



## Manager Cup 2018



# TOPSIM – General Management

**User manual**

Version 14.1

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Note: Not all of the facts described in the manual must necessarily be relevant during the course of the planning game.

## 1 Initial Situation

## 1.1. Article from a large Online Newspaper

## Economic News Online

**Replacement of the current Board of Management at BIKEFIT AG makes the shareholders insecure - the Supervisory Board reassures itself at the presentation of the new Management Board.**

The first rumors were publicly announced at last year's Annual General Meeting. It is now official: just a few days after the Annual General Meeting, BIKEFIT AG's chairman, Lancel Legweak, yesterday announced the replacement of the previous Managing Board at a press conference convened at short notice. Legweak also presented the new members of the Executive Board to the public.



"Seen from the pure facts, the new appointment certainly comes as a surprise," said Legweak at the press conference. The past

fiscal year was quite satisfactory for BIKEFIT AG. The electric bicycle E-BIKE I is still very popular among customers. With a turnover of 129.00 MEUR, BIKEFIT AG achieved an operating profit of 12.85 MEUR and an annual net profit after tax of 6.59 MEUR. As a result, the company has similar results and market shares as its competitors.

Shareholders' equity of approximately MEUR 56.59 is accounted for by pension provisions of approx. 11.86 MEUR and liabilities of 18.62 MEUR. The operating cash flow of approx. 18.34 MEUR certainly creates a basis for investments on its own. "The old board of management was unable to present a satisfactory strategy for the long-term, sustainable growth of BIKEFIT AG to the Supervisory Board." Depreciated production facilities with insufficient environmental standards, a one-sided sales channel and a very conservative marketing strategy are just some of the many points, which make it feared that BIKEFIT will not meet the future requirements of the complex environment.

Several renowned industry experts have repeatedly questioned the visions and the economic expertise of the management. The majority of the analysts also share the opinion of the industry experts. "This negative feedback from the analysts was a clear signal for us," said Legweak. The Supervisory Board assumes that the new management will "do everything in its power to help BIKEFIT AG achieve sustainable growth". The future will show whether the new board will make the right decisions.

## 1.2. The Enterprise

The BIKEFIT AG website provides information on the following business areas of the company:



### Distribution

Our sales represent the interface between our customers and the company. We set the course for a targeted customer approach through our sales policy instruments. The sales department serves as a competent contact for questions concerning our products for customers and dealers.



### Research & Development (R&D)

Within the R&D department the creative heart of the company is beating. Our engineers are passionate about developing new products and improving the quality of the existing products to meet our customers' needs. The finished products are tested intensively in order to meet the high quality requirements that we set ourselves.



### Purchasing

All necessary materials are purchased for the production of our E-BIKE I product in this department.



### Production

The production and assembly of our high-quality black-and-white electric bicycle E-BIKE I takes place on our plants. Our highly qualified production staffs guarantee an exact processing of our E-BIKE I and a long service life.



### Staff

Our personnel department handles all the issues that affect our employees. This ranges from the occupation of vacant positions to the comprehensive support of the employees. In addition, our personnel department supports and plans the professional and personal development of each individual employee. Because our employees make the difference!

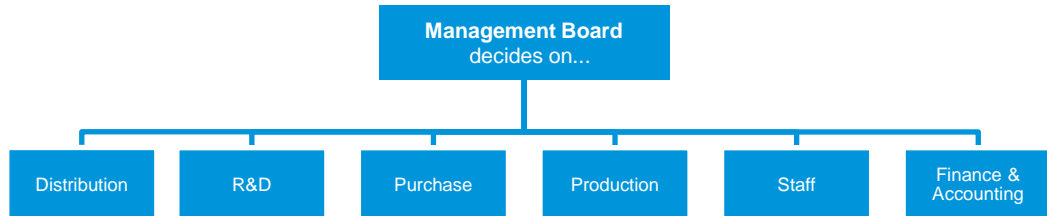


### Finance and Accounting

The figures, data and facts of BIKEFIT AG are combined in the Finance and Accounting department. The application of business management elements as well as the consistent revenue and cost orientation is indispensable for the entrepreneurial success of BIKEFIT AG.

## 2 The Decision Areas of BIKEFIT AG

In the company game TOPSIM - General Management, you are assuming the position of a new member of BIKEFIT AG's Management Board. As a management board, you must make decisions in all business areas of BIKEFIT AG:



The following representations of the decision areas are intended to help you get an overview of all the decision parameters and to understand the respective effects of specific decisions. The number and complexity of the decisions will increase during the course of the game. Consequently, the decision parameters described below must be made at different times in the simulation game, depending on the scenarios..

### 2.1. Distribution

#### 2.1.1. Product Description and Product Policy

BIKEFIT AG produces and distributes the high-quality electric bicycle "E-BIKE I". It is characterized by the following technical data:

Technical Data			
Type	E-BIKE I		
Engine	Brushless rear wheel hub motor		
Power	250 Watt nominal		
Dimensions	width	length	height
	76 cm	173 cm	100 cm
Max. Support Speed	25 km/h		
Weight	27 kg		
Brake	Hydraulic disc brakes Ø 180 mm		
Wheel fork	Aluminium		
Battery	Lithium-Ions: 423 Wh		
	Voltage: 48 V		
	Range: 100 km max.		
Belts	Type: Carbone-Tooth Belt 118 T		
	Belt Pulley front: CX-DC 50T		

## Belt Pulley back: CX-DC 22T

Bicycles are regularly inspected by the specialist magazine "Cycling Pro" and evaluated according to technological aspects. The technology index is made up of product features such as material presumption, processing quality and safety. The "E-BIKE I" is compared to other devices in the midfield in terms of technological equipment. In period 0 the "E-BIKE I" reached the following evaluation:

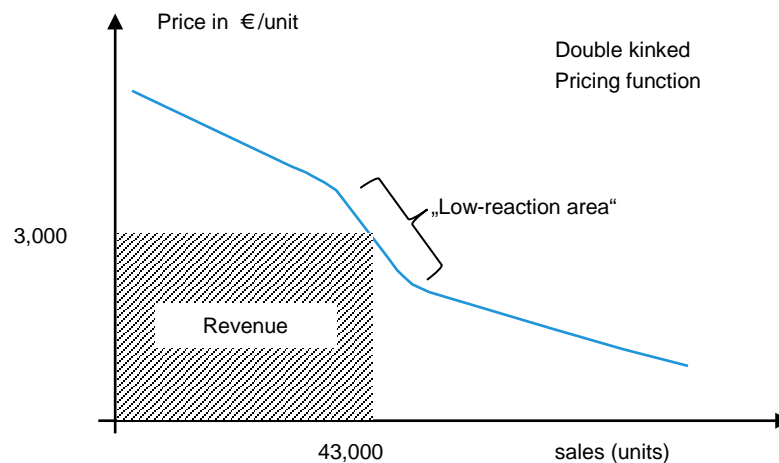
**Technology index in period 0: 100.0**

The publications of the specialist magazine "Cycling Pro" are orientation aids for the customers. Therefore the index value given is an important quality criterion: the higher the index for technology, the greater the acceptance of the product on the market. In addition to the absolute value of the technology index, the relative distance to the indices of the competition also plays a role. The R&D department is responsible for improving the product characteristics (see chapter 3.2 Research and development).

### 2.1.2. Pricing Policy

In competition with other suppliers, the price is an important marketing tool with immediate effect on sales. It thereby contributes significantly to differentiation against the competition. The price in the initial situation on the domestic market (market 1) is 3,000 EUR.

The following basic relationship exists between the price and the sales volume:



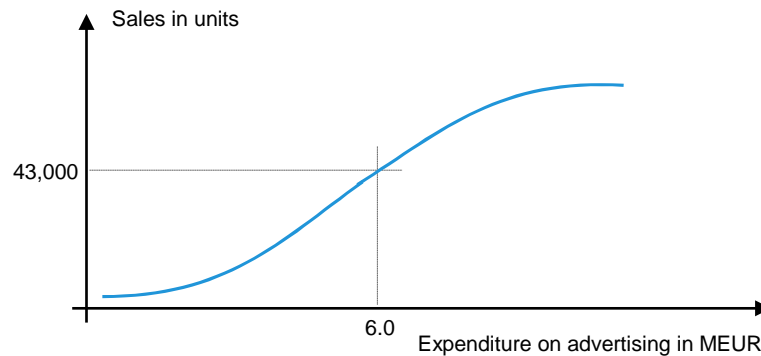
Market researchers believe that the following market reaction is to be expected (assuming all other variables remain constant):

Price (EUR/unit)	sales (unit)
3,150 (+ 5 %)	about 35,000
3,000 (Periode 0)	43,000 (periode 0)
2,850 (– 5 %)	> 50,000

### 2.1.3. Communication Policy

#### 2.1.3.1. Advertising

Advertising spending generally increases sales. They operate over several periods, but mostly during the period in which they were made. The effect of advertising on sales is shown schematically as follows:



The advertising budget for market 1 in the initial period is 6.00 MEUR. Experts believe that with 7.00 MEUR advertising expenditure a sales of about 45,000 pieces could have been achieved. From a doubling of the expenditure one would not be able to increase the sales however.

The amount of the advertising budget is / has an effect on the sales, as well as the advertising expenditures of the competitors. The larger the difference in advertising expenditure, the more the effect on the sales figures.

#### 2.1.3.2. Corporate Identity and Corporate Image

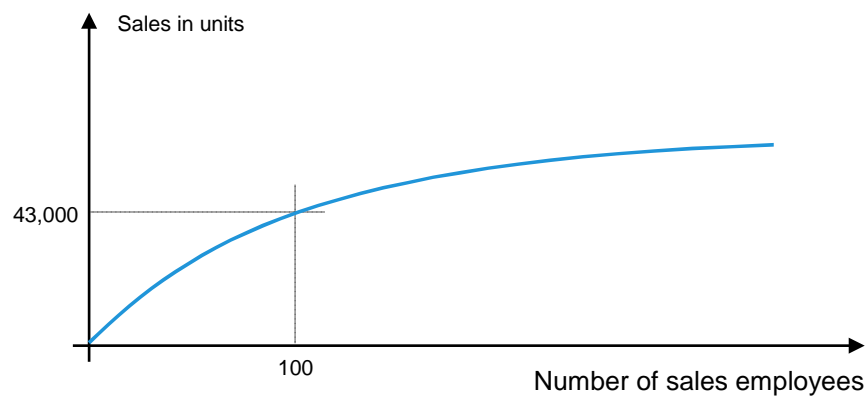
As part of the communication policy, you can also create a clear corporate image through expenditure on corporate identity and positively influence sales positively. The experts are divided on the concrete effect of Corporate Identity (CI). What is certain, however, is that this aspect is an important factor influencing the overall company with a relatively strong after-effects in subsequent periods. For a company of the size of BIKEFIT AG, expenses for CI in the amount of approximately 3.00 MEUR are customary in the industry. In budget planning, however, you should also pay attention to the diminishing marginal utility of your CI investments.



The image of the company in the public is determined in the form of an index for each period. The expenditure on CI is a significant factor. In addition, the environmental impact of the company (environmental impact indicator) plays an important role.

#### 2.1.4. Distribution Policy

"E-BIKE I" is sold in period 0 with the help of 100 sales representatives in Germany (market 1). Increased use of staff increases sales opportunities and operates across several periods. Experts estimate that with 110 sales representatives the sales could be increased to about 45,000. In general, the following schematic relationship is shown between employment at sales staff and sales:



It should also be noted that the delivery of an electric bicycle to the specialist retail trade (market 1) causes **25.00 EUR** for packaging and transport costs.

