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**BUDGET COMPILATION IN SMEs**

**THE PROCEDURE IN THE APPLICATION SUPPORTED BY AN EXAMPLE**

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Das Vorgehen in der Praxis unterstützt durch ein Planungsbeispiel"*

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## 1. INTRODUCTION

Economic life is marked by quickening changes. Sinking profit margins, rising fixed costs, a range of impacting factors make every entrepreneurial decision a balancing act.

Without concrete supporting and hedging figures, reliable statements on the further development of an enterprise cannot be made. Expectations and plans for the future of an enterprise must be expressed in figures for assessing all effects in their full scope.

This is why SMEs cannot be spared by controlling. Controlling systems which used to be exclusively applied in large or largest enterprises, have now become standard for SMEs, too.

In the first part of this article the individual components of a budget will be dealt with, the second part will cover the gradual presentation of the process in the framework of budget compilation.

On the basis of exemplary figures, the effects of changes in fixed costs, sales and time allowed for payment shall be demonstrated with all impacts on profit situation and liquidity of an enterprise.

## 2. THE COMPONENTS OF A BUDGET

Principally, a budget consists of a profit-oriented and a liquidity-oriented part. The profit-oriented part covers the profit plan<sup>1</sup> which is compiled in several steps. The liquidity-oriented part holds finance plan and budgeted balance sheet.

Profit and finance planning<sup>2</sup> can only develop its full power jointly and must therefore be considered a unit and be used as such. The major connections and links between profit and finance planning<sup>3</sup> shall be reviewed more closely.

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1 Compare: Reichmann, T. in: Horváth, P.; Reichmann, T. (Editors): Vahlens grosses Controllinglexikon, Munich, 1993, page 204

2 Compare: Mertens, P. in: Horváth, P.; Reichmann, T. (Editors): Vahlens grosses Controllinglexikon, Munich, 1993, page 303

3 Compare: Lachnit, L.: Controllingssysteme für ein PC-gestuetztes Erfolgs- und Finanzmanagement, Munich, 1992, page 42 ff

## 2.1. Profit Plan

The first step towards the budget of an enterprise<sup>4</sup> is the compilation of a profit plan. Here, planned sales are set against variable and fixed costs.

This simple structure of a profit plan is carried out in the following steps:

$$\begin{array}{r}
 \text{Revenues (Sales)} \\
 - \text{ Variable costs} \\
 \hline
 = \text{ Contribution margin} \\
 - \text{ Fixed costs} \\
 \hline
 = \text{ Operating result}
 \end{array}$$

Like the terms Variable and Fixed Costs show, the result is determined based on cost accounting values. The term Operating Result also comes from cost accounting values. Book keeping values are only incorporated into the budget later, if a separate cost accounting system from book keeping exists.

In SMEs, there is often no separate cost accounting apart from financial accounting. In these cases the values of book keeping equal those of cost accounting, a simple profit plan can be compiled easily in the form shown without further conversions.

### 2.1.1. Differentiation between Fixed and Variable Costs

The separation into fixed and variable costs is of crucial importance for budget compilation.

A principal differentiation between long and short term view must be made to begin with.

In the long run all cost items are changeable. Generally, in the framework of budget compilation, the budget period is a year or a business year resp. In this short-term period, the separation into fixed and variable costs according to simple, decision-oriented considerations has proved very successful.

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4 Compare: Horváth, P.: Controlling, 5 th edition, Munich, 1994, page 255 ff.

Costs that automatically change with sales and revenues are called variable costs. This means that variable costs rise with increasing sales and sink with decreasing sales. All other costs, which do not automatically adapt to a changed sales situation are called fixed costs and are incorporated into the budget as such. This means that whenever the fixed costs are changed this is the consequence of a concrete decision whether to change them and by what amount.

Change follows a decision: Fixed costs

Change happens automatically: Variable costs

The question arises which cost types are to be allocated to variable costs and which ones to fixed costs. The differentiation is crucial for the structure of a profit plan.

### **2.1.1.1. Use of Material/Use of Goods**

Expenses for use of material or use of goods are to be found among the typical variable costs under the conditions described above. If sales or the amount of product units sold rise, so does use of material or use of goods.

### **2.1.1.2. Sales Deductions**

The term Sales Deductions normally means a rebate, discount or commissions. These items of sales deductions which are normally directly linked to the amount of sales, are mostly immediately deducted as variable items from revenues.

