine hours, the so-called it is influenced by **intensive utilization**, which is intended to test the fulfillment of pre-determined capacity standards for machines (the quantity of products expected to be produced in one hour).

When determining the **capacity standard**, it should be noted that the starting point is the labor standard, which determines the average quantity of products that can be produced on a given machine, but which can be surpassed under optimal conditions, i.e. the capacity standard is higher than the labor standard. The **maximum power percentage value** will be the one that determines how far the work standard can be exceeded under optimal conditions.

Capacity standard = Working standard × Maximum power percentage

Meeting the capacity standard (intensive utilization) =

<u>Actual specific output per hour (pcs / hour)</u> Capacity standard (pcs) The development of the indicator can be influenced by the organization of work processes, the efficiency and expertise of employees.

Since the capacity utilization formula is generally expressed as the quotient of production and capacity, if production is defined as the product of time spent on production and hourly output, while capacity is defined as the product of machine hours and capacity standards theoretically available to the firm, then we get the product of intensive and extensive utilization.

Capacity utilization (%) =

Production Capacity

= <u>Time spent on production (hours) × Power per hour (pcs)</u> Theoretical time base (hours) × Capacity standard (pcs)

= Utilization of time base (extensive) × Meeting capacity standard (intensive)

2. CAPACITY UTILIZATION COSTS AND ECONOMIC CAPACITY UTILIZATION

In general, an increase in production volume increases production costs (eg maintenance costs, depreciation, energy costs) not proportionally, but to a lesser extent, ie the cost of products (if machine costs are included in the cost) decreases (economies of scale). This can also be seen as a relative cost reduction, which can be calculated as the difference between the current year's machine cost and the base year's machine cost (adjusted for the volume performed in the current year). It can also be expressed in aggregate and in the cost per product.

It is important to keep in mind that in order to quantify only the change in machine costs due to capacity utilization, price changes need to be eliminated (e.g. changes in energy prices).

Relative cost reduction = $(K_v 1 \times q_1) + K_{f1} - (K_{v0} \times q_1) + K_{f0}$

where:

- $K_{v1} = current variable costs$
- $-K_{v0}$ = base period variable costs
- $-K_{f_1}$ = current fixed costs
- $-K_{f0}^{T}$ = base period fixed costs
- $-q_1 =$ volume fulfilled during the current period

Accounting Analysis

What has been done so far in any case justifies a better use of capacity, but it must also be borne in mind that an excessive increase in utilization may, to the detriment of the economy, be at some expense.

When we analyze economic capacity utilization, we are interested in the extent to which altered capacity utilization affects a firm's ability to generate income. Income-generating capacity is determined from two directions: on the one hand, on the side of production costs, and on the other hand, on the side of production value.

On the one hand, when assessing the utilization of economic capacity, we are interested in the difference between the amount of actual asset commitment and the amount of asset commitment actually required in terms of performance (production), ie the stock of tangible assets not covered by performance. The smaller this stock, the more favorable the situation of the company, because the capital tied up in this way is considered an unnecessary commitment, and there may be a better opportunity to return in other areas.

Gross value of tangible assets not covered by performance =

= Gross value of tangible assets - (Gross value of tangible assets × Technical capacity utilization rate)

The costs related to the excessively committed tangible assets are the so-called **idling costs.** In all cases, the goal is to minimize this type of cost. Idle costs can be traced back to fixed costs arising from the possession of tangible assets, as these (or part of them) are incurred even if the assets are not involved in production at all or are inoperable. (It is worth noting that in calculating this, we do not take into account the optimal conditions and maximum capacities, but the capacities possible due to the actual work schedule and number of shifts of the company, which - accordingly - is usually smaller than the maximum capacities.)

In conclusion, capacity utilization should not be increased to the maximum, but only for as long as it has an economic benefit, i.e. the additional benefits of increased capacity utilization outweigh the additional costs associated with increasing utilization

CHAPTER 9

9.1. Inventory management

One of the cornerstones of the company's inventory management logistics system. The task of logistics is to ensure that the right materials, (semi-finished) products and tools are available at the right time, in the right quantity and quality at the right time during the company's production, service and service activities.

For processing processes and sales processes. In connection with this, the task of inventory management is to support this logistics process by ensuring the continuous quantitative and qualitative records of the different types of inventory, their availability economically and efficiently.

The classification of stocks is possible according to several aspects, which are described in the chart summarizes.

Chart: Types of stocks

Classification by balance sheet	
Materials	Inventories whose value passes through the production process to the value of the finished product or service (e.g. raw materials, con- sumables, fuels, fuels, maintenance materials, packaging and office supplies) materials, consumables within 1 year).
Incomplete products	Inventories on which the company has already performed at least one machining process but are still undergoing machining.
Half-done products	Inventories on which the company has already carried out at least one machining process are not currently being processed but are not finished products in stock.
Fattening animals	Animals that are later involved in the production process (have not yet provided a detachable product) and are only breeding during the period
Finished products	Stocks that have passed the entire machining process and are in stock in a saleable form
Goods	Products and services that the enterprise resells unchanged after purchase (e.g., merchandise, deposit-based packaging, intermediary services).
Deposit on stocks	The inventory category that has already been transferred to material and goods suppliers but has not yet been reimbursed - it is not actu- ally a physical inventory, but a clearing category, so we do not deal with this in inventory management.

Classification by origin	
Purchased stocks	Inventories not produced by the enterprise but purchased by it for resale or use
In - house stocks	Inventories produced during the business processes of the enter- prise.

In the evaluation of inventory management, we typically calculate the average size of inventories, which is the amount of inventories available to the company in the period between two inventory control dates. The chronological average calculation is used to calculate these.

When analyzing inventory management, a company should focus on areas where material processes are able to adequately support value creation processes, whether the composition of inventories held is qualitative and quantitative, how long inventories rotate within the company, and to what extent inventories are contribute to the results of the business or what is behind the desired or unwanted changes in inventories.

9.2. Analysis of material supply and consumption

An analysis of material management is needed for productive enterprises, as these are enterprises that carry out transformation activities on purchased or self-produced stocks of material in order to produce a product of value to the customer.

1. THE MATERIAL SUPPLY ACTIVITY

Adequate material supply ensures the smooth running and pace of the production process.

If there are problems with this and the necessary materials are not available, then if replacement materials are not included in the production process immediately, production downtime will increase, as the equipment and labor used in production will not be able to continue production tasks. Accordingly, the volume of output of finished products decreases, the utilization and productivity of the resources used (e.g. machinery, labor) deteriorates, and unfinished stocks accumulate. Due to the loss of production, it may be necessary to work overtime for workers, which increases labor costs and overhead costs. Failure to shut down production, or only at the expense of significant costs, can also reduce workers 'performance-related earnings.

If substitutes can be introduced into production, downtime can be shortened or minimized, but the provision of substitutes can usually involve additional costs (eg. transport costs, procurement costs, plus machining costs) and may require unpredictable manpower, not a perfect substitute. and in the case of materials, the production of the finished product may even suffer from a deterioration in quality.

The production time will in any case increase if the materials needed for production cannot be provided, but it can also increase if replacement materials can be used - for example, the additional purchase time of the replacement materials or the extra preparation time required for processing because of.

As a result, the delivery of finished products to customers can lead to delays or deterioration in quality, leading to a loss of customer confidence, and costs can increase and the company's profitability can deteriorate.

When analyzing material supply activity, we examine the extent and changes in downtime and downtime due to the above potential problems, the effects of including substitute materials in production, and the detrimental effects of material stocks accumulated unnecessarily to avoid material shortages.

Accounting Analysis

We can examine the development of the amount of work and additional downtime in relation to a base period, paying special attention to what were the planned and unplanned downtime – which of them was caused by the lack of material supply.

Although oversized material stocks ensure the smooth continuation of production and minimize downtime, they can have a negative impact on the operation of the business in several areas.

For example, an enterprise commits unnecessary financial assets that could yield a higher return on investment in another area; interest costs arising from the financing of inventories purchased on credit may increase; unnecessary storage space can tie up storage manpower capacity, which can lead to additional costs; Improper stock records and improper scheduling of use can result in losses from storing materials beyond the warranty period.