#### 2.1.5. Further Distribution Channels

In addition to sales to specialized retailers, sales opportunities arise in the domestic market as a result of participation in tenders, such as those carried out by authorities. Furthermore from time to time large buyers come to you with purchase offers.

##### **Sales to bulk buyer**

In this form of sales, in which all companies can participate, the price and the maximum delivery quantity per enterprise are determined by the wholesale buyer. Consequently, a smaller quantity can also be offered. The delivery takes place in the decision period and has priority over the delivery to the specialist retail trade. No distribution costs arise. As a rule, however, the contribution margin to be achieved is lower than that for retail sales.

##### **Sales through tenders**

In the case of invitations to tender, electronic bicycles are in high demand from large customers (eg authorities). Content of the call for tenders is the quantity requested. All companies can participate in the tender procedure through a bidding offer. The price offer may not exceed the offer price on the domestic market (market 1). The contract will be awarded to the company with the lowest price. Sales and turnover will only take place in the following period. Again, the delivery has priority over the delivery to the specialist retail. For the same price offer, the company will be awarded the product whose product features are better. There are no distribution costs.

### 2.1.6. Marketing-Mix

The sale of "E-BIKE I" is dependent on the selection and design of all sales policy instruments. These instruments are the so - called four "P" (English: Product - Price - Place - Promotions). They have to be coordinated in such a way that they develop the desired market effect as a bundle of measures (marketing mix). Components of the marketing mix:

4Ps	Components	Affecting decision
Product	Product Policy (Technology & Ecology)	Final Stock of R&D employees Budget for external consultancy services in the field of ecology
Price	Pricing Policy (Price)	Fixing price
Place	Distribution Policy (Sales staff)	Final stock sales staff
Promotion	Communication Policy	Communication expenditure:
	<ul style="list-style-type: none"> <li>Advertising</li> </ul>	<ul style="list-style-type: none"> <li>Investment in Advertising</li> </ul>
	<ul style="list-style-type: none"> <li>Corporate Identity</li> </ul>	<ul style="list-style-type: none"> <li>Investment in Corporate Identity</li> </ul>
	<ul style="list-style-type: none"> <li>Corporate Image</li> </ul>	<ul style="list-style-type: none"> <li>Investment in Corporate Identity and improve the environmental impact indicator by purchasing new plants or scrapping old plants.</li> </ul>

When planning the marketing mix, it must be taken into account that the effect is also directly influenced by the marketing efforts of the competitors on the market and the overall economic conditions. The price and advertising aggressiveness of the companies in the market also affects the basic market volume, which may lead to stronger or weaker growth than forecasted in the economic news.

### 2.1.7. Inability to Supply

Deliveries of "E-BIKE I" are carried out according to the following priorities:

1. Delivery on the basis of an invitation to tender
2. Delivery on the basis of a commitment to the bulk purchaser
3. Delivery to specialized retailers (market 1)
4. Delivery to retail stores (market 2)

If you generate a stronger demand from your marketing policy than your company is capable of satisfying, then there is a lack of delivery. If one or more companies are unavailable, 80% of the unsatisfied demand is distributed to the remaining companies according to the respective market share. In the context of this redistribution, one of the companies still available at the time of the first distribution may also be unable to deliver. In this case, the demand not satisfied by this com-

pany will not be distributed to the remaining companies again. As a result, less than 80% of unsatisfied demand can be redistributed.

### 2.1.8. Customer Satisfaction

Customer satisfaction is an important factor influencing demand. It can be difficult to predict as a psychological variable. The following factors influence customer satisfaction:

Influence factors	Effect on customer satisfaction
Ability to deliver in the previous period	Inability to deliver to the customers.
Changes in pricing	Customers prefer constant or even falling prices.
Price-performance ration	Only when your product is better than those of your competitors you can demand higher prices without compromising your satisfaction.
Bicycles in stock	The more old wheels you have at the beginning of the period in the warehouse, the more dissatisfied are the customers who always want to have the latest and best execution.
Corporate Image	A high image also boosts the satisfaction of your customers.

Customer satisfaction is calculated for each product for each market and expressed in an index that is 98 in period 0. You will find the index in the participant report 2. The higher the index value, the more satisfied your customers.

### 2.1.9. Market Research Report

In order to receive information about the marketing efforts of the competitors, you can obtain a market research report in each period at the price of **0.10 MEUR**. The market research report contains the following information:

#### No. 12. MARKET RESEARCH REPORT

		Co.	Price	Advertising		Sales		Revenue		Product Indices
			EUR	mEUR	%	Units	%	mEUR	%	Techn.
E-BIKE I	Market 1	1	3,000	6.00	10.0	43,000	10.0	129.0	10.0	100.0
		2	3,000	6.00	10.0	43,000	10.0	129.0	10.0	100.0
		3	3,000	6.00	10.0	43,000	10.0	129.0	10.0	100.0
		4	3,000	6.00	10.0	43,000	10.0	129.0	10.0	100.0
		5	3,000	6.00	10.0	43,000	10.0	129.0	10.0	100.0
		6	3,000	6.00	10.0	43,000	10.0	129.0	10.0	100.0
		7	3,000	6.00	10.0	43,000	10.0	129.0	10.0	100.0
		8	3,000	6.00	10.0	43,000	10.0	129.0	10.0	100.0
		9	3,000	6.00	10.0	43,000	10.0	129.0	10.0	100.0
		10	3,000	6.00	10.0	43,000	10.0	129.0	10.0	100.0
		Ø/T	3,000	60.00	100.0	430,000	100.0	1,290.0	100.0	100.0
Other		Co.	Prod. Staff	E-BIKE I		Production Lines		R&D Expense	Sales	
				O/R/N	Type A			(mEUR)	(No. of Staff)	
		1	852	O	4			1.5	100	
		2	852	O	4			1.5	100	
		3	852	O	4			1.5	100	
		4	852	O	4			1.5	100	
		5	852	O	4			1.5	100	
		6	852	O	4			1.5	100	
		7	852	O	4			1.5	100	
		8	852	O	4			1.5	100	
		9	852	O	4			1.5	100	
		10	852	O	4			1.5	100	