If sales deductions are planned together with revenues this leads to an additional line in the compilation of the profit plan:

Revenues (Sales)	
– Sales deductions	
– Variable costs (Use of material/Use of goods)	
=	Contribution margin
– Fixed costs	
=	Operating result

### **2.1.1.3. Other Cost Items**

Cost types such as depreciations, rent etc are typically allocated to fixed costs. These costs do not change directly and automatically with fluctuating sales. Their change must be planned concretely and then be carried out.

A central issue in the framework of allocating costs to whether they are variable or fixed, normally are personnel costs. To treat them as fixed costs has proved very practical in the application.

## 2.1.2. The Company's Ratios in the Profit Plan

In the framework of compiling a profit plan the following ratios are most informative: minimum turnover, volume range and price range.

The ratios mentioned can be calculated on the basis of cost accounting or book keeping.

### 2.1.2.1. Minimum Turnover

Minimum turnover is the first important ratio when compiling a profit plan. It provides information on how high the sales volume must at least be, to cover all variable and fixed costs and to achieve a profit or loss of zero. Minimum turnover is also called Break-Even<sup>5</sup> and is calculated according to the following formula:

$$\begin{aligned}\text{Minimum turnover} &= \text{Fixed costs} / \text{Cover ratio} \\ \text{Cover ratio} &= (\text{Contribution margin} / \text{Sales}) \times 100\end{aligned}$$

### 2.1.2.2. Volume Range

Volume range specifies by what percentage a company's sales volume may decrease without achieving a loss. It is based on the assumption that all other factors remain constant: sales price per item or unit, variable costs per item or unit or in relation to sales price, and fixed costs.

The formula for calculating volume range is the following:

$$\text{Volume range} = [(\text{Planned turnover} - \text{Minimum turnover}) / \text{Planned turnover}] \times 100$$

A positive ratio means that a certain scope for action in the sales volume exists. A negative ratio means that the profit or loss wedge has already been under run and that in accordance with the percentage, more volume must be sold not to achieve a negative result any more.

Volume range is also called margin of error<sup>6</sup>.

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5 Compare: Schwarzecker, J., Spandl, F.: Kennzahlen – Krisenmanagement mit Stufenplan zur Sanierung, Vienna, 1993, page 149

6 Compare: Egger, A., Winterheller, M.: Kurzfristige Unternehmensplanung: Budgetierung, 8 th edition, Vienna, 1994, page 76

### 2.1.2.3. Price Range

The ratio Price Range, the third of the profit ratios, shows by how many percent a company's sales price per unit or item may deviate from the planned sales price without achieving a loss. All other components remain constant here: sales volume, variable costs per unit and fixed costs. When the sales price goes down all variable costs remain equal. Volume range is automatically based on the assumption of a decrease in the variable costs when the sales volume drops. Price range is smaller than volume range.

Price range is calculated according to the following formula:

$$\text{Price range} = (\text{Result/Sales}) \times 100$$

A positive ratio means there is still a scope for action in the sales price. A negative ratio means the price must rise to move away from a negative result. Other terms for price range, partly with slightly different ways of calculating them, are profit on sales<sup>7</sup> or ROS (Return on Sales).

### 2.1.3. Cost Accounting – Financial Accounting

All procedures described so far, are based on cost accounting values. They can be adhered to if the values and results of financial accounting and cost accounting equal. In this case it is immaterial if we refer to expenses of financial accounting or costs in cost accounting. The operating result from cost accounting equals the overall corporate result from financial accounting.

If separate cost accounting values and results from financial accounting exist, these differing amounts must be considered in the budget. The profit plan will be supplemented by the item conversion or cost conversion resp. In the cost conversion, the cost accounting values are replaced by the respective financial accounting values. The operating result from cost accounting is transferred into the overall corporate result from financial accounting.

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7 Compare: Schröder, E. F.: Modernes Unternehmens-Controlling: Handbuch für die Unternehmenspraxis, 5 th edition, Ludwigshafen, 1992, page 64

	Revenues (Sales)
–	Variable costs (Use of material/ Use of goods)
	<hr/>
=	Contribution margin
–	Fixed costs
	<hr/>
=	Operating result
±	Cost conversion
	<hr/>
=	Corporate result

The cost or expense items which are different in cost accounting from financial accounting are normally depreciations, interest, calculatory entrepreneurs' salary and risks.