2. THE MATERIAL USE ACTIVITY

The analysis of the use of materials can be done dynamically, ie by comparing a base period with the reference period, for which specific material use indicators are usually used, and with standards, when analyzing the actual use differed significantly.

Table: Specific substance use indicators

Indicator name	Indicator
Specific material use	Amount of material used Quantity of product produced
Material recovery	<u>Quantity of products produced</u> Amount of material used

The two specific substance use indicators are reciprocal, so their values move in opposite directions. While the higher the value of the **specific material consumption**, i.e. the amount of material used to produce a unit of product, the higher the material output, which is the amount of product produced per unit of material used.

We can talk about **material savings** if the specific material consumption rate in the current period is lower than in the base period. The magnitude of this can be calculated using the following formula:

Material savings = $q + x (a_0 - a_1)$

where:

- $-q_1 =$ quantity of product produced during the reference period
- $-a_0 =$ base period specific consumption indicator
- $-a_1 =$ specific substance use indicator for the current period

At the same time, material savings lead to material cost savings, lower production costs, improved profitability and the need to maintain smaller stocks of materials.

It is possible to analyze deviations from the standards after the production processes have been completed.

The following material use indicators are distinguished:

- Procurement standard: the total material requirements of a given product that are procured for the production of the product, taking into account the resulting scrap and any storage and transport material requirements;
- Gross material consumption standard: on the basis of this, the amount of material required for the production of the product is transferred from the warehouse, but all of this is not incorporated into the product, as it also generates planned waste;
- Net material consumption rate: the amount of material that is actually incorporated into the product;
- Waste generated: the difference between the gross and net material consumption rate;
- Change in standard: a change in material standard resulting from a change in manufacturing technology or product design.

The material recovery coefficient is calculated on the basis of the material use standards, which shows the percentage of the quantity of material from the warehouse that is vouched for the production of the product. The remainder is the proportion of waste within the gross material use standard.

Accounting Analysis

Material yield coefficient =Net material - utilization rateGross material- use rate* 100

Waste ratio = 100 - Yield factor

The total material consumption of a product is determined by the total production volume, the net material consumption rate of the product, the amount of waste generated and the amount of scrap according to the following formula:

Total material consumption

= Production rate * Net rate * Waste rate * Scrap rate

where

- Extent of waste = <u>Gross material consumption standard</u> Net material - consumption standard

- Extent of scrap = <u>procurement standard</u> gross material consumption standard

The effect of factors influencing the change in total material consumption of the product can be quantified by the chain substitution method.

In addition, the percentage of material losses can be determined, which actually shows the percentage of waste, scrap and other material losses.

Material loss ratio = <u>(Purchase rat</u> Purchasin

<u>(Purchase rate - Net rate)</u> Purchasing standard

If necessary, the calculations presented can be supplemented by examining the evolution of the cost elements related to the materials.

9.3. Inventory analysis

Determining the optimal inventory size is important not only to ensure that the company's financial processes run smoothly and that there is always an adequate amount of inventory available for each workflow, but also because the cost of inventory maintenance (e.g., warehousing costs, inventory costs, alternatives) costs, procurement costs, handling costs, etc.). Therefore, in fact, the optimization in the opposite direction has to be performed in two respects.

On the one hand, there is a need for sufficiently large stocks, and on the other hand, the size of stocks must be reduced as far as possible in order to keep the costs involved to a minimum. In order for this two-way optimization to be successfully performed by the company, it is necessary to establish preliminary stock standards, which determine the most appropriate quantity, quality and composition of the various stocks.

In the first step in the analysis of the development of inventories, a comparison can be made with the previously established inventory standards. In addition, it is customary to examine the composition of inventories, their evolution over time, and the relationship between production (and sales) and inventories.

In this chapter, we focus on inventories of materials, inventories of work in progress, inventories of semi-finished products, and inventories of finished products.

1. ANALYSIS OF DEVIATIONS FROM INVENTORY STANDARDS

Deviations from inventory standards make it possible to determine the pre-planned inventory differences in quantity and the reasons for them. Differences are usually counted separately for each type of kit, and the chain substitution method can be used to quantify the separate effects of each influencing factors.

Gazdaságtudomány

Ways to calculate the value of different types of inventories

Inventory Type	Indicate
Material supply	Average storage time (days) \times Daily material consumption (EUR)
Incomplete products	Production lead time (days) × Average de- gree of completion × Daily production cost (direct production cost, EUR)
Finished goods stock	Average finished product storage time (days) × 1 daily production cost (EUR)

By **reducing inventories**, the average storage time can be reduced by using a state-of-the-art material supply system that allows materials to flow through the production process on a timely basis and eliminates unnecessary downtime, selling out-of-stock and unused inventories, eliminating excess inventories or selecting suppliers. which can deliver materials more flexibly, faster and even more regularly. Reducing the use of substances per day can be achieved by reducing the daily production volume (which, however, is not necessarily may be a goal), shifting the production mix towards less material-intensive products, reducing the specific use of materials (e.g. by improving product or production technology), or even using cheaper substitutes.

Incomplete production can be reduced by modernizing production lead times, product or production technology, more efficient work organization, faster movement of materials between work processes, and better production preparation. Reducing the unit cost of products can also help reduce these inventories. The product of the production lead time and the average turnaround time is called the production financing time (measured in days), which could in principle be reduced by the average turnaround time, but it would also mean an extension of the production lead time. A more continuous and faster pace of sales and delivery, as well as all factors that reduce the cost of production of **incomplete stocks**, can be a solution to reducing inventories of finished goods.

Of course, the value of each set type can be examined chronologically, respectively. relative to the inventory values of certain prior periods.

2. INVENTORY COMPOSITION, DYNAMIC ANALYSIS OF INVENTORY EFFICIENCY

During the analysis of the structure of the stock of stocks, the share of each type of stock measured in monetary value within the total stock value is calculated using distribution ratios (Table). Typically, the goal is to keep stocks of materials relatively low compared to stocks of finished products. In the case of manufacturing enterprises, self-produced stocks and materials are those that may be present with greater weight, while in the case of commercial enterprises the same is true for purchased products and finished products.

Indicators measuring the relative size of inventories

Inventory Type	Indicate
Material supply	Inventory value The value of all stocks
Inventory of work in progress	The value of incomplete stock The value of all stocks
Semi-finished product stock	Semi-finished product - stock value The value of all stocks
Finished product stock	Finished product stock The value of all stocks
Self-produced stocks	Value of self - produced stocks The value of all stocks
Purchased stocks	Value of purchased inventories The value of all stocks

In addition to informing about the current situation in an informative way, the extent of their change compared to previous periods must also be examined.

By **inventory efficiency** we mean the production value that a company can create with HUF 1,000 in stock. The chronological average of the total inventory or the average of only one inventory type can be used in the denominator of the indicator. By implication, the higher the value, the more favorable it is. The efficiency indicator can be achieved by reducing inventories or increasing production value if the other component of the quotient is unchanged.

Inventory efficiency = <u>Production value</u> Average value of stocks * 1000

The efficiency of the use of sets is also examined by the rotation type indicators, which can also be applied to all the types of sets studied so far (Table).

Table: Inventory turnover indicators

Indicate name	Indicator
Stock turnover rate	<u>Net sales</u> Average value of stocks
Inventory requirement indicator	<u>Average value of stocks</u> Net sales
Stock turnover time	Number of days in the period considered Rotation speed in revolutions

The inventory turnover rate is similar to the inventory efficiency index, which expresses in revolutions the number of times the inventory type was recovered from sales during the period under review (the denominator of any inventory type can be included in the denominator, and production value categories can be used in the numerator). The higher the value, the higher the amount of money held in inventories per unit time.

Accounting Analysis

The reciprocal of this is the **inventory demand indicator**, which shows how much inventory value is obtained per unit of sales revenue, i.e., how much inventory is needed to achieve such sales revenue. The lower its value, the lower the value, as the goal is to achieve the highest possible sales revenue with less inventory.