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### 2.2. Research & Development (R&D)

As a result of technological advances, the increased environmental awareness of customers and the growing competitive pressure, companies are constantly pushing their products forward. To develop the product "E-BIKE I" further, BIKEFIT AG can use the following measures:

<b>1. Technology</b>	
<b>Decision</b>	Employees in the field of R&D (expenditure on salaries)
<b>Outcome</b>	Increase in technological quality → Technology index increases
<b>Impacts</b>	<ul style="list-style-type: none"> <li>• Positive Impact on the market share</li> <li>• Cost of rework due to increased technical requirements (e.g., accuracy requirements, higher complexity)</li> </ul>
<b>2. Ecology</b>	
<b>Decision</b>	Expenditure on external consultancy services in the field of ecologies
<b>Outcome</b>	Increase in environmental compatibility and reductions in operating costs → Ecology index increases
<b>Impacts</b>	Positive Impact on the market share
<b>3. Value Analysis</b>	
<b>Decision</b>	Expenditure for external consultancy services in the area of value analysis
<b>Outcome</b>	Increase of profitability → Value analysis index increases
<b>Impacts</b>	<ul style="list-style-type: none"> <li>• Reduction of material consumption</li> <li>• Increased costs due to rework</li> <li>• No Impact on the market share</li> </ul>

Decisions on this in period 0:

Decision Area	Decision	Index score
Technologie	34 employees in R&D	100,0 <small>(According to the analysis of the magazine „Das Profi-Elektro-Fahrrad“)</small>

Section "Product development" from report 4 of period 0:

PRODUCT DEVELOPMENT	TECHN.		
	Period	(mEUR)	
		Cum.	Index
E-BIKE I - old	1.5	8.2	100.0

## 2.3. Purchasing

### 2.3.1. Demand and Conditions

In order to produce an "E-BIKE I", **one unit of "materials/parts" must be used in period 0.**

Investments in value analysis reduce this need. For a value analysis index > 100.0 less than one unit is required per part per "E-BIKE I". The demand for feedstocks / parts is calculated as follows:

$$\text{Demands in units} = \frac{\text{Units to be produced E-BIKE I} \cdot 100}{\text{Value Analysis Score}}$$

At the beginning of the simulation, you are entering an ongoing procurement contract of your predecessors. It provides an automatic delivery of your production with the necessary quantities of feedstocks. You will be charged **600 EUR** per unit. However, due to the favorable prices, the supplier is entitled to pay the invoice immediately.

### 2.3.2. Materials / parts

The storage of materials / parts caused

**Per 1,000 pieces (final stock): 0.05 MEUR Storage costs**

Due to the negotiated procurement conditions, there is currently no need for storage of feedstock beyond the financial year.

Report 2 provides information about the storage values.

#### LAGERWERTE

##### Einsatzstoffe/Teile

	E-BIKE I		
	Menge (Stück)	Lagerwerte (EUR/Stück) (MEUR)	
Lageranfangsbestand	0	0	0,00
+ Zugang von Lieferant	40.000	600	24,00
- Abgang an Fertigung	40.000	600	24,00
= Lagerendbestand	0	0	0,00

### 2.3.3. Stock finished products

The cost of storing finished products:

**Per 1,000 pieces started (final stock): 0.10 MEUR**

Here is an extract from the stock report:

#### INVENTORY

##### Finished Products

	E-BIKE I		
	Quantity (Units)	Inventory (EUR/Unit) (mEUR)	
Initial Inventory	12,000	2,100	25.20
+ Quantity produced	40,000	2,103	84.13
- Quantity distributed	43,000	2,103	90.41
= Final Inventory	9,000	2,103	18.92

The end of stock in period 0 is 9,000 pieces, valued at manufacturing costs of 2,103 EUR / piece. The value is the result of a mixed calculation of the stock entry level and stock receipt:

$$\frac{(25.20 \text{ MEUR} + 84.13 \text{ MEUR})}{(12,000 \text{ units} + 40,000 \text{ units})} = 2,103 \text{ EUR / unit}$$

## 2.4. Production

### 2.4.1. Manufacturing Plants

In period 0, BIKEFIT AG has four production plants of type A. Each production plant is internally marked with a number. The following data apply to the plants currently in use:

Production line Type No.	Nominal capacity (unitsn/ period)	Procu- rement period	Purh- chase Value (MEUR)	Remain- ing Time (period)	Depreci- ation (MEUR/ period)	Residual book value (MEUR)	Further fixed costs (MEUR/ period)	Ecology index
A 1	8,000	- 8	12.50	1	1.25	1.25	1.50	83.0
A 2	9,000	- 7	15.00	2	1.50	3.00	1.00	90.0
A 3	1,500	- 5	20.00	4	2.00	8.00	0.50	95.0
A 4	11,500	- 4	20.00	5	2.00	10.00	0.25	98.0
$\Sigma$	42,000		67.50		6.75	22.25	3.25	Ø 91.5

Despite the same type, the production plants differ in their capacity and environmental impact. These parameters remain all along during their lifetime. Other fixed costs of the production plants are, for example, maintenance and insurance costs, which are determined by current contracts. **If production plants are depreciated, they can continue to be used for production.**

### 2.4.2. Need for Production Capacity

**One available capacity unit of a production plant is currently required** for the production of an "E-BIKE I". This capacity requirement may change, for example, **with new products.**