## 2.2. The Finance Plan

The liquidity part of the budget consists of finance plan and budgeted balance sheet.

The finance plan is based on the results of the profit plan. It supplements the profit and loss situations from the profit plan concerning liquidity or solvency of the enterprise. For providing meaningful information for the company, a finance plan should be compiled monthly or at least quarterly during the year, to take fluctuations in the liquidity surplus or deficit into account.

Only a profit plan containing these fluctuation during the year can be the basis for the compilation of a convincing and informative finance plan.

The finance plan described here consists of the following four sectors<sup>8</sup>:

- I Cash flow
- II Working capital
- III Long-term sector
- IV Shareholder sector

### 2.2.1. Cash Flow

The operating result which was compiled in the profit plan is the basis for cash flow. It is corrected by expenses and income that form no money transfer.

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8 Compare: Egger, A., Winterheller, M.: Kurzfristige Unternehmensplanung: Budgetierung, 8 th edition, Vienna, 1994, page 67 f.



Typically, these are depreciations, provisions and reserves. The result is transferred into cash flows in a first step.

Cash flow:

	Corporate result after tax
+	Depreciations
+	Formation of provisions and reserves
-	<u>Retransfer of provisions and reserves</u>
I	Cash flow

### 2.2.2. Working Capital

Working Capital covers short-term changes in the enterprise that affect liquidity, such as changes in stock, receivables and liabilities.

An increase in stock reduces liquidity of the enterprise, the enterprise has “invested into the stock” when it increases it. An increase in liabilities improves liquidity, the same as a reduction of receivables.

Working capital results from the following key items:

-	Increase in stock
+	Decrease in stock
-	Increase in receivables
+	Decrease in receivables
+	Increase in liabilities
-	Decrease in liabilities
-	Increase in other current assets
+	Decrease in other current assets
+	Increase in other liabilities
-	<u>Decrease in other liabilities</u>
II	Working capital

### 2.2.3. Long-term Sector

The long-term sector takes changes in liquidity with long-term effects into account: investments, loans and long-term liabilities.

Long-term sector:

+ De-investments
– Investments
+ Increase in long-term liabilities
<u>– Decrease in long-term liabilities</u>
III Long-term sector

### 2.2.4. Shareholder Sector

The shareholder sector consists of deposits into the enterprise and withdrawals out of the enterprise.

Shareholder sector:

+ Deposits
<u>– Withdrawals</u>
IV Shareholder sector

Like that, the finance plan consists of the above mentioned sectors and leads to a liquidity surplus or deficit:

I Cash flow
II Working capital
III Long-term sector
<u>IV Shareholder sector</u>
V Surplus/Deficit

Together with the profit plan this results in the following planning scheme:

<b>Profit plan</b>		<b>Finance plan</b>	
	Revenues (Sales)		Corporate result
–	Variable costs	±	Corrections
<hr/>		<hr/>	
=	Contribution margin	I	Cash flow
–	Fixed costs	II	Working capital
<hr/>		<hr/>	
=	Operating result	III	Long-term sector
±	Cost conversion	IV	Shareholder sector
<hr/>		<hr/>	
=	Corporate result	V	Surplus/Deficit

### 2.2.5. The Connection between Profit and Finance Planning

A crucial factor in the connection between planning of profit and planning of liquidity is the planning of receivables and liabilities.

On the one hand, a differentiation must be made the way the initial stock level of receivables and liabilities is treated, on the other hand in planning receivables and liabilities that arise in the course of a planning year from sales and material/purchased goods. The initial stock levels of receivables and liabilities should be reduced according to a time schedule, the planning of constantly arising receivables and liabilities according to time allowed for payment and rate of turnover

The relation between time allowed for payment and rate of turnover can be demonstrated like that:

The number of days of a year divided by time allowed for payment results in the rate of turnover. According to the type of calculation, either 365 or 360 days with 12 months at 30 days each are taken into account.

$$\text{Rate of turnover} = 360 \text{ days} / \text{Time allowed for payment in days}$$

The rate of turnover shows how often the stock level of receivables and liabilities is accrued and reduced again.

The following formulas for calculating receivables and liabilities are annual formulas. They calculate the stock level of receivables and liabilities for the budgeted balance sheet at the reporting date.