Gazdaságtudomány

Inventory turnover time, measured in days, indicates how long inventory turnover takes place during the value creation process of the business. Its value is more favorable the smaller it is, because the goal of the business is to spend as little time within the business as possible on a given stock, and to release the amount of money invested in it as quickly as possible. See Chapter 7 for more information on rotational speed type indicators.

Knowing the direct production costs, **maturity (or storage time) indicators** can be calculated for purchased and self-produced inventory types. The number of days these stocks are stored is quantified (Table). The aim of the company is to cover the shortest possible period of time, ie the less time the relevant stocks are committed to the company and the faster the company's money can be invested in new stocks.

Table: Maturity indicators for purchased and self-produced inventories

Indicate name	Indicator
Average material storage time	<u>Average value of materials</u> One day direct production cost
Duration of work in progress	(Average value of work - in - progress and semi - finished products) One day direct production cost
Average shelf life of finished products	Average value of finished products One day direct production cost

The effects of changes in inventories over time are examined by the inventory elasticity indicator, which is also commonly referred to as the degree of response. It also uses sales revenue and average inventory value but compares the percentage change in these to give a percentage change in inventory that required a 1% change in revenue. It is optimal if the value of the indicator is as low as possible, because in this case the company manages to increase the sales revenue in such a way that it has to increase its inventories less proportionately.

Inventory elasticity index =

Percentage change in inventories Percentage change in sales revenue

With the help of the turnover rate of the inventories (expressed in days) and the turnover per day, the size of the inventories tied up in the enterprise, respectively. we can also examine its change - for which the method of chain substitution can be used. The indicator decreases if in days measured rotation time decreases or decreases in daily sales. Although the reduction achieved with the latter reduces the amount of capital in tied-up stocks and the associated inventory costs, it is not necessarily desirable. Much better by reducing the rotation time manage to reduce the value of the indicator.

Fixed Inventory Value = Turnover Time in Days * Sales Per Day

3. Impact of inventories on profit or loss

The effect of inventories on profit or loss can be measured by the profitability ratio of inventories.

It quantifies how much the company achieved with a stock of HUF 1,000. The result is measured by the category of the company's operating (business) result. You can include any inventory category in the denominator, but it's important to include an average period value.

Profit in proportion to inventory = <u>Operating (business) result</u> Average value of stocks * 1000

By implication, the higher the value of the indicator, which can be increased by increasing profit or decreasing inventories, the more favourable the situation.

9.4. Examination of quality

With regard to stocks and finished products to be sold to the customer, it is important for the company to pay attention to what the customer considers to be quality, why it is willing to buy the company's product, what features and benefits it expects from the product, and from its purchase to the consumer. Therefore, the company must constantly monitor what its potential customers need, what product can be used to meet their needs, and the extent to which the products already marketed meet these needs, and if they are not, or only partially, what is the reason for this, and where can this be improved. In addition to the information obtained from customers, the production company must also monitor its own production processes to ensure that manufacturing defects, scrap and the resulting also reduce quality costs. The quality of the company's marketed products has a long-term impact on the company's reputation, and thus on its profitability.

1. EXAMINING QUALITY IN TERMS OF CUSTOMER SATISFACTION

In the course of customer satisfaction surveys, the company receives important information about the quality criteria of its product from the customer's point of view, directly from the customers or from the salesmen and services that come into contact with the customer. All product features that the customer faces when purchasing, using, and disposing of the product at the end of its life should be examined.

In addition, the following may be important to the customer:

- How quickly and at what cost you can get the product;
- Whether you will receive the product on time;
- You get the quality you expected in value for money;
- Whether any repair tasks and costs are incurred during use, or how quickly the product can be repaired, how to access the service network;
- The quality of the customer after-sales service and the work of the customer service.

Customer complaints, reclamations, etc. related to the products sold summarizes the indicators for measuring product exchanges in the Table.

Table: Customer Satisfaction Indicators

Indicate name	Indicator
Rate of complaints	<u>Products affected by customer complaints</u> (<u>pcs or EUR)</u> All products (pcs or EUR)
Proportion of products exchanged	<u>Replaced products (pcs or EUR)</u> All products (pcs or EUR)

In connection with customer complaints, the related costs must also be quantified, including the cost of quality complaints, warranty repair or replacement costs, discounts and rebates for quality defects, and the cost of product replacements. Together, these are worth comparing to net sales. The value of the indicator is good if it is as low as possible.

Proportion of costs due to insufficient quality =

Total cost of customer complaints Net sales

2. EXAMINATION OF QUALITY IN TERMS OF THE PRODUCTION PROCESS AND THE QUALITY OF THE FINISHED PRODUCTS

The purpose of the quality inspection from the production side is that the customer does not encounter any defective products, they do not leave the factory or as few waste products as possible should be produced. The analysis of scrap is partly a technical and partly an economic task.

There are two types of scrap:

- Gross scrap:
 - a product or component that is permanently scrapped (cannot be repaired) the value of which is the cost of producing the scrap
 - A product or part that can still be repaired the value of which is the cost of repair

- Net scrap:

- the difference between the gross scrap and the amount available for sale of the scrap product or component
- the amount of gross scrap damage and compensation for faulty work.

Of the two scrap losses, gross scrap damage is important from an analytical point of view, as it is irrelevant whether or not the scrap was sold at a lower price.

The indicators used to measure scrap production are described in the table summarizes.

Table: Indicators measuring scrap production

Indicator name	Indicator
Scrap rate I.	Quantity of discarded product (pcs or EUR) All products (pcs or EUR)
Scrap rate II.	Product gross scrap Product production value
Average scrap rate	<u>Gross scrap</u> Production value

Scrap ratio indicators determine the proportion of scrap generated during the production of a selected product relative to the total number of pieces produced from that product. The lower its value, the more favorable it is. The average scrap rate, taking into account all the products of the production enterprise, gives the scrap rate.

There is also an opportunity cost for poor quality production, as it would have been possible to produce a product of perfect quality at a full price during the time that the scrap was produced, but this was not the case. This loss is quantified by the **dropout production value** indicator.

Loss of production value =

Number of hours used due to poor quality \times production value per hour

A suitable method for evaluating the quality of the production process is the classification and quality classification of the manufactured products and the determination of the average **quality category** and the **average quality coefficient** on the basis of these quality categories (Table).

Table: Indicators of the quality of finished products

Indicator name	Indicator
Average quality category	Division I products (pcs) \times 1 + II. div. products (pcs) \times 2 + III. div. products All products (pcs)
Average quality coefficient	<u>Actual production value</u> Total products (pcs) × Class I price of products (EUR)

The average quality category measures the average quality category of a product that a company can produce. Its value is more favorable the closer it is to one, which, however, is never achieved if you have all the II. or III. class product.

The average quality coefficient indicates the percentage of the maximum production value that the company would have been able to produce if it had been able to produce all Class I products. It is also true that it never reaches 1 if there is II. or III. class product, but the goal is to bring it closer.

CHAPTER 10
10.1. Analysis of the property situation

In the first step of the comprehensive analysis of the balance sheet, the analysis of the property and financial situation is the most common, from which the methods and indicators discussing the analysis of the property situation are presented in this chapter. In the following chapter, the methods and indicators for analyzing the property situation are also described. In addition to the comprehensive analysis, it is customary to perform a detailed examination of each balance sheet item, and it is also possible to compare the actual data with the base data of previous years or with pre-set plan values.

Regarding the comprehensive analysis, a two-way analysis method is used: vertical and horizontal analysis.

In the **vertical analysis**, we analyze the data of only one side of the balance sheet data (ie either only the data of the asset or only the data of the source page) by examining the composition of that page in different resolutions (eg as well as source equivalents) with distribution ratios.

These typically point out further possible directions of research and point out critical groups and items.

In the course of the **horizontal analysis** – as opposed to the vertical analysis – data are included in the analysis from both sides of the balance sheet, in fact the balance sheet rows of the two sides, respectively. balance sheet item data are compared.

In addition, changes in certain parts of the balance sheet are usually characterized by changes and shifts in absolute terms, or they are expressed as a percentage of plan data or base data. Moreover, with reliable and identical data, business data can be compared with other companies or industry benchmarks.