### 2.4.3. Possibilities for adapting Production Capacity

The available production capacity in a period can be influenced by the following measures:

- Investment in new production facilities
- Disinvestment / scrapping of production plants
- Maintenance
- Rationalization
- Overtime in the use of the production facilities

### 2.4.3.1. Investment in new Production Lines

For the production of "E-BIKE I", new type A production plants can be procured. Other types may be available later. The current performance data of the system type A are shown in the following table:

Type of production line	Purchase price (MEUR)	Depreciation period (period)	Normal Capacity (units/periode)	Further fixed costs (MEUR/period)	Ecological Index
A	20.00	10	14,000	0.3	100.0

A total of nine production plants can be ordered and set up per type. Note that the production plants that already exist in the initial situation are already included, so that they have a maximum of nine minus the existing production facilities. **Newly procured production plants are immediately available for production in the period of the order.**

### 2.4.3.2. Desinvestment / Scrapping of Production Lines

Production lines can be desinvested (scrapped). A scrapped production plant is **no longer available at the beginning of the relevant period**. It is amortized immediately with the amount of the residual book value as other expenses. It achieves a scrapping. The revenues due to the scrapping are calculated as the share of the residual book value.

	type A
Residual value as a percentage of the residual book value	20.0

Within a period, a maximum of three production plants of the same type can be desinvested. In order to divest a certain production plant, the **number of the production line** must be specified in the decision form.

Impact of Desinvestment:
Profit and loss account (cost of sales method)
<b>The amortization (residual book value) is recorded as other expenses.</b>
<b>The residual value (scrapping) is recorded as other income.</b>
Financial Report
<b>The residual amount (scrapping revenue) is booked as a deposit from disinvestment.</b>

Other expenses and other income are shown in the profit and loss account.



### 2.4.3.3. Maintenance

Production lines are subject to constant wear as a result of their use during operation. The resulting capacity reduction is to be reduced by means of maintenance measures. This also applies to newly procured production lines. At the moment, you are bound by a long-term maintenance contract, which has been closed by your predecessors. For 1.0 MEUR per production line, the standard capacity of the respective plant is 100% guaranteed in this contract. If a new contract has to be agreed, you will be informed.

$$\text{Normal Capacity} * \text{Availability} = \text{Available Capacity}$$

### 2.4.3.4. Rationalization

The available capacity of the production facilities can be increased by means of rationalization measures. Like maintenance, rationalization can only be carried out uniformly for all production lines of one type. The degree of rationalization achieved is expressed by a rationalization factor. This depends on the cumulative rationalization expenditure since the acquisition of the respective production plant. Newly procured production plants initially have the rationalization factor 1.00.

The expenses for rationalization in a period are claimed in full in the same period as costs.

$$\text{Available Capacity I} * \text{Rationalization Factor} = \text{Available Capacity II}$$

### 2.4.3.5. Overtime in the use of the Production Lines

The available capacity II can be further **increased by overtime by a maximum of 10%**. Overtime is automatically set when the required production capacity exceeds the available capacity II. If overtime is required, additional costs in the amount of **2.50 MEUR** for the supervision and operation are incurred in the period (jumping costs).

$$\text{Available Capacity II} * \text{Overtime Factor} = \text{Available Capacity III}$$

## 2.4.4. Ecological Index of the Production Lines

The environmental impact indicator is a legal standard for the environmental compatibility of the production of your company. Since so far no suitable retrofitting options for environmental technology such as sewage treatment plants or filters have been installed, the indicator corresponds to the average of the environmental indices of the manufacturing plants used. The environmental index of the production plants can be improved only by the procurement of new ones or the scrapping of old production plants. If a company does not meet the statutory standard of 100.00, it must pay a fee to the environmental authority in the next period for each missing index point, which can be interpreted as a pollution certificate or emission tax. In period 0, the value of 1.90 MEUR must be paid:

Ecological Index of the Production lines in period 0	Index	91.50
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**Submission to environmental authorities**

MEUR

1,90

Investments in environmental technology such as sewage treatment plants or filters (end-of-pipe investments) can reduce the environmental impact of the company. Investments in environmental investments are amortized on a straight-line basis over 10 years.

The environmental impact indicator of your company directly affects the following factors:

- Sales
- Absences of production staff
- Motivation of the production staff
- Corporate Image
- Share Price

### 2.4.5. Rework

Costs for rework (rejects) are incurred in production. They are dependent on:

Impact Factors	Effect on Rework
Technology index	Higher technology leads to more rework due to the increased complexity of the devices.
Value Analysis index	An increased value analysis increases the effort for reworking.
Additional costs	Higher personnel costs lead to a reduction of the rework by a better payment of the employees.
Employee motivation	High employee motivation helps to reduce rework.

### 2.4.6. Operating materials

For each "E-BIKE I" device produced, costs of operating materials (eg energy) in the amount of EUR 50.00 are currently incurred. The materials are automatically procured and always available to the extent required.

## 2.5. Staff

### 2.5.1. Headcount in the initial period

The personnel situation of BIKEFIT AG is shown in period 0 as follows:

Cost center	Headcount	Salaries in period 0 in EUR without additional costs
Purchase	18	30,000
Administration	202	28,000
Production	852	30,000
Research & Development	34	44,000

Sales	100	40,000
Total	1.206	172,000

The cost center administration includes staff costs in the areas of human resources, finance and accounting and general administrative services.

