Dr. Heinz Wittmann

Business Management -
Basics for Entrepreneurs Analysts Planners

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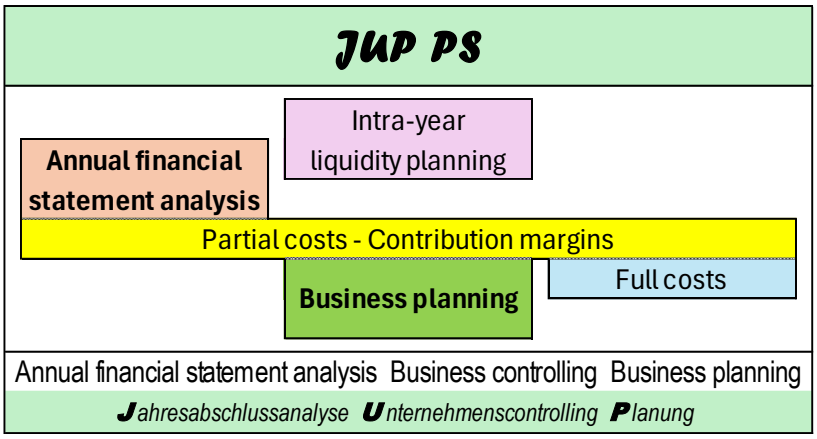
Key words : Business administration. Business management for entrepreneurs. Business management for consultants. Business management for supervisory boards. Business management for teachers. Business management for secondary schools. Annual financial statement analysis. Profitability. Liquidity. Stability. Cash flows. Business controlling. IFRS 18. Criticism of IFRS 18. Costs-benefits-accounting. Partial Costs. Contribution margins. Full costs. Operational planning. Liquidity planning. Double-entry bookkeeping.

Objective: Analyze and plan companies using a few meaningful terms!

The author also created programmes for this purpose. Scans from JUP show how business management theory can be translated into practical analysis and planning. JUP PS is an all-in-one tool.



Digitalisation enables a previously unknown depth of business studies. Entrepreneurs, technical college students, master craftsman candidates, university students, supervisory boards and consultants all benefit from this. Many concepts are applicable to companies of all sizes. This universality makes these basics interesting for secondary schools and universities, as well as for politicians and journalists.

With Luca Pacioli's debits and credits from 1494, no one needs to waste time anymore. However, committees dominated by accountants are preparing to impose new ‘standards’ on entrepreneurs. The good news is that business management can ignore the income statement and the cashflow statement of the IFRS 18 standard. Many arguments are put forward on both aspects.

Liquidity plays a major role in these basics: ‘Cash flow for self-financing of investments’ and its benchmarks are central. Another attraction here is cost-benefits accounting. To this end, the author presents an easier-to-master second way of determining partial costs, contribution margins and full

costs. Use the table of contents as an appetiser. Much of the content is dealt with in great depth for the author's colleagues in education and consulting.

It is clear that much of this cannot be taught in lessons or lectures due to time constraints. As a subject teacher and management consultant, one has to accept that clients must also have very good knowledge of production. For example, every farmer must protect their products from toxic microfungi, regardless of whether they produce conventionally or according to organic guidelines. Companies that want to compete internationally, e.g. as start-ups, must be more efficient than others in terms of technology, purchasing, production and marketing. The time frame for business management is becoming rather tighter!

Educators who take on the role of a 'driving instructor in business management' and consultants are often faced with unanswered questions: On what date should the 'current actual' be started so that credit development and repayments can be calculated exactly to the day? How will short-term debt develop in financially unhealthy companies? These basics also comment on this.

If you are looking for a more comprehensive textbook for the agricultural sector, see:
Fahlbusch M. (2022) „Analyse und Führung landwirtschaftlicher Unternehmen. Ein Lehrbuch für Unternehmer". If you need a wide range of terms, e.g.: www.Welt-der-BWL.de
In both cases, please note any differing positions.