4.1. Examining the internal proportions of assets and liabilities

When we want to examine only one element of the property, resp. its share in relation to a larger unit, the so-called we use structural indicators (distribution ratios according to their statistical name). In terms of their meaning, they present the relationship between the part and the whole in percentage form.

structure indicator = <u>part of the</u>

part of the data aggregate data * 100

Depending on the analytical criteria, the balance sheet total (in the case of a balance sheet group or balance sheet group) or the balance sheet groups and balance sheet groups (when analyzing their internal composition) can also be used as a benchmark.

The so-called Intensity ratios should also be used, for which the proportion of a factor is determined in relation to at least two or more aggregated data that also include the examined factor (eg leverage ratios). Its expression is also standard in percentage form.

The indicators used to examine asset-side groups and items are called asset structure indicators, and the indicators used to examine source-side groups and items are called source structure indicators.

10.2. Indicators of Asset's and Liabilitie's structure analysis

Assets:

The assets of the enterprise (tangible - intangible, financial), the elements necessary for its operation and the achievement of the corporate goal. Their composition varies from company to company, it basically depends on the scope of activities of the company. In the case of a manufacturing and industrial company, tangible assets and machinery may represent a large share, in the case of a trading company inventories, and in the case of a research company, intangible assets, among others. There is no general rule for the optimal proportion, but rather industry standards can provide a basis for the issue.

Assets are classified based on the useful life of the asset. Assets used for more than one year are called non-current assets and those used for less than one year are called current assets.

The change in the stock of assets over time can be characterized by the current data in each period, the absolute and percentage value of the differences between them, the absolute and percentage differences compared to the base values of a period selected as a base, respectively. the average rate of change and its percentage.

In the case of intra-year comparisons, it is worth comparing the data of the first (January 1) and last (December 31) of the given financial year for intangible assets, tangible assets and fixed assets in order to measure the profitability of the management. However, in the case of inventories or receivables, due to the nature of the business, various seasonal effects can be observed with significant fluctuations, so in many cases it is more appropriate to compare their average values (eg. chronological average) with the same period.

On the asset side of the balance sheet, the share of fixed assets and current assets is typically calculated, this is not typical for accruals (Table 4.1).

Indicators quantifying the ratios of major asset groups

Indicator formula	Indicator meaning
(Fixed assets / Total Assets)*100	Proportion of fixed assets in total assets
(Current assets /Total Assets) * 100	Ratio of current assets to total assets

The increase in the proportion of fixed assets can be considered positive if investments have been made that justify the improvement of the quantity or quality of future production. At the same time, this increase also points to the fact that the fixed costs of production will have to be reckoned with to a greater extent in the future.

An increase in the proportion of current assets can be assessed positively if it results from the acquisition of assets that improve the firm's flexibility and adaptability to production and external environmental needs.

The value of each asset group, similar to the main groups, is comparable to the balance sheet total. Their values may also depend on the nature of the company's activities.

Proportions of asset groups relative to total asset values

Indicator formula	Indicator meaning
(Fixed assets / Total Assets)*100	Proportion of tangible assets within total assets
(Stock /Total Assets) * 100	Proportion of inventories within total assets
(Demands/Total Assets) * 100	Proportion of receivables within total assets

Liabilities:

The resources of the enterprise serve to finance **the assets of the enterprise** and also show its source. Liabilities are classified into two major categories, equity (equity) and liabilities (liabilities). Both equity and liabilities can be used to cover the company's **fixed assets and current assets**, but loans can also be provided by owners. Own assets are made available to the business by owners and external resources by investors and creditors.

On the liabilities side of the balance sheet, there are two main groups, provisions and accruals.

The former is formed from the company's result for future liabilities (e.g. restructuring costs to be implemented in the company), the latter includes adjustment items that reduce the result for the current year (e.g. income received in advance but otherwise due in the following year).

The change in the stock of liabilities over time - similarly to the stock of assets - can be characterized by the current data in each period, the absolute and percentage value of the differences between them, the absolute and percentage differences compared to the values of a selected period. the average rate of change and its percentage.

The group of equity is not characterized by fluctuations during the year, so it is not necessary to use average data.

On the liabilities side of the balance sheet, the share of three main groups - equity, provisions, liabilities - is usually calculated, this is not typical in the case of accruals and deferrals.

Indicators quantifying the proportions of major source groups

Indicator formula	Indicator meaning
(Equity / Total Resource)*100	Capital adequacy, equity ratio within total capital.
(Liabilities /Total resources) * 100	Ratio of liabilities to total capital.

The capital adequacy ratio is basically determined by the scope of activities of the enterprise. The higher its value, respectively. over time, the increase in the indicator shows a favorable trend. At the same time, the quality of the source composition determines the viability and creditworthiness of the company. attractiveness of foreign capital.

We can consider it more positive the financing position of an enterprise, the higher the proportion of equity, as this means that the source of the operation of the enterprise is the resources owned by the enterprise itself, it is not exposed to external creditors and investors.

At the same time, this means that if necessary, such a company will also benefit from the involvement of a new creditor, and new external players will be more willing to invest in such companies. The ratio of own and foreign resources may differ from one branch of the national economy to another, respectively. the nature of the business also determines the optimal proportions to operate. It is a generally accepted directive that the equity ratio in the total funding structure is not good if it falls below 1/3.

The increase in liabilities over time, although seemingly unfavorable, does not necessarily have to be assessed in this way, as it is almost inevitable in the case of the expansion and growth of a business.

However, it is important to keep in mind in the analyzes that increasing liabilities will also mean an increasing financing burden (interest burden) in the future, which the company will have to prepare for, and the company will become increasingly dependent on external financiers. It does not matter, however, whether short-term or long-term liabilities predominate.

It is also important when evaluating the capital structure that the assets of the business and their sources of financing are consistent. Typically, it can be considered optimal if the long-term investments, investments and long-term assets of the enterprise are provided by long-term sources (eg equity, long-term loans), while short-term loans and liabilities are used for short-term assets and current assets. are given. (In the case of the latter, it is also not a problem if equity can be used to cover part of it as a long-term available source.)

When starting a business, it is necessary to have equity that is made available to the owners. In the vast majority of cases, borrowing is also involved in the operation, this is the process of leveraging, ie when the financing structure changes and foreign sources also appear. The degree of leverage is illustrated by leverage ratios - typically by comparing periods

Indicator formulaIndicator meaning(Liabilities / total resources) *100Debt ratio, the ratio of debt to all sources.(Liabilities / Equity) *100Capital stress indicator, the ratio of debt to equity.(Equity + Long-term liabilities)/ Total resources * 100Proportion of sustainable resources among all sources.Earnings before income tax / Total interest costInterest coverage ratio, pre-tax business result used to cover the price of debt (interest)

Indicator formula	Indicator meaning
(Liabilities / total resources) *100	Debt ratio, the ratio of debt to all sources.
(Liabilities / Equity) *100	Capital stress indicator, the ratio of debt to equity.
(Equity + Long-term liabilities)/ Total resources * 100	Proportion of sustainable resources among all sources.
Earnings before income tax / Total interest cost	Interest coverage ratio, pre-tax business result used to cover the price of debt (interest)

In addition to showing the ratio of liabilities to liabilities, the debt ratio also represents the ratio of liabilities to the assets of the company - as the total amount of assets and liabilities in the balance sheet must be the same. If its value is around 30%, a maximum acceptable rate of 50% is considered favorable.

The capital stress indicator illustrates whether the ratio of debt to equity is more or less. The lower the value, the lower.

If less than 1, the elements of equity in the source structure of the enterprise exceed the elements of liabilities. If we consider the general guideline formulated above - ie the equity ratio within the total financing is not expedient if it falls below 1/3 - then this ratio is optimal until it reaches the value of 2, because after that the degree of indebtedness already very high.

The ratio of fixed assets is usually analyzed because it provides an answer to the extent to which the company has the resources it can count on in the long run (since the owners have also made equity available in the long run).

The interest coverage ratio is intended to show whether the company is able to cover the interest on its foreign resources from its profit before tax and interest payments. If the result of the indicator is greater than 1, then yes, otherwise no.