### 2.2.5.1. Receivables

The planned stock level of receivables can be derived from sales and rate of turnover in the following way:

Sales inclusive of VAT divided by rate of turnover result in a final reporting date stock level of receivables at the end of a planning year.

$$\text{Final stock level of receivables at reporting date} = (\text{Sales} + \text{VAT}) / \text{Rate of turnover}$$

In the simplest case this is based on equal distribution of sales. If sales or times allowed for payment fluctuate during the year, calculations must be supplemented in the course of the year.

### 2.2.5.2. Liabilities

The calculation of the stock level of liabilities is similar to that of receivables. Expenses for material/purchased goods inclusive of VAT are divided by the rate of turnover of liabilities.

$$\text{Final stock level of liabilities at reporting date} = (\text{Purchase} + \text{VAT}) / \text{Rate of turnover}$$

## 2.3. Budgeted Balance Sheet

The budgeted balance sheet<sup>9</sup> is the logical supplement of the finance plan. It results automatically from the initial balance sheet which forms the basis for the budget modified by the figures from the finance plan. The finance plan consists of changing values and leads from the opening balance sheet to the budgeted balance sheet.

## 3. THE PROCEDURE IN THE FRAMEWORK OF BUDGET COMPILATION

The components of the budget described above form the theoretical basis for budget compilation based on profit and liquidity. In the application, the sequencing of the necessary planning steps must be adhered to in the framework of budget compilation. The individual planning steps are demonstrated with an accompanying example to facilitate carrying them out. This example shall also show to what extent small modifications of a basic budget affect profit, liquidity and scopes for action of an enterprise.

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9 Compare: Lachnit, L.: Controllingsysteme fuer ein PC-gestuetztes Erfolgs- und Finanzmanagement, Munich, 1992, page 44

The sequencing of the planning steps:

- Step 1: Forecasting/budgetary predicting
- Step 2: Planning of fixed costs
- Step 3: Planning of sales and variable costs
- Step 4: Planning of liquidity

### 3.1. Forecasting/Budgetary Predicting

Forecasting is the first step in the framework of budget compilation. It is a pre-stage to actively planning of profit and liquidity. As it is usually easier to build on given, real values forecasting is a mere extrapolation of the results of the planned year based on the figures of the last actual business year. If no figures for the last year are available this first step must be skipped and budget compilation starts right with the planning of fixed costs.

Ideally, at the date of forecasting the following sources from the last business year are available: opening balance sheet, profit and loss account or a not yet finished, but preliminarily extrapolated profit and loss account, and a finished or preliminary closing balance sheet.

Previous Business year:

Planned year:

Opening bal. sheet	P&L	Closing bal. sheet
	Opening bal. sheet	Planned P&L
		Budgeted bal. sheet

The (preliminary) closing balance sheet of the previous actual business year is the opening balance sheet of the planning year. The planned profit and loss account which builds on this opening balance sheet and leads over the finance plan to the budgeted balance sheet, is, in forecasting, identical with the profit and loss account of the previous actual year.

Closing balance sheet previous year = Opening balance sheet planned year

Profit & loss account previous year = Planned profit & loss account planned year

The profit and loss account from the previous business year is incorporated into forecasting without change. All sales, variable costs and fixed costs equal the values of the previous business year.

The result is a new planned closing balance sheet for the planning year. It results from the opening balance sheet and the effects of the profit and loss account that was transferred from the previous business year.

The forecast result in profit and liquidity for the planning year equals the real budget if no changes in the business activity of the enterprise are to be expected at all – no changes in sales, in costs or time allowed for payment.

In the application the active planning steps begin after this extrapolation. The extrapolation provides a checkpoint, a guideline. The effects of changes in the plans can be assessed more easily like that.

The procedure described above shall be demonstrated with a simple example. The sources of the previous business year show the following result:

Profit and loss account:

Revenues (Sales)	19,200,000
– Variable costs	<u>12,000,000</u>
= Contribution margin	7,200,000
– Fixed costs	<u>6,600,000</u>
= Operating result	600,000

Closing balance sheet:

<u>Assets:</u>		<u>Equity &amp; Liabilities</u>	
Fixed assets	2,200,000	Equity	1,500,000
Material	1,900,000	Liabilities	1,300,000
Receivables	<u>1,700,000</u>	Loans	<u>3,000,000</u>
	5,800,000		5,800,000

There is no difference between costs from cost accounting and expenses from financial accounting. The values equal.