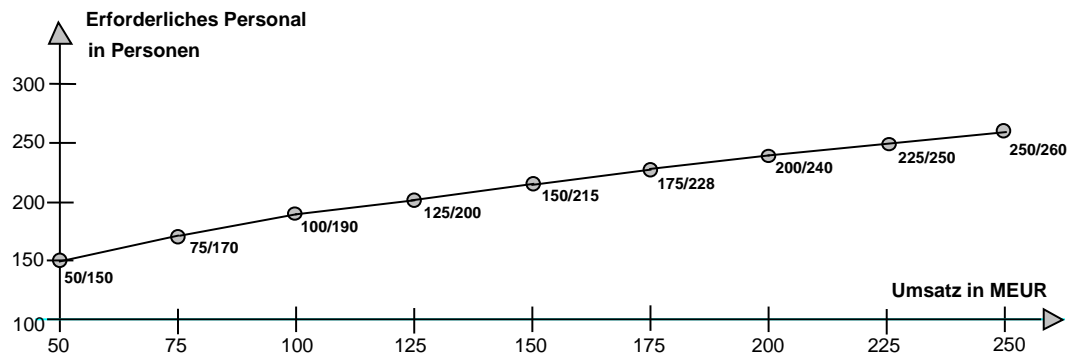
## 2.5.2. Adjustments of the headcount

As a matter of principle, the staff numbers are adjusted via hiring and “firing” of personnel. The number of employees in the company divisions is also affected by redundancies on the part of employees (**fluctuation**). The fluctuation rate depends essentially on the amount of the **additional personnel costs**.

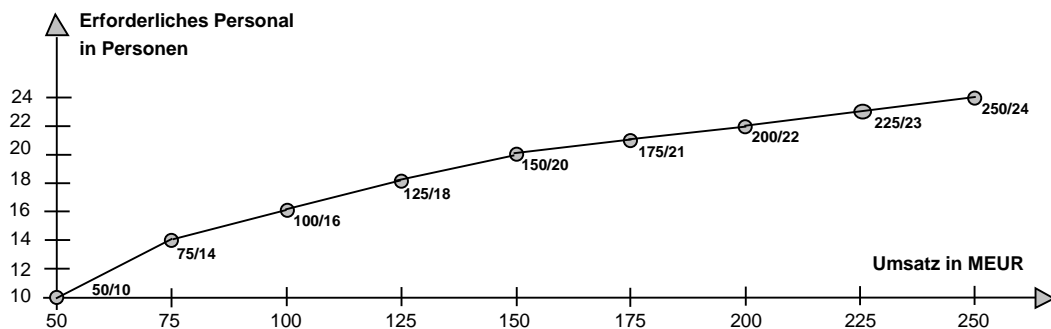
You can hire and “fire” **production** staff for the company. In the areas of **R&D** as well as in **sales**, you as a member of the Management Board determine the personal stock. Hires and dismissals are made automatically according to the desired end-of-workforce, whereby the fluctuation is taken into account.

The number of employees of the cost centers **purchasing** and **administration** depends on the company's turnover. In the case of fluctuations in turnover, the number of employees is automatically adjusted by means of hires and dismissals.

Cost center management - required personnel depending on turnover with E-BIKE I (schematic):



Cost center Purchasing - required personnel depending on turnover with E-BIKE I (schematic):



In the case of a high product complexity (high technology index) additional purchasing staff becomes necessary, since the procurement processes become much more complex so the above graphic is merely a point of reference for the actually required purchasing personnel.

Each hiring in one cost center causes a one-off cost of EUR 12,500. The costs of dismissal amount to EUR 10,000. If more than 100 employees are dismissed in the manufacturing process, the works council may require that a social plan be drawn up. This may lead to additional costs.

Changes in the areas of R & D (eg from E-BIKE I to E-BIKE II) and distribution (eg from market 1 to market 2) represent no recruitments or redundancies. The possible number of new appointments can be limited to possible bottlenecks on the labor market.

### 2.5.3. Additional Costs

The additional personnel costs in period 0 are 40% of the respective salary of the cost centers. The minimum rate of 37% corresponds to statutory provisions such as the employer's share of social insurance, paid holidays, etc. The additional costs of personnel can be **increased at will**, but can be **reduced by a maximum of 3% points in a period compared to the previous period**.

The additional personnel costs have a direct influence on the **fluctuation rate** as well as on the **absenteeism** of the employees in the individual cost centers.

### 2.5.4. Employer-funded Pension

BIKEFIT AG has granted all employees a company pension scheme. Therefore, **pension provisions** amounting to 5% of the wage or salary of the balance sheet pension provisions are reimported in each period.

### 2.5.5. Motivation of the Production Staff

The motivation of the employees in the production process requires the willingness to perform and helps to avoid reworking. As a psychological parameter, employee motivation is sometimes difficult to grasp and may also change rapidly.

The following effects are currently considered to be plausible:

Influence factors	Measures for influencing factors	Impact on motivation
Utilization of employees		?
Corporate Image		
Changes in Personnel Staff		?
Additional Costs (Salary)		
Pension provisions		
Process-Optimization		
Training Measures		

## Product Quality



In the case of personnel utilization, values of approx. 98% are considered as motivation-enhancing. In the case of personnel movements, employees consider a particularly positive growth potential to be particularly positive. Rapid growth or personnel reduction leads to a reduction in motivation.

The motivation is measured in the form of an index. You will find the current motivation index in the personnel report (report 4). In period 0, motivation® is 67. A higher index means higher motivation and vice versa.