10.3. Comparison of assets and liabilities

In addition to the indicators providing vertical analysis reviewed in Section 10.2, horizontal indicators are also used, which contrast and analyze the assets and financing of the enterprise, ie assets and liabilities, from different perspectives.

Indicators of horizontal analysis (A) =	<u>asset-side group or balance sheet item</u> source group or balance sheet item	× 100
Indicators of horizontal analysis (B) =	source group or balance sheet item asset-side group or balance sheet item	× 100

Typically, this analysis toolkit includes debt and liquidity position indicators, profitability and efficiency indicators, inventory and some of the indicators of asset management, which, however, will be presented in later chapters.

In general, the coverage ratio ratios follow the structure below. They show the extent to which an asset is financed by a company from a given source.

Kind of capitalDevice type× 100

Asset coverage gives the extent to which equity can finance a company's assets in relation to its total assets. It is unfortunate if its value falls below 30%, but the higher the value of this indicator, the better the situation of the company.

 $\frac{Equity}{Total assets} \times 100$

The indicators of the extent to which the long-term resources available to the company finance fixed assets (hedging indicators) are similar to the previous indicator.

Debt coverage is a measure of leverage that indicates how much of a company's assets it finances from debt. The indicator is around 30% (or a maximum of 50%).

Liabilities (Liabilities) Total assets × 100

Liability coverage contrasts the receivables and liabilities of the business. It shows whether it is necessary to raise new sources to finance the liabilities or whether the company's claims can cover its liabilities. If less than 100%, additional resources are required.

Total receivablesTotal liabilities× 100

10.4. Working capital

Working capital is a term derived from the Anglo-Saxon literature. Although its literal translation is working capital, its use would be completely incorrect in terms of content. Its content equivalent can be found in the Hungarian literature as working capital or net working capital, although these also differ from each other. In fact, the Anglo-Saxon literature on working capital means working capital.

In order to understand the difference between each concept, it is important to define their exact definition:

- Operating capital: the total amount of resources made available to owners by the owners in the current year;
- Working capital: the part of current assets (current assets) which the company finances from its own resources (working capital according to Anglo-Saxon accounting rules);
- Net working capital: the difference between current assets (current assets) and current liabilities, ie the part of current assets that the company finances with fixed resources.

Definition of working capital

Fixed assets	Equity – long term liabilities
Current assets	Short term liabilities

In other words, formulating working capital:

Working capital = Current assets - Current liabilities

The fundamental difference between net working capital and working capital is that foreign funding is allowed in the financing of current assets.

Basically, we can say that if the value of working capital is positive, it is favorable for the company because it is able to finance part of its working capital from permanent sources. It is particularly unfavorable if the value of working capital is negative, because in this case the company is forced to finance part of the fixed assets from short-term liabilities and current assets do not provide adequate collateral to settle short-term liabilities.

Among the financing strategies of enterprises, the so-called Based on the fitting principle, we distinguish three different options:

- Solid strategy: the company fully complies with the requirements of the matching principle, ie the net working capital is sufficient to finance the fixed working capital commitment;

- Conservative strategy: in this case, the company is so careful that it also realizes part of the temporary asset commitment from a permanent source (although this may involve higher costs);

- Aggressive strategy: some of the fixed assets are also financed by the company with temporary assets - which is associated with negative working capital and is quite risky.

CHAPTER 11

11.1. Analysis of the financial situation in the short and long term

The financial situation of a company is usually examined in two time horizons, short and long term. Accordingly, we distinguish between the so-called group of liquidity indicators (short less than 1 year), supplemented by a liquidity balance sheet, and a set of indicators to measure the stock of debt (long - term, longer - term than 1 year) analysis).

Typically, we use horizontal type indicators for both groups, i.e. we also include groups and items on the asset and liability side of the balance sheet. However, in addition to balance sheet items, certain items in the income statement may be used in the financial position when analyzing or an examination of the cash flow statement data may also contain a number of important information in exploring the issue. In addition to the above, this chapter also discusses market returns, which are also important for investors.

LIQUIDITY ANALYSIS USING INDICATORS

Liquidity determine the ability of an enterprise to meet its short-term liabilities on a predetermined and previously agreed basis, on a continuous basis and without default.

In this sense, we mean the solvency of a business (dispositive liquidity). In another approach, the concept of liquidity also refers to the extent to which a company has assets that can be cashed in a short period of time, quickly or, where appropriate, only over a longer period of time and at a slower rate to ensure its solvency (structural liquidity).

As liquidity is to be interpreted in the short term, current assets are examined in the balance sheet on the asset side and current liabilities on the liability side, which are typically compared in the form of indicators.

The time horizon in this regard will be increased by the liquidity balance later in the chapter.

In assessing liquidity ratios, credit institutions place particular emphasis on whether a company will be able to repay its principal and interest at an appropriate pace when disbursing a potential loan. This is particularly important in the case of short-term loans.

Under the concept of **net liquidity**, short-term liabilities and we understand the difference between provisions and assets that can be easily monetised in the short term (securities, short-term receivables, cash).

Its value can be both positive and negative but knowing this alone is not enough information to judge the situation of a business, as it can change significantly at different times. We can only use it meaningfully if we know what realizable revenues and expenses the company will face in the near future, how its current net liquidity will change in the future, i.e. how its current net liquidity will change in the future and whether it will have adequate reserves to cover its expenses in the future. At the same time, if its value is typically positive, the company's solvency is stable, and it can handle its payment obligations flexibly. Typically, its negative value indicates permanent insolvency, which, for example, makes it unfavorable for bank lending, as it is unable to meet its obligations with sufficient flexibility.

Net liquidity = Current receivables + Securities + Cash - Current liabilities - Short - term provisions

Liquidity rates are usually assessed in several steps, which are described in table summarizes.

Liquidity rates

Degree of liquidity	Indicator	Indicator meaning
Liquidity ratio I.	<u>Current assets /</u> Short-term liabilities	Liquid assets and liquid resources rate.
Liquidity ratio II. (Liquidity quick rate)	<u>Current assets - Inventories</u> Short-term liabilities or <u>Receivables + Securities + Cash</u> Short-term liabilities	The difference between liquid assets and stocks that are more difficult to monetize, respectively. the ratio of liquid resources.
Liquidity ratio III. (Percentage of money)	<u>Current assets - Inventories -Receivables</u> Short-term liabilities or <u>Securities + Cash</u> Short-term liabilities	Assets that are considered to be fully liquid and proportion of liquid resources.

The Liquidity Ratio I. is the ratio of assets that can be monetized within one year to liabilities that arise within 1 year, which gives an answer to whether the company can be solvent in the short term.

If its value is higher than 1, it can be considered acceptable, as a value below 1 may result in the short-term insolvency of the company, as its short-term assets are unable to cover its short-term liabilities. Nor is it unfortunate that its value is too high, as this creates the possibility of an unduly conservative business that does not invest properly in the assets of the business. In the course of credit institution assessments, values below 1.3 shall be.

A value between 1.8 is considered medium, while a value above 1.8 is considered good, and even a value above 2 is expected in the case of loan applications. If it falls below 1, it is an acute solvency problem.

Liquidity ratio II. does not include inventories in current assets on the basis that they may be difficult or only long-term to cash in on average business conditions and therefore cannot be readily included in the financing of current liabilities. As its numerator is logically smaller than the numerator I of the Liquidity Ratio, the value of the quotient is also smaller, but an acceptable value is usually 1 or higher.

In the case of commercial enterprises in particular, a value of less than 1 is acceptable. In their case, the reason for this is that in their case the stock of goods is particularly high, the deduction of which significantly however, this does not necessarily mean poor solvency.

Liquidity Ratio III. it shows the immediate liquidity of the business, as the numerator really only includes securities and cash, ie assets that can be made virtually cash and used immediately to settle liabilities. If the value is above 1, we can talk about a very high degree of liquidity security, however, in many cases this value may be unreasonable - it depends on how quickly other types of assets can be monetized. It is expected to reach a minimum of 0.2.

With a value of 0.01, we can talk about a bankruptcy situation.

In addition to the three classical liquidity ratios, additional indicators can be used to analyze liquidity, which are described in table summarizes.