Further business management products by the author can be found at the back of the book.

About the author

His business management perspectives have been broadened through exchanges with technical college students, master craftsman candidates, programme users and colleagues. The author is happy to pass on the solutions we have found to questions from practitioners and colleagues.

+ Studies at Nürtingen and Göttingen, Germany.
+ **Consultant** for farmers and their families.
+ **Teacher** of Business management at technical colleges.
+ **Programmer of the state „Investment Concept for Agriculture**" used in several German „Länder".
+ **Programmer and seller** of JUP-programms for consultants, specialist teachers, and assessors.

At the beginning of his professional career, his tasks included 'accounting for business transactions' for agricultural businesses. He therefore learned bookkeeping from the ground up.

Table of Contents - marked in grey or yellow that means: **not** necessary to know

1. The core of business management

The 'Basics for Entrepreneurs Analysts Planners ' include tools that are central to the success of a business. The 'everyday economics' taught in schools can build on this. Many students will soon bear responsibility in parliaments, city councils, etc., everywhere a basic knowledge of business management is required.

The following diagram shows that the topics covered in business management are very diverse. In addition, entrepreneurs usually need to have a wealth of knowledge about other business activities and production in order to be successful. In many cases, entrepreneurs (and their families) must also do the work themselves. They have to have the necessary skills.

The core of business management for entrepreneurs - a brief overview

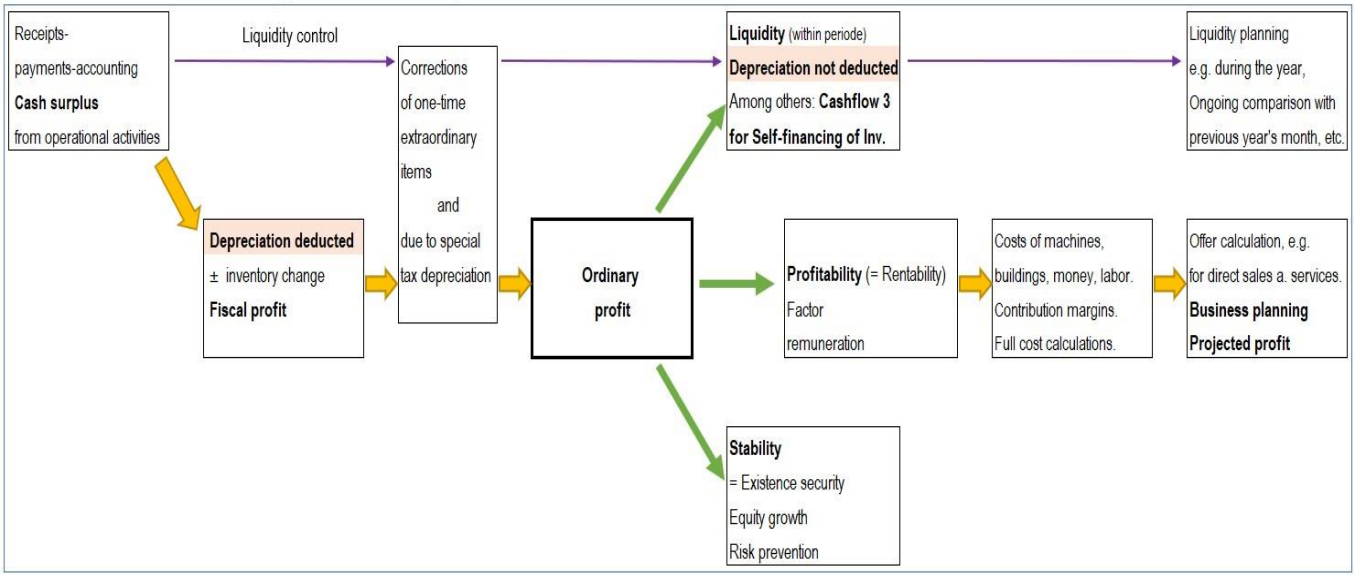


Fig 100-1 The core of business management for entrepreneurs and companies. Source: H. Wittmann