With a 34% tax rate on income, the following forecast profit plan results from the profit and loss account of the previous year:

Revenues (Sales)	19,200,000
– Variable costs	12,000,000
= Contribution margin	7,200,000
– Fixed costs	6,600,000
= Operating result	600,000
± Cost conversion	0
= Corporate result	600,000
– Tax on income	204,000
= Corporate result after tax	396,000

The following ratios result from the profit plan:

Minimum turnover:	17,600,000
Volume range:	8.33 %
Price range:	3.13 %

Calculation of ratios:

Minimum turnover = Fixed costs / Cover ratio

$$17,600,000 = 6,600,000 / 37.50 \%$$

Cover ratio = (Contribution margin / Sales) x 100

$$37.50 \% = (7,200,000 / 19,200,000) \times 100$$

Volume range = [(Planned turnover – Minimum turnover) / Planned turnover] x 100

$$8.33 \% = [(19,200,000 - 17,600,000) / 19,200,000] \times 100$$

Price range = (Result / Sales) x 100

$$3.13 \% = (600,000 / 19,200,000) \times 100$$

For the liquidity part of the budget, some factors must be taken into account:

The fixed costs of 6,600,000 include 420,000 of depreciations.

Provisions for taxation are made for tax on income.

Time allowed for payment of receivables and liabilities is 30 days each.

This results in the following simple finance plan:

Corporate result	396,000
+ Depreciations	420,000
+ Provisions for taxation	204,000
– Receivables	– 220,000
– Liabilities	– 100,000
Surplus	700,000

Summed up this leads to the following finance plan:

I Cash flow	1,020,000
II Working capital	– 320,000
III Long-term sector	0
IV Shareholder sector	0
V Surplus	700.000

Calculation of receivables:

Rate of turnover = 360 days/Time allowed for payment in days

$$12 = 360 / 30$$

Final stock level of receivables at reporting date = (Sales+VAT )/Rate of turnover

$$1,920,000 = (19,200,000 + 20 \%) / 12$$

The initial stock level is reduced. The changes in the stock level of receivables are the result from the comparison of initial and planned final stock level.

Changes in receivables = Initial stock level – Planned final stock level

$$- 220,000 = 1,700,000 - 1,920,000$$



An increase in receivables is negative for the liquidity of the enterprise.

Calculation of liabilities:

Rate of turnover = 360 days/Time allowed for payment in days

$$12 = 360 / 30$$

Final stock level of liabilities at reporting date = (Purchasing + VAT)/ Rate of turnover

$$1,200,000 = (12,000,000 + 20 \%) / 12$$

The initial stock level is reduced.

Change in liabilities = Initial stock level – Planned final stock level

$$100,000 = 1,300,000 - 1,200,000$$

When the receivables are sinking this is negative for the liquidity of the enterprise. This is why there is a difference of minus 100,000 in the finance plan.

In addition to the changes in receivables and liabilities the following changes must be taken into consideration in the budgeted balance sheet. The fixed assets are reduced by depreciations; the surplus from the finance plan is posted to a current bank account.

This results in the following budgeted balance sheet:

<u>Assets:</u>		<u>Equity &amp; Liabilities:</u>	
Fixed assets	1,780,000	Equity	1,896,000
Material	1,900,000	Provisions for taxation	204,000
Receivables	1,920,000	Liabilities	1,200,000
Current bank account	700,000	Loans	3,000,000
	<u>6,300,000</u>		<u>6,300,000</u>

In the whole planning example, no irregular distribution of sales and costs within the planning year were considered for reasons of simplification. Tax burden accounts with the financial authorities were not considered, either. Please note, that the positive balance of 700,000 in the current account arises only at the end of the year. Due to time allowed for payment of receivables and liabilities and their resulting stock levels in the course of the year, monthly varying balances of the current account occur. This begins with a bank account overdraft or money requirements resp at the beginning of the year.

When compiling forecasting, the principal question arises whether, at this planning stage, there are already meaningful data available for the last business year. This depends on the immediacy of financial accounting and cost accounting and on the planning date.

The planning date for SMEs can often be found in the first quarter of the current planning year. At this date all necessary data from financial and cost accounting should already be available to guarantee a basis for planning.