Other Indicators used to analyse liquidity

Name of the indicator	Indicator	Indicator meaning
Solvency	All assets/Liquidities	Ratio of total assets of the enterprise to ex- ternal sources.
Dynamic liquidity	<u>Operating – business results</u> Short-term liabilities	The operating / operating profit ratio for the current year is short-term compared to the liabilities
Short – term indebtedness	<u>Short-term liabilities</u> Net sales	Ratio of sales coverage to current liabilities.
Duration indicator	<u>Buyers + Liquid securities + Cash</u> Average annual operating expenditure/ 365	The ratio of the most liquid assets to the average daily operating expenses.

A company is considered a solvent if the total value of its assets exceeds the size of external and external sources. It is also used as a synonym for long-term solvency.

The dynamic liquidity ratio uses the value of operating profit from the income statement and expresses whether the company is able to generate the amount of money needed to meet its short-term liabilities with its business performance in the current year. It is considered acceptable if it is above 0.5.

The short-term indebtedness indicator also takes the net sales revenue from the income statement and measures current liabilities (less the value of liquid assets). It provides an answer to the extent to which the net sales revenue can cover the liabilities incurred within 1 year. It is advantageous if its value is less than 1.

Gazdaságtudomány

The duration indicator measures the extent to which the most liquid assets (customers, liquid securities and cash) are able to finance ongoing activities on a daily basis. That is, it actually illustrates how many days a business could finance its operations from these resources if it had no additional revenue.

There are both advantages and disadvantages to using liquidity ratios. One of their main advantages is that they are easy to apply, fast to calculate, difficult to interpret, and well-known. It is important to emphasize in the interpretation that specific numerical values alone are not sufficient to draw the appropriate conclusions, it is necessary to analyze the phenomenon behind each value and how the individual indicators have changed over a longer period of time.

11.2. Liquidity balance

According to the logic of the liquidity balance sheet, the items on the asset side and the liability side are compared, as in the case of most liquidity ratios. However, the grouping is somewhat different from the previous ones. It is also common to use a tier 3, 4 or 5 liquidity balance, which depends on the level of detail at which each asset and liability is broken down. The basis of the resolution is the degree of monetization (mobility) of the assets and the maturity and maturity of the assets. The liquidity balance provides an opportunity to compare elements that can be interpreted over the same time horizon.

While the liquidity ratios only included items due in a period shorter than 1 year, the liquidity balance also covers a longer time horizon, in fact it also covers the topic of debt indicators.

In this chapter, the 4-tier liquidity balance is presented, which is also the most common.

also used.

Table: A possible scheme for a 4-tier liquidity balance

Assets	Equity + Liabilities
I. Immediate cash assets – Cash – Demand bank deposits, securities	I. Liabilities due immediately – Part of the delivery due immediately and within 10 days – Other current liabilities (tax, wages)
 II. Assets that can be monetized within one year Own shares Trade receivables within one year Bills of exchange and other receivables Stocks that can be mobilized within one year Accruals and deferrals Receivables from affiliated and other participating companies 	 II. Liabilities due within one year Part of delivery due more than 10 days Provisions Accruals and deferrals Short-term loans and credits Advances received from customers Accounts payable Current liabilities to associates and other participating interests
 III. Assets that can be monetized beyond one year Immobile, reclining supplies Receivables due one year All other items over one year 	III. Liabilities due after more than one year – Subordinated liabilities – Long-term liabilities
Fixed Assets	Equity
All Assets	All Equity + liabilities

11.3. Debt stock analysis using indicators

In contrast to liquidity analyzes, the analysis of debt stock deals with the examination of long-term liabilities (due for more than 1 year).

Its purpose is to examine the extent to which long-term, borrowed loans and borrowings are present in the financing of the enterprise, and the extent to which they are covered and which items are financed by the enterprise on the asset side.

With regard to the relationship between the liquidity position and the debt stock, it is important to note that a large increase in the debt stock over time and the repayment obligations may worsen the liquidity situation. It is examined with both horizontal and vertical indicators.

The first group of indicators examining the debt stock examines the ratio of liabilities to equity from several approaches . (In the case of these, the debt stock is the long-term debt stock!)

Indicators analyzing the debt ratio

Name of the indicator	Indicator	Meaning of the indicator
Debt ratio (Indebtedness indicator)	<u>Liabilities</u> Liabilities + Equity *100	Debt to equity ratio.
Equity ratio	<u>Equity</u> Liabilities + Equity *100	Ratio of equity within all assets
Debt coverage	Equity / Liabilities	Ratio of equity to debt.
Ratio of Liabilities/ Equity	Liabilities / Equity	Debt to equity ratio.

The debt ratio and the equity ratio are complementary and intensity indicators. Typically, it is customary to analyze their development not only for a single period of time, but over a longer period of time.

In general, the debt ratio is considered acceptable if it is below 60% and the equity ratio is above 40%.

By implication, the higher the equity ratio, the better the situation of a company, which may mean that it may still have reserves for taking out new loans.

When assessing the indicators, the current market situation of the company must be taken into account, as a new, more significant investment or development may lead to a sudden increase in the debt ratio, which may seem unfavorable, but may still be justified if a serious return is expected in the future.

The debt coverage ratio, similar to the previous two ratios, measures the ratio of equity to debt in a different approach, in fact it tells you how many forints of equity are included in the company's resources. Its value is more favorable the higher it is - above at least 0.67. Of this the opposite of the indicator is the debt / equity ratio, which is more favorable the lower the value - at least 1.5 or less. Both indicators actually measure leverage.

Data taken from the income statement, net sales, is used by **the indebtedness to sales ratio**, which examines the extent to which the company's net liabilities (both long-term and short-term) are covered by the company's net sales.

The lower its value, the more favorable it is, since in this case the company has less to finance its activities from other own or external sources and to sell its liquid assets, but the ordinary course of business is able to cover a large part of the liabilities. The indicator cannot be interpreted if it is negative, because then the size of the company's liquid current assets exceeds its liabilities, i.e. the financing of liabilities cannot be a particular problem for the company.

<u>Liabilities - liquid current assets</u> Net sales

It is also important for the company to monitor the extent to which it is able to meet its payment obligations arising from its long-term debt. This is quantified by **the debt service coverage ratio**, which compares the amount of after-tax profit and depreciation (the source of which is the income statement) to the amount of principal and interest due on the repayment of debts.

In fact, it measures the extent to which a company's annual profit provides cover for the repayment of debts with a maturity of more than one year. it also gives an answer as to the extent to which the company has resources left to finance its other activities from the profit for the year. As the latter should also be the goal of the business, its expected value is definitely above 1, but more ideally above 1.3.

<u>Profit after tax + Depreciation accounted for</u> Annual repayment of long - term loans and interest

LIQUIDITY PROBLEMS AND THEIR TREATMENT

A liquidity problem is the inability of a company to meet its current liabilities, but also the fact that it has excessively large liquid reserves compared to its existing short-term liabilities. In the case of the latter, the problem is that the business policy of the company could be invested in excessively secure, conservative, and excessively held liquid assets, which could result in additional returns for the company. In fact, these returns are waived by the company due to the excessively accumulated liquid assets, i.e. they can be considered as an opportunity cost.

The disadvantages of a liquidity shortage are much more obvious, as a company that is unable to settle its obligations on time for a long time will sooner or later lose the confidence of its creditors and suppliers, which could have serious consequences. On the one hand, it may be more difficult to obtain new loans, if at all, and at a higher cost (interest), and on the other hand, their supplier products or they are only willing to sell and deliver their services if you pay in advance or if certain guarantees are available. This further worsens the liquidity situation of the company.

In case of solving excess liquidity, the company can choose from the following methods (by which it reduces its unrestricted capital stock):

- Increase cash purchases;
- Repays high-interest loans;
- Buys shares in other companies;
- Step up innovation, investment, R&D and new investment;
- Switches to new technology or product production, appears in new markets.