In the focus, it is about

1. **Profitability** (rentability) of the company
2. **Liquidity** for the period
3. **Stability and risk**

Business management for entrepreneurs includes **calculating offers** when selling their own products or services. For example, entrepreneurs must calculate the «economic minimum use of a single machine," whether for use in their own company or for use in other companies. They must be aware of the costs of money and the **effective annual interest rate**, including when waiving discounts. This requires **financial mathematics**. They also have to know a lot on **speculation** on procurement markets, on **merchandise** management, on **team management**, on **public presentation** and so on.

The tasks of an entrepreneur must be strictly distinguished from those of an accountant. It is the accountants who are responsible for the accuracy of the accounts. This means that the figures in the accounts must balance in several places.

Examples:

Total assets	= Total liabilities + equity	(balance sheet)
Total expenses + profit	= Total income + loss	(income statement)
Total sources of funds	= Total uses of funds	(cash flow statement)

Until the early 1970s, it was by all means not a given that these figures would balance. This was a major task in the days of mental arithmetic. Accounting departments often spent a long time “reconciling accounts” in order to prepare the annual financial statements. Nowadays, such checksums used are to verify that the computerized accounting program is calculating correctly.

The following overview compares the mindset of accountants with that of entrepreneurs. They think extremely different.

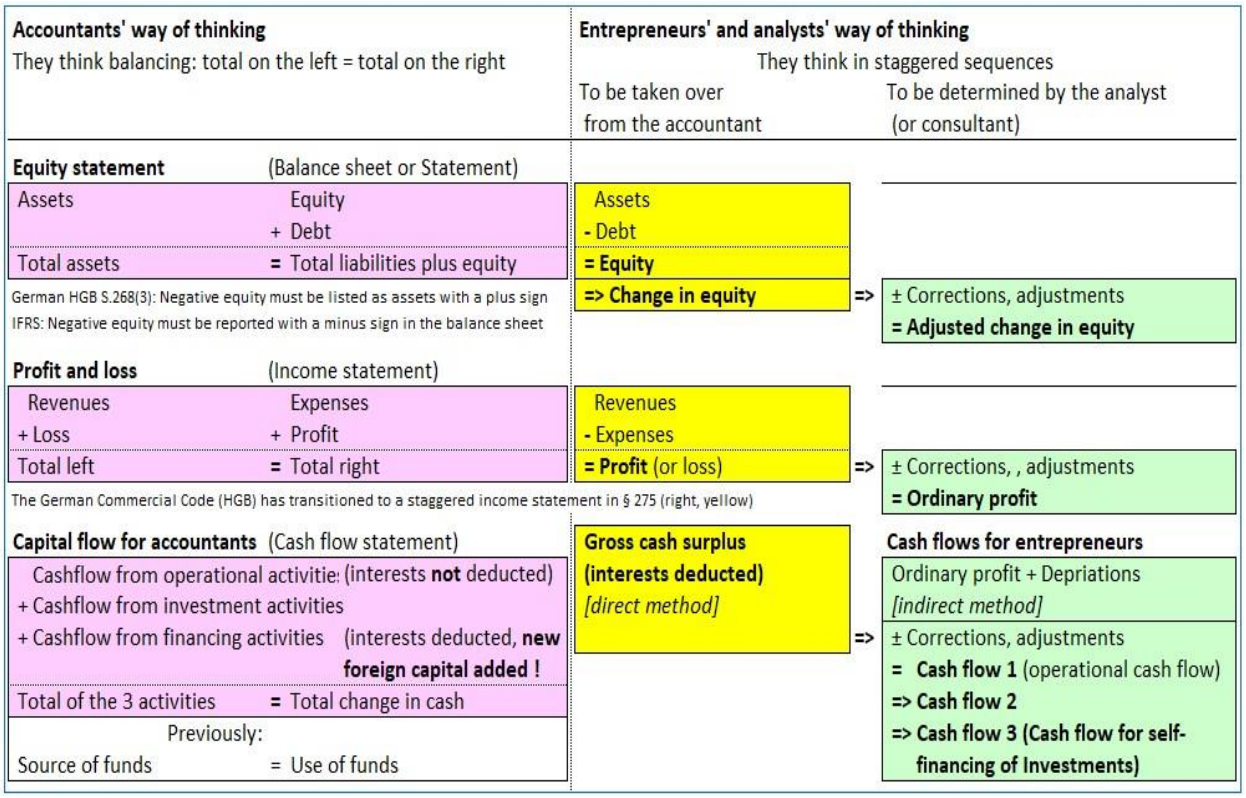


Fig 100-2: The mindset of accountants is different from that of entrepreneurs. Source : H. Wittmann.

2. Important pairs of terms: income and expenses, etc.

Funds and Disbursements = **Pay ins and pay outs** (in German : Einzahlungen und Auszahlungen).
These are movements of money in or out.

Funds into a current account (in German : Bankeinzahlungen)
Disbursements from a current account (in German : Bankauszahlungen)

Funds into a cash desk (in German : Bareinzahlungen)
Disbursements from a cash desk (in German : Barauszahlungen)

Repayments (in German : Tilgungen)
This are pay outs of the current account , but neither expenses nor costs.
They are simply the repayments of borrowed money. The special thing about repayments is that they must be transferred on time due to contractual agreements. They have a negative effect on liquidity, but do not reduce profits.