### **3.2. Planning of Fixed Costs**

The next step in the framework of budget compilation , the first active planning step, is planning of fixed costs:

Usually, the development of fixed costs in the planning year, can be seen more easily and faster than the development of sales. Eg, the future development of costs for rent, personnel, depreciations can be more easily estimated than the development of sales. By planning the fixed costs in the budget a limit is fixed that needs to be exceeded for achieving profit. The target has been set before the planning of sales has even started.

When continuing the example, we assume that the fixed costs in forecasting will not pay off within the planning year. The fixed costs will increase.

The fixed costs of 6,600,000 from the last actual business year consist of the following figures:

Depreciation	420,000
Interest	180,000
Personnel costs	4,200,000
Other fixed costs	1,800,000
Total fixed costs	6,600,000

Personnel costs and other fixed costs rise by 6 percent in the planning year. This results in a new structure of fixed costs:

Depreciations	420,000
Interest	180,000
Personnel costs	4,452,000
Other fixed costs	1,908,000
Total fixed costs	6,960,000

Changing the mentioned cost types results in the first step in the following new profit plan as well as in a new finance plan, new budgeted balance sheet and new ratios.

Profit plan:

	1. Step: Fore- casting	2. Step: Planning of fixed costs	Deviation	Percentage
Revenues (Sales)	19,200,000	19,200,000	0	0 %
– Variable costs	12,000,000	12,000,000	0	0 %
= Contribution margin	7,200,000	7,200,000	0	0 %
– Fixed costs	6,600,000	6,960,000	360,000	5.45 %
= Operating result	600,000	240,000	– 360,000	– 60.00 %
± Cost conversion	0	0	0	0 %
= Corporate result	600,000	240,000	– 360,000	– 60.00 %
– Taxes on income	204,000	81,600	– 122,400	– 60.00 %
= Corporate result after tax	396,000	158,400	– 237,600	– 60.00 %

Ratios:

	1. Step: Fore- Casting	2. Step: Planning of fixed costs	Deviation	Percentage
Minimum turnover	17,600,000	18,560,000	960,000	5.45 %
Volume range	8.33 %	3.33 %	– 5.00 %	– 60.00 %
Price range	3.13 %	1.25 %	– 1.87 %	– 60.00 %

The calculation of the new ratios:

$$\text{Minimum turnover} = \text{Fixed costs} / \text{Cover ratio}$$

$$18,560,000 = 6,960,000 / 37.50 \%$$

$$\text{Cover ratio} = (\text{Contribution margin} / \text{Turnover}) \times 100$$

$$37.50 \% = (7,200,000 / 19,200,000) \times 100$$

$$\text{Volume range} = [(\text{Planned turnover} - \text{Minimum turnover}) / \text{Planned turnover}] \times 100$$

$$3.33 \% = [(19,200,000 - 18,560,000) / 19,200,000] \times 100$$

$$\text{Price range} = (\text{Result} / \text{Sales}) \times 100$$

$$1.25 \% = (240,000 / 19,200,000) \times 100$$

The ranges for volume and price have changed by 5.00 or 1.87 percentage points. The changes in percent even show 60.00 percent.

### 3.3. Planning of Sales and Variable Costs

The operating result deteriorated by 360,000 in comparison to the previous year.

For achieving the same operating result as in the previous year or in forecasting resp, a higher contribution margin must be achieved than to date.

This necessary contribution margin results from the planned profit increased by fixed costs.

$$\text{Necessary contribution margin} = \text{Planned profit} + \text{Fixed costs}$$

$$7,560,000 = 600,000 + 6,960,000$$

If sales prices remain constant in relation to the purchasing prices of goods or material, an increase in sales must be achieved by increasing units. In our example it is not possible to cut fixed costs any more.

The necessary sales can be calculated easily in the relation between sales and contribution margin from forecasting and the necessary contribution margin of the planned year.

$$\begin{aligned} & \text{Sales planned year/Contribution margin planned year} = \\ & \text{Sales forecasting/Contribution margin forecasting} \\ & 20.160.000 / 7.560.000 = 19.200.000 / 7.200.000 \end{aligned}$$

The variable costs result automatically from the difference between necessary planned sales and the necessary contribution margin.

$$\begin{aligned} & \text{Variable costs} = \text{Planned sales} - \text{Necessary contribution margin} \\ & 12,600,000 = 20,160,000 - 7,560,000 \end{aligned}$$

Budget and ratios change in the following way:

Profit plan:

	2. Step: Planning of fixed costs	3. Step: Plannig of sales	Deviation	Percentage
Revenues (Sales)	19,200,000	20,160,000	960,000	5.00 %
– Variable costs	12,000,000	12,600,000	600,000	5.00 %
= Contribution margin	7,200,000	7,560,000	360,000	5.00 %
– Fixed costs	6,960,000	6,960,000	0	0 %
= Operating result	240,000	600,000	360,000	150.00 %
± Cost conversion	0	0	0	0 %
= Corporate result	240,000	600,000	360,000	150.00 %
– Tax on income	81,600	204,000	122,400	150.00 %
= Corporate result after tax	158,400	396,000	237,600	150.00 %

Ratios:

	2. Step: Planning of fixed costs	3. Step: Planning of sales	Deviation	Percentage
Minimum turnover	18,560,000	18,560,000	0	0 %
Volume range	3.33 %	7.94 %	4.60 %	138.10 %
Price range	1.25 %	2.98 %	1.73 %	138.10 %

The calculation of the new ratios:

Minimum turnover = Fixed costs/Contribution margin

$$18,560,000 = 6,960,000 / 37.50 \%$$

Cover ratio = (Contribution margin/Turnover) x 100

$$37.50 \% = (7,560,000 / 20,160,000) \times 100$$

Volume range = [(Planned turnover – Minimum turnover)/Planned turnover] x 100

$$7.94 \% = [(20,160,000 - 18,560,000) / 20,160,000] \times 100$$

Price range = (Result /Sales) x 100

$$2.98 \% = (600,000 / 20,160,000) \times 100$$

The operating result or overall corporate result resp, have achieved the same amount as before the increase of the fixed costs, sales and variable costs. The scope for action, however, is lower than in the previous year, as the results can only be achieved by higher sales than before. Minimum turnover exceeds forecasting:

	1. Step: Fore- casting	3. Step: Planning of sales	Deviation	Percentage
Minimum turnover	17,600,000	18,560,000	960,000	5.45 %
Volume range	8.33 %	7.94 %	– 0.40 %	– 4.76 %
Price range	3.13 %	2.98 %	– 0.15 %	– 4.76 %

After compiling the target, the question can arise if the new sales target is at all achievable with the existing number of staff or the structure of fixed costs. The necessary increase in sales may only be possible with rising fixed costs. If this additional increase of fixed costs is incorporated into the profit plan, new targets are set for achieving the necessary turnover and the necessary contribution margin.

Furthermore, changed sales prices and higher discounts and rebates were not considered which might be granted with a higher necessary number of units sold. In addition to this, a change in the margins between purchasing prices and sales prices can arise.

All these components must be accounted for in the framework of planning of fixed costs and sales. These two steps will have to be carried out several times in the application to achieve a final planning result.

### **3.4. Planning of Liquidity**

The finance plan is based on the profit plan. In our example we must consider receivables and liabilities, because sales and variable costs have risen in comparison to forecasting.



This results in the following finance plan and budgeted balance sheet:

Finance plan:

	1. Step: Fore- casting	3. Step: Planning of sales	Deviation	Percentage
Corporate result	396,000	396,000	0	0 %
Depreciation	420,000	420,000	0	0 %
Provisions for taxation	204,000	204,000	0	0 %
Receivables	- 220,000	- 316,000	- 96,000	- 43.64 %
Liabilities	- 100,000	- 40,000	60,000	60.00 %
Surplus	700,000	664,000	- 36,000	- 5.14 %

The calculation of the new receivables:

Rate of turnover = 360 days/Time allowed for payment

$$12 = 360 / 30$$

Final stock level of receivables at reporting date = (Sales+VAT)/Rate of turnover

$$2,016,000 = (20,160,000 + 20 \%) / 12$$

The initial stock level is reduced. The change in receivables results from the comparison of initial stock level and planned final stock level.

Change in receivables = Initial stock level – Planned final stock level

$$- 316,000 = 1,700,000 - 2,016,000$$

From the liquidity point of view, a rise in receivables has a negative effect on the enterprise.