In case of liquidity shortage, the following solutions are available for the company:

- Increase its sales for cash;
- Requests a down payment from its customers, resp. accepts;
- Recover your debts;

- Discount your bills;
- Sells its securities and holdings in other companies;
- Sells unnecessary tangible assets and inventories;
- Curb investment;
- Takes a loan;
- Factorizes (sells before maturity) its accounts receivable;
- Tries to raise venture capital.

11.4. Market return indicators

Financial analysis also includes methods that value a business from the perspective of investors. Their task is to give the (future) owners an idea of the return on their fixed assets, and how the value of the total assets or individual groups of assets of the enterprise changes. The indicators that measure this are called **market value indicators**.

The market value of an enterprise is the amount that market participants are willing to give of their own free will in order to become the owners of the enterprise.

In the case of a growing, developing company with a perspective, this amount is higher than the total asset value recorded in the company's books (the value of the indicators is more than 100%). The size of the deviation is quantified by indicators **comparing the ratio of market value** to book value, which can be calculated for the enterprise as a whole and only for certain groups of assets.

Market value of asset typeBook value of asset type× 100

In the case of joint stock companies, an indicator relating to **the market value and the book value of a share** may be used. In this case, the denominator may include the nominal value of the share - or the value of equity per issued share - while the numerator may include its market price. Ideally, the value of the indicator is higher than 100%.

Market value of a shareBook value of a share× 100

Also related to equities is the Price-Earnings Ratio (P / E), which shows how many years a company would buy a share of the company's earnings per share in the current year.

In the denominator of the fraction, we can often find the abbreviation **EPS** (Earnings per Share), which in itself is a fraction and expresses the value of the profit produced and taxed by the enterprise divided by the shares issued by the enterprise. Its value is more favorable the higher it is, since in this case there is a high after-tax profit per unit of ownership. It can result in a high value if the after-tax profit is high or relatively few shares have been issued. However, they are calculated differently in different countries, which makes it difficult to compare the EPS of equities.

The higher the P / E ratio, the relatively higher the market price of the stock relative to EPS. In the case of such shares, investors and the market expect that the company will be able to achieve even higher results in the future than in the current year, i.e. they will appreciate the share price due to their future expectations. The P / E ratio is high value projects a good future outlook and a generally good return and positive outlook for investors, the purchase of such securities can be considered a good investment. However, some investors may find it interesting to have securities that have a low P / E ratio because they may be relatively undervalued and they are expected to see a rise in share prices in the future - this is not necessarily the case, additional information is needed to establish this. As a result, neither the P / E ratio nor the EPS has a pronounced value above which it can be classified as good or below which it can be classified as bad.

EPS = <u>Profit after tax</u> Number of shares issued by the enterprise

P/E rate = <u>Stock market price</u> Earnings per share (EPS)

An indicator also used to value joint stock companies is **the ratio of dividends per share**, which is the value per share of dividends approved and paid by the owners of the company to the profit generated by the company. It is considered to be the most important indicator for shareholders of shares. The more attractive a share is, the higher the dividend to be paid, so the higher the value of the quotient. High-share stocks are in demand and investors are willing to pay more than the current price for it, meaning the stock price may have a buoyant effect. By analogy, the market price of shares with a lower quotient may be lower.

Dividend per share = <u>Dividends paid</u> Number of shares issued by the enterprise

Dividend yield uses the dividend ratio per share and measures the price of that share. From the point of view of future investors, it can be an interesting indicator, as the values in the numerator and denominator of the indicator are both sources of return on the investment made by the investor (in the form of dividend payments and realization of exchange rate gains).

The same can be said for the dividend yield as for the dividend per share ratio, i.e. the higher its value, the more attractive it is to investors and the more they are willing to pay for it.

Dividend yield = <u>Dividend per share</u> Share price

CHAPTER 12

12.1. Efficiency analysis

When clarifying the concept of efficiency, it is important to distinguish it from the concept of effectiveness.

We consider a business to be successful if it has successfully achieved its goals. However, if a business is successful, it does not necessarily mean that it is efficient, but it is only worth talking about efficient operation if our business is operating successfully.

The efficiency of the business can be judged on the basis of the expenses and costs it was able to achieve its results. In fact, efficiency means that the company achieves the goals and results originally set with the lowest possible resource expenditure and cost. Or vice versa, a business is efficient if it achieves the best possible results from the resources at its disposal. The ratio of the results achieved (or in other words the returns) to the resources expended determines the economy or economic efficiency of the operation of the enterprise. The general formula for economic efficiency can be formulated as follows:

Economic efficiency =

<u>Yields</u> Expenses

OR

<u>Expenses</u> Yields

The former formula (straight line indicator) expresses how much the company achieved a return on unit expenditure, and the latter indicator (reverse indicator) shows how much expenditure it needed to achieve a unit return.

Efficiency is a relative concept, it cannot be interpreted in itself, it is always necessary to relate it to something. Either the efficiency of a given business in relation to its own past performance, or its competitors, or an investment activity to other investment activities.

Efficiency is so complex that it can never be examined on the basis of a single indicator, but we must always review and analyze the combined situation of several factors. The study of efficiency differs from the study of profitability in that not only monetary values Can be used in the analyzes, but also data measured in natural units (so-called in kind).

Efficiency can also be examined at the level of the national economy (macro level), at the level of the enterprise (micro level) and at the level of certain sub-activities within the enterprise. The efficiency of an enterprise's activities is determined by the efficiency of the sub-activities it carries out and the proportion of the weight of each sub-activity in the overall activity structure.

In this chapter, the yield indicators and their correlations that can be used to measure efficiency are presented, the indicators characterizing the expenditures made through resources, the types of efficiency indicators typically used, and the efficiency characteristics of production, trade and agricultural enterprises.

INDICATORS USED TO EXPRESS RETURNS AND EXPENSES

The most commonly used measure of return for a business is net sales. In addition, four other performance categories, three of which can be derived directly from it, are commonly used to evaluate performance indicators.

These are gross production value, material-free production value, net production value and value added.

Net sales revenue is the data from the income statement, which includes sales of goods and services sold by the company less value added tax.

In a sense, a narrower category is **gross production value**, which no longer includes the cost of goods and services that the enterprise passes on or mediates unchanged (so it actually only includes their margins).

At the same time, it is a broader category in that it includes the value of activities (self-produced assets and inventories) that, although not sold to a partner, are incorporated into the business of the enterprise and are used in the long run.

Subtracting the gross production value from the cost of materials used in production and the cost of material-type services used, i.e. the cost of materials used to transform the enterprise's own finished products and the cost of services that the enterprise uses to produce its goods (e.g., shipping and loading costs, packaging costs, wages, postage, telegraph, telephone and telex costs, etc.) - we get the **material-free production value**. This may be particularly important for companies with material-intensive activities.

A further narrower indicator than the value of **material-free production** is the **net production value**, which further reduces the former by the amount of depreciation, thus effectively giving the enterprise's contribution to national income. The indicator also represents the new value actually created by the business.

The indicator, which is very similar to the value of net production, is the indicator of value added, which is the equivalent of GDP at the level of enterprises. In addition to the return indicators, another element of the efficiency calculations is the indicators measuring the expenses.

These include:

- Average number of employees (average statistical number);
- Labor costs or total personnel expenses;
- The average value of intangible assets tied up in production (ie assets, equipment, machines, etc. that are essential for the operation of the enterprise and cannot be used for other activities), the average value of intangible assets;
- Average value of stocks tied up in production;
- Net value of fixed assets;
- Total asset values;
- Total production costs;
- Export sales costs.

It is important to note that the average value of the indicators measuring expenditures is defined as chronological averages, which can be quarterly, semi-annually or annually, depending on the time horizon of the study. During the formation of the chronological average, the values of the examined periods are given as follows for averaging, to include only half of the data for the first and last period, and the denominator is the number of values to be averaged minus one.

12.2. Efficiency indicators

The most commonly used indicators, which are applicable to virtually all sectors, are turnover indicators. Their two basic indicators are rotation speed and rotation time. The speed of rotation gives the number of revolutions, i.e. how many times a given input pays for itself in a given yield during the examined period. Rotation time in days is the number of days required to recoup a given expense in a given period. Typically, a stocks, customers and suppliers. The usual names for the latter two are the customer term and the supplier term. The customer term specifies the average number of days between the sale of the product and its settlement by the customer for all customer stocks. The supplier term indicates that it is total on average taking into account the number of suppliers, the number of days that elapse between the purchase of the product and its payment by the company to the supplier.