Receiving of loans (in German : Kreditauszahlungen)
This is a receipt (a pay in) into the current account, but neither income nor revenue.
A new loan account is opened at the same time ! Also, a pay out is made from the loan account and a pay in is made into the current account.

Receipts and payments (in German : Einnahmen und Ausgaben)
They can be operating or non-operating. Receipts and payments have an **impact on equity**.

Non-operating examples:
a) Receipts from outside company activities.
b) Payments for the living expenses of the entrepreneur's family.
Non-operating items only appear if they affect the company's accounts.

Income and expenses = revenue and expenditure (in German : Erträge und Aufwendungen)
These relate solely to the company and always **affect the profit**. Non-monetary values such as depreciation are also expenses. Changes in inventories may be income or expenses.

Deposits and withdrawals (in German: Einlagen und Entnahmen)

Deposits are inflows from private individuals into the company. Deposits come from outside the company for non-operational reasons. They are “deposited” into the company.
Withdrawals are outflows from the company to private individuals, including distributions to shareholders. Withdrawals go outside the company for non-operational purposes. They are “withdrawn” from the company. There exist also withdrawals in kind (e.g. Milk for farmer’s family).

Benefits and costs in the benefit-cost analysis (in German : Leistungen und Kosten in der KLR)
These terms relate to the level of business branches or individuel production processes.

Benefits	= income according to accounting records	**+ internal turnover generated**
	(in German : Erträge lt. Buchführung	+ Innenumsatz erzeugt)
Costs	= expenses according to accounting records	**+ internal turnover consumed**
	(in German : Aufwendugen lt. Buchführung	+ Innenumsatz verbraucht)

Costs are divided into **variable costs** (proportional to the volume of production) and **fixed costs** (e.g., depreciation and insurance expenses). **Overhead costs** (in German : Gemeinkosten), e.g., interest and wage expenses, are sometimes listed separately, but are often counted as fixed costs.

Depreciations and attribution (in German : Abschreibungen und Zuschreibungen)

Depreciation = reduction in value, e.g. for buildings and machinery.

Amortisation = reduction in value for rights.

In English, a distinction is made between depreciation for tangible assets and amortisations.