## 2.5.6. Staff Report of Cost Centers

In each period, you will see the following overview of personnel, personnel changes and personnel costs broken down by cost center (here period 0):

### No. 4. TOTAL STAFF, PRODUCT DEVELOPMENT

#### STAFF BREAKDOWN BY DEPARTMENT (COST CENTER)

	Purchasing	Administr.	Production	R&D	Sales	Total
<b>Number of People</b>						
Initial Workforce	18	200	853	34	100	1,205
+ Hires	1	10	50	1	9	71
- Dismissals	0	0	0	0	0	0
- Attrition	1	8	51	1	9	70
= Final Workforce	18	202	852	34	100	1,206
<b>In mEUR</b>						
Wages&Salaries (1)	0.54	5.66	25.56	1.50	4.00	37.25
Recruit./Dismiss./Training	0.01	0.13	0.63	0.01	0.11	0.89
Non-Salary Staff Costs	0.22	2.26	10.22	0.60	1.60	14.90
Pension Reserves	0.03	0.28	1.28	0.07	0.20	1.86
<b>Total Staffing Costs</b>	<b>0.80</b>	<b>8.33</b>	<b>37.69</b>	<b>2.18</b>	<b>5.91</b>	<b>54.90</b>

## 2.5.7. Overtime of the Production Staff

The **normal productivity** of a production worker is **50 units of type "E-BIKE I"** per period. Overtime hours are automatically set if the planned production quantity can not be produced with the existing number of employees — or with the available production capacity of the production plants. **The number of possible overtime hours is limited. It is currently 10%.**

In the event of overtime, be it in the case of the employees, in the production plants or in the case of employees and production plants, additional costs of **MEUR 2.50** are charged per period for supervision and operation. In addition, an overtime impact of **25% on wages and salaries** incurred during overtime is payable by the manufacturing staff. The overtime charges are not reported in the above Costs statistics of the personnel department.

## 2.5.8. Productivity

### 2.5.8.1. Process Optimization

With the help of projects for process optimization, workflows in production can be made more rational and thus increase the productivity of the employees. However, such projects also increase absenteeism (due to the higher burden on employees). In period 0, the process optimiza-

tion index is 1.00. Consultants believe that an investment of 2.5 MEUR can lead to an index of about 1.04.

### 2.5.8.2. Training for Production Staff

Expenditures for training the production personnel increase the qualification of the employees and lead to an increase in the productivity. The expenditure on training increases the personnel qualification index (period 0 = 1.00). In addition, training also reduces the absence from work. Consider the calculation of your training budget that the costs for a training day for each production employee are about 800 EUR on average. In the industry, 2-4 training days per year per production staff are standard.

### 2.5.8.3. Productivity Index I

Process Optimization Index	1.00
* Adaptation	1.00
* Staff Competence Index	1.00
* Motivation Index	1.00
= Productivity Index I	1.00

The productivity of the employees is directly influenced by training and process optimization. On the other hand, new hirings

and the resulting training period generally lead to a drop in average productivity. Employee motivation also influences productivity. From the product of the indices for process optimization, training effects, personnel qualification and effects of employee motivation, the **productivity index I** is determined. It is reported in report 3 (excerpt).

### 2.5.8.4. Productivity Index II

With the increasing number of units produced, the experience of production workers is increasing in production, and thus their productivity increases. The cumulative quantity of units produced over all periods is included. However, cumulative production quantities are always relevant up to the *previous* period. The effect always occurs, so to speak, by 1 period of time lag. This degree of success in learning about the course of time is referred to as a "learning curve" or "experience curve". **This results in the Productivity Index II. It amounts to 1.00 in the initial situation.**

### 2.5.8.5. Actual Productivity

Thus, the actual productivity of a production employee is thus:

$$\text{Given Productivity (in period 0: 50 units „E-BIKE I“)} \\ * \text{ Productivity Index I} * \text{ Productivity Index II}$$

### 2.5.9. Absenteeism

Absenteeism reduces the usable personnel in production. The following factors influence the absenteeism:

Influence Factors	Measures for influencing factors	Impact on absenteeism
Employee motivation		
Increase in Personell (Recruiting)		

Staff reduction (Dismissals)		
Additional Costs (Salary)		
Process-Optimization		
Training Measures		
Environmental impact indicator		

### 2.5.10. Social Plan

If more than 100 employees are dismissed in one production year (excluding fluctuation), extraordinary costs for social plans incur for each further dismissal in this department. These are additional to the normal dismissal costs. The amount of the one-off social plan costs depends on the number of redundant employees. The more employees are released, the higher the average compensation for the employees. If no other information is communicated in the economic news, the following social costs apply:

Dismissals (for each employee, if >100)	Costs for social plan for each dismissal
	Two Year Salary

### 2.5.11. Overview of Production Staff

Participant Report No. 3 (Manufacturing Plants, Environment), overview of the value period 0:

#### PRODUCTION STAFF: AVAILABILITY AND PRODUCTIVITY

Workforce	(No. of Staff)	852
- Percentage New Hires	6.2%	
- Absenteeism	(No. of Staff)	52
<b>= Available Staff</b>	<b>(No. of Staff)</b>	<b>800</b>

## 2.6. Finance and Accounting

### 2.6.1. Payment Behavior of Customers

80% of the revenues of the current period are increasing payments in the current period,  
20% of the revenues of the current period will increase payments in the following period.

This also applies to large customers and tenders. Payments for the subsequent period appear in the balance sheet for the current period under the asset item "Receivables from deliveries and services".

### 2.6.2. Financial Investments

The company management can buy securities in any period - provided it has excess cash. **Interest income** is credited in the current period. The securities themselves will be automatically resold and repaid in the subsequent period.

### 2.6.3. Rating

BIKEFIT AG is subject to a rating by the bank. A good rating improves the credit conditions, while a decline in the rating results in an increase in borrowing rates in the next period. The most important factors influencing the rating are:

Influence Factors	Measures for influencing factors	Impact on Rating
Equity ratio		
Equity		
Free Cash Flow / Financial liabilities		
Use of overdraft facility		
Customer Satisfaction		
Motivation of employees		
Operating Cash Flow / / Financial liabilities		
Period surplus		
Planning quality		
Employee productivity		
Technology of products		

The current rating of BIKEFIT AG is on average. It is expressed as a point value and is 122 points in period 0. You will find the rating in report 8. If the rating changes, the conditions of the credit types shown below also change.