Rotation speed indicators (expressed in revolution)

Indicator name	Indicator
Rotation speed of assets	<u>Net sales</u> Average value of all assets
Rotational speed of current assets	<u>Net sales</u> Average value of current assets

Rotation time indicators (expressed in days)

Indicator name	Indicator
Stock turnover time	Average net worth of stocks × Number of days in the period Net sales
Receiver rotation time	Average net worth of receivables × Number of days in the period Net sales
Delivery time	Average net worth of deliveries × Number of days in the period Net sales

The relationship between rotation speed and rotation time is illustrated by the following formula:

Rotation time = <u>Number of days in the period considered</u> Rotation speed in revolutions

When evaluating the rotation speed and rotation time, care must be taken to ensure that their change is in the opposite direction. If the rotation speed (expressed in revolutions) increases, it means that the rotation speed accelerates and the expenses are recouped faster. If the same goes down, we are talking about a slowdown. If the rotation time (expressed in days) increases, it means that the rotation speed slows down, it takes several days to recoup a given expenditure. If the same value decreases, we are talking about an acceleration of the rotational speed.

We typically consider it advantageous for the turnover rate to accelerate, as this means that the company is able to generate its expenses faster in terms of sales revenue. The development of the turnover rate can have a negative effect if the company makes a significant investment in assets, which, however, cannot be considered negative due to the expected higher return potential of the investment in the future. Conversely, if a company's inventories are lower than optimal, the turnover rate may be better than the industry average, but this is not necessarily positive, as low inventory levels can lead to sales difficulties or production disruptions.

The nature of the activity of each enterprise and the composition of the activities fundamentally influence the value of the turnover rate indicators, therefore a generalizable expected value cannot be determined.

12.3. Indicators for assessing the efficiency of production companies

Among the indicators that can be used in the case of productive enterprises, this chapter discusses the so-called complex efficiency indicators (as a global efficiency indicator), as well as several partial efficiency indicators: living labor efficiency and wage efficiency indicators, asset efficiency indicators, production cost level indicator, resp. capital efficiency.

COMPLEX EFFICIENCY INDICATOR

The complex efficiency indicator is complex in that it examines the efficient use of the two most important types of resources of the enterprise, its fixed assets and human resources (and the related labor costs), and compares the net production value to their extent. The two resource types in the denominator of the indicator appear weighted, which weights represent what return the business expects from these resources.

The generally accepted weighted net asset value is 0.15 (which assumes assets with an average life of approximately 7 years), but if the business has rapidly obsolete assets, this value may be higher. In the case of wage costs, the generally accepted weight is 1.7, ie in the case of enterprises, employees are expected to extract 1.7 times the wages paid. These weights are generally indicative, and it is up to the company to change them depending on the extent to which it expects a return on its resources.

 $\frac{\text{Net production value}}{0,15 \times \text{Net fixed asset value} + 1,7 \times \text{Wage cost}}$

The expected value of the complex efficiency indicator is above 1, because in this case it is able to produce the net production value that the company expects in return for the use of its resources.

PARTIAL EFFICIENCY INDICATORS

As their name suggests, these indicators do not aggregate the efficient use of multiple business resources, but focus on only one type of resource. In general, it is not only on their own that the efficiency of a business can be judged, but also in their context.

EFFICIENCY INDICATORS FOR LABOR AND WAGE COSTS

One of the most important, if not the most important, resources of enterprises is the labor force, the efficiency of which can be analyzed in terms of the number of employees or in terms of labor costs (wage costs, personnel benefits). Typically, such indicators are important for those activities where headcount and there is a close relationship between labor demand and available turnover.

Table of labor efficiency indicators

Indicator formula	Indicator meaning
<u>Net sales</u> Number of employees	Production value per capita
<u>Production value</u> Number of employees	Production value per capita

The table of per capita income, respectively. indicators of production values in relation to the total number of employees (calculated with the average headcount data of the examined period). It is customary to break down the indicators separately for physical and mental workers. In fact, these indicators represent the productivity of live labor at the business. Wage efficiency indicators

Indicator formula	Indicator meaning
Net sales Wage cost	Net sales per 1000 unit labor costs
Net sales Personnel expenses * 1000	Net sales per thousand unit personnel expenses

The indicators in Table 1 are actually intended to express the value-creating ability of payments as an expense, ie the amount of HUF that the company can generate with an expenditure of HUF 1,000. The use of personnel expenses as a projection basis has a broader interpretation of labor-related expenditures, and accordingly the value of such indicators is lower than that of indicators using wage costs as a projection basis.

An explicitly desirable limit cannot be defined for any of the indicators in this chapter, but the higher their value, the better and more efficient their operation - it is advisable to compare it with the previous performance of the company or the performance of its competitors.

Asset efficiency indicators

Another very important resource for businesses is the assets and inventories involved in production, the more capital-intensive an industry is, the more important it is to assess their efficiency.

Indicator formula	Indicator meaning
<u>Production value</u> Average net worth of committed assets	Efficiency of committed assets
<u>Production value</u> Average net worth of tangible assets	Efficiency of tangible assets
<u>Production value</u> Average value of stocks	Inventory efficiency

These indicators are intended to characterize the regeneration of second-hand assets in production. In general, an increase in the stock of assets degrades the value of the indicators, but if this deterioration occurs only in the short term, it cannot be assessed as a real problem, as investment in assets often returns only in the longer term. Therefore, it is expedient to examine the development of these indicators over a longer period of time.

PRODUCTION COST EFFICIENCY INDICATORS

In the case of production cost efficiency indicators, the first step is to determine which cost elements make up the total production cost (Figure 7.3).

Assets and labor costs, respectively. In addition to personnel costs, the ratio of total production costs to the production value produced with them can also be quantified. This is actually a measure of the cost-proportional value of production (or sales) that gives you a return on a cost of 1,000 units. Its value is more favorable the higher it is.

<u>Gross Production Value or Net Sales Revenue</u> Total production costs

 $\times 1000$
The indicator of the level of production costs can be interpreted as an inverse efficiency indicator, which takes into account the total costs incurred during the production period in the examined period and compares them with the gross production value created as a result of these costs, showing the cost level as a percentage. Its value is more favorable the more it falls short of 100%.

Total production costsGross production value× 100

It is advisable to examine both cost of production indicators over a longer period of time, although their value at a given point in time may contain important information.

CAPITAL AND PROFIT EFFICIENCY INDICATORS

In this group of indicators, the efficiency of the company's equity and indicators that measure the effectiveness of the result achieved by the company.

Capital efficiency indicators indicate how much production value a company's equity can generate.

In fact, these indicators can also be understood as a kind of turnover rate of equity.

A special case is the indicator of corporate cash income in proportion to capital, where corporate cash income is calculated from the sum of after-tax profit and depreciation.

Capital efficiency ratios

Indicator formula	Indicator meaning
Production value Equity	Efficiency of equity, how much production value was created with a unit of equity.
Entrepreneurial cash income Equity	Entrepreneurial cash income in proportion to capital, the amount of entrepreneurial cash income generated per unit of equity.

Accounting Analysis

The higher the value of the capital efficiency indicators, the more favorable it is worth examining them. (If necessary, other types of capital can be replaced by equity: eg working capital, debt, etc.)

In the case of profit efficiency indicators, the result of operating (business) activity is compared to the net sales revenue, as this profit category is generated purely from sales revenue and does not add other types of revenue (eg revenue from financial operations, etc.)

Performance indicators

Indicator formula	Indicator meaning
<u>Net sales</u> Operating (business) result × 100	Profit-based sales, the amount of sales re- quired is HUF 100 per unit to achieve a result.
<u>Operating (business) result</u> Net sales × 100	Profit in proportion to sales revenue, how many HUF results are generated from sales revenue of 100 units.

While in the case of the profit proportional to sales, the lower the value, the higher the value in the case of the profit as a proportion of sales.