The calculation of the new liabilities:

$$\begin{aligned} \text{Rate of turnover} &= 360 \text{ days/Time allowed for payment in days} \\ 12 &= 360/30 \end{aligned}$$

$$\begin{aligned} \text{Final stock level of liabilities at reporting date} &= (\text{Sales}+\text{VAT})/\text{Rate of turnover} \\ 1,260,000 &= (12,600,000 + 20 \%) / 12 \end{aligned}$$

The initial stock level is reduced.

$$\begin{aligned} \text{Change in liabilities} &= \text{Initial stock level} - \text{Planned final stock level} \\ 40,000 &= 1,300,000 - 1,260,000 \end{aligned}$$

From the point of view of liquidity, a decrease of liabilities has a negative effect.

Budgeted balance sheet:

	1. Step: Fore- casting	3. Step: Planning of sales	Deviation	Percentage
<u>Assets:</u>				
Fixed assets	1,780,000	1,780,000	0	0 %
Material	1,900,000	1,900,000	0	0 %
Receivables	1,920,000	2,016,000	96,000	5.00 %
Current bank account	700,000	664,000	- 36,000	- 5.14 %
	6,300,000	6,360,000	60,000	0.95 %
<u>Equity &amp; Liabilities:</u>				
Equity	1,896,000	1,896,000	0	0 %
Provisions for taxation	204,000	204,000	0	0 %
Liabilities	1,200,000	1,260,000	60,000	5.00 %
Loans	3,000,000	3,000,000	0	0 %
	6,300,000	6,360,000	60,000	0.95 %

Time allowed for payment of receivables is 30 days. To estimate its enormous effects on liquidity, time allowed for payment of receivables should be modified to 45 days. This results in the following new final stock level of receivables and so automatically in a new finance plan and budgeted balance sheet.

Finance plan:

	3. Step: Planning of sales	4. Step: Planung of liquidity	Deviation	Percentage
Corporate result	396,000	396,000	0	0 %
Depreciations	420,000	420,000	0	0 %
Provisions for taxation	204,000	204,000	0	0 %
Receivables	- 316,000	- 1,324,000	- 1,008,000	- 318.99 %
Liabilities	- 40,000	- 40,000	0	0 %
Surplus/Deficit	664,000	- 344,000	- 1,008,000	- 151.81 %

The calculation of the new receivables:

Rate of turnover = 360 days/Time allowed for payment in days

$$8 = 360/45$$

Final stock level of receivables at reporting date = (Sales + VAT)/Rate of turnover

$$3,024,000 = (20,160,000 + 20\%) / 8$$

The initial stock level is reduced. The change in stock level of receivables results from the comparison of initial stock level and planned final stock level.

Change in receivables = Initial stock level – Planned final stock level

$$- 1,008,000 = 1,700,000 - 3,024,000$$

From the point of view of liquidity, a rise in receivables has a negative effect on the enterprise.

## Budgeted balance sheet:

	3. Step: Planning of sales	4. Step: Planning of liquidity	Deviation	Percentage
<u>Assets:</u>				
Fixed assets	1,780,000	1,780,000	0	0 %
Material	1,900,000	1,900,000	0	0 %
Receivables	1,920,000	3,024,000	1,008,000	50.00 %
Bank account	664,000	0	- 664,000	- 151.81 %
	6,360,000	6,704,000	344,000	5.41 %
<u>Equity &amp; Liabilities:</u>				
Equity	1,896,000	1,896,000	0	0 %
Provisions for taxation	204,000	204,000	0	0 %
Liabilities	1,260,000	1,260,000	0	0 %
Bank account overdraft	0	344,000	344,000	- 151.81 %
Loans	3,000,000	3,000,000	0	0 %
	6,360,000	6,704,000	344,000	5.41 %

The current account at the bank becomes negative and deteriorates in total by 151.81 percent.

The arising deficit must be financed and results in interest to be paid which has to be financed and so in an increase in fixed expenses or fixed costs resp. Like that, all results change, from operating result to new liquidity deficit.

Liquidity peaks (bottlenecks) arise in the first two months, the negative current account balance of - 344,000 arises only at the end of the planned year.

Looking at the gradual changes of the original budget described above, it becomes obvious that even the smallest changes in planning must be investigated with reference to their effects on the total budget. The correlation between profit and finance planning has a key function here. If you look at the profit plan in an over-isolated way, this might support entrepreneurial decisions that must be seen as critical, from the point of view of liquidity.

The complex correlations in a budget can be reduced to simple sectors which result in a comprehensive entrepreneurial plan when observed together. Particularly, SMEs will find a common thread in the procedure of budget compilation described. It can serve as a guideline and planning aid, providing the individual steps for achieving a complete and reliable budget.

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