### 2.6.4. Loans

#### 2.6.4.1. Short-term Loan

In each period, a short-term credit (term: 1 period) can be taken as required. It is interest-bearing in the current period and is automatically repaid in the following period. The interest rate depends on the amount of the equity of the previous period. If the credit volume exceeds the amount of the equity capital, an interest rate surcharge of 2% is charged. If the loan amount exceeds the double equity, the interest rate increases to 3 percentage points. The interest rate on short-term loans may also change as a result of the rating.

**Note:** Only the part of the loan amount will bear interest at the higher interest rate, which exceeds the amount of the equity or the double the amount of the equity.

#### 2.6.4.2. Long-term Loan

In principle, you have the option of replacing short-term loans by means of long-term loans with a term of ten periods. The exclusion of early repayment is a disadvantage in comparison to the interest rate advantage. **The amortization is therefore carried out at the end of the credit period.**



The interest rate is variable and is adjusted according to the general interest rate trend. The interest rate of long-term loans may also change as a result of the rating.

### 2.6.4.3. Overdraft Loan

If the available liquidity does not cover all payment obligations within one period, the company will automatically be granted a overdraft credit (current account credit) in order to avoid insolvency (illiquidity). Cash must be at least **0.1 MEUR**. Only as much is claimed as it will lead to a cash balance of 0.1 MEUR. The interest rate for the overdraft in period 0 is **11.0%**. The actual interest rates for the use of the overdraft are affected by the company-specific rating. Interest is due in the current period. The overdue loan itself will be automatically repaid in the following period.

### 2.6.5. Income Taxes

The company 's tax burden is **40 %** on

**Profit of common business operations  
± extraordinary results**

Possible losses are carried forward and offset against the annual net profit before tax until a positive balance remains, which then has to be taxed. The tax is paid in the current period.

### 2.6.6. Dividend Payment

How much BIKEFIT AG pays as a dividend is up to you. The maximum amount to be paid out corresponds to the cumulative profit carryforward of the previous period. This value is reported in the Participant Report 8 Profit and Loss Statement. The decision is expressed in MEUR. No dividend was distributed in period 0.

The dividend payout has a positive effect on your share price, the higher the amount the better the share price. If, however, you do not have sufficient liquid funds, your dividend payment is financed by loans, which has a negative effect on your rating.

### 2.6.7. Exchange rate

In later periods, the markets abroad will be attractive to EBIKEFIT AG. Since the products are sold in a different currency unit, the Foreign Currency Unit (FCU), the selling prices must be converted by you. The following example is intended as an aid:

EUR → FCU	FCU → EURO
Der aktuelle Wechselkurs liegt bei: EUR/FCU = 1,40	Der aktuelle Wechselkurs liegt bei: EUR/FCU = 1,40
$\frac{\text{EUR}}{\text{FCU}} = 1,40$	$\frac{\text{EUR}}{\text{FCU}} = 1,40$
Nun ersetzen wir das EUR durch den Verkaufspreis in Euro.	Nun ersetzen wir das FCU durch den Verkaufspreis in FCU.
$\frac{3000}{\text{FCU}} = 1,40$	$\frac{\text{EUR}}{2143} = 1,40$
Wir stellen die Gleichung nun nach FCU um und rechnen den Verkaufspreis aus.	Wir stellen die Gleichung nun nach EUR um und rechnen den Verkaufspreis aus.
$\frac{3000}{1,40} = \text{FCU} = 2143$	$1,40 * 2143 = \text{EUR} = 3000$
Der Verkaufspreis läge somit bei 2143 FCU pro verkaufter Einheit.	Der Verkaufspreis läge somit bei 3000 EUR pro verkaufter Einheit.

## 2.6.8. Share Price and Company Value

The share price of BIKEFIT AG is determined in each period. The number of shares amounts to 500,000 shares. The share price reflects your company's value. The following factors have an effect on the share price:

Influence Factors	Measures for influencing factors	Impact on Share Price
Equity of the period		
Annual surplus of the period		
Distributed dividend of the period		
Cumulative distributed dividend		
Return on sales of the period		
Cumulative spending on marketing mix		
Number of products and markets		
Index Corporate Image		
Revenue relative to competitors		
Planning quality		

Ecological index		
Degree of indebtedness		
Cumulative technology expenditure		
Total productivity index		

Your share price in period 0 is EUR 206.64 per share.

### 2.6.9. Shareholder Earnings

The shareholders are looking at their shares at BIKEFIT AG in the light of the increase in the value of the shares since the acquisition. This growth is attributable partly to the dividends paid over the periods, and to the increase in the price increases. This growth is reflected in the company's key figures (Participant Report No. 14: Annual Reports of the Industry) as shareholder earnings.

### 2.6.10. Annual Reports of the Industry

Within the framework of the reporting system, you will receive a free overview of the most important data from the profit and loss account as well as the balance sheet of the competing companies.

### 2.6.11. Accounting

BIKEFIT AG has a modern accounting system. In its design it was ensured that cross-comparisons within the industry are possible. The evaluations of company accounting, consisting of cost type, cost center and cost object accounting, form an important basis for planning and monitoring costs. The financial accounting analyzes compliance with legal requirements and show the financial situation of the company. You can use the margin contribution calculation to determine your operating result.

The following information is of interest to the analysis of the cost estimate reports:

#### Depreciation for buildings

The amortization per period for buildings is 1.00 MEUR. This depreciation amount is distributed to the cost centers as follows:

Purchase	Production	R&D	Distribution	Administration
5 %	70 %	5 %	5 %	15 %

#### Maintenance in administration

Also the facilities in the administration (e.g. copying machines, computers) must be maintained by maintenance measures. Fixed maintenance contracts exist with **1.00 MEUR per period**.

#### Administrative expenses

The wages and salaries of the administration are charged to the cost center administration as an **overhead cost**. These are distributed among the products according to the sales share.