Attribution = increase in value, e.g. growth in forestry

Trade receivables and trade payables

Trade receivables (in German : Forderungen aus Lieferungen und Leistungen)

They are already counted as income before the payment is recorded.

Trade payables (in German: Verbindlichkeiten aus Lieferungen und Leistungen)

They are already counted as expenses, even if payment has not yet been made.

Company vs. business (in German : Unternehmen vs. Betrieb)

Fiscal law in Germany uses the term “business.” Economists distinct between “business” and “household.” The word “company” tends to conjure up something larger, e.g., consisting of several businesses. The term « business » may indicate a smaller operation. However, a strict separation of the terms ‘company’ and “business” cannot be maintained in business management.

Branchs of business vs. Individual production processes

(in German: Betriebszweig vs. Produktions-verfahren)

The term “branch of business” is self-explanatory. In an agricultural enterprise, for example, grain farming can be a business branch.

The « individual production process » refers to the smallest production unit of a business branch, such as 1 ha of barley or 1 fattened pig produced.

But, it is not possible to strictly distinct between business branch and individual production process.**1.**

3. Business annual financial statements – derived from the annual financial statements in accordance with fiscal or commercial laws

Preliminary remarks:
If a company consists of sub-operations that are linked to each other, e.g. through internal building leases or the internal granting of loans, it makes sense to prepare a "consolidated annual financial statement" (see Chapter 6).

However, a photovoltaic system has nothing to do with an agricultural business. Therefore, this type of company is not usually included in the consolidation. However, banks often insist on this.

The first two parts of the annual financial statements always include

- the profit and loss statement and
- the balance sheet (that is assets and liabilities).

This is the order familiar to the author in the case of associations (in German : die Vereine).
The profit and loss statement also takes precedence for entrepreneurs.
The reverse order, that is balance sheet before profit and loss statement, is a convention of accounters.
In these "Basics for Entrepreneurs Analysts Planners ", we start directly with profit and loss analysis.

3.1 Profit and loss statement (P&L)

3.1.1 Profit

The profit and loss statement shows the company's results in summary form.

Company income
- Company expenses
= Profit

A negative profit is also referred to as a "loss". In the case of large companies, the terms "net profit" or "net loss" are used (in German : Jahresüberschuss or Jahresfehlbetrag).

Today's profit and loss statement is usually structured as **a staggered statement** (in Germany), in which **plus and minus figures** can appear in the same column. Below (in Fig. 311) is a system from 1995 that complies with the requirements of the German Commercial Code (HGB) and also takes into account the special features of agriculture and forestry. This scheme from the BMEL (Federal Ministry of Food and Agriculture) can be used in family businesses as well as in large agricultural cooperatives or public limited companies.

The BMEL profit and loss statement provides a clear derivation of profit. The first column of figures shows as sum the "**gross cash surplus from operating activities**". The forth one shows the operating income and expenses.

	Revenues - Payments Euro	- Depriviations + - Inventory changes Euro	+ Private shares + Withdrawals in kind Euro	Income - Expense Euro
Sales revenues	1,181,538.96		310.00	1,181,848.96
Increase /decrease in inventories		-38,455.00		-38,455.00
Other operating income, subsidies, private shares	74,074.42		7,200.00	81,274.42
Disposal of inventories (incl. sale of land)	153,000.00	-2,577.10		150,422.90
Reversal of special items according to tax rules		18,164.01		18,164.01
Total operating revenues / income	1,408,613.38	-22,868.09	7,510.00	1,393,255.29
Material expenses	-729,982.44	-1,616.86	3,350.00	-728,249.30
Personnel expenses (incl. accommodation and meals)	-99,210.41		-3,608.25	-102,818.66
Depreciation and amortization		-93,005.38		-93,005.38
Maintenance of buildings	-19,335.83			-19,335.83
Maintenance of machinery and operating equipment	-38,704.55			-38,704.55
Company insurances	-13,215.76			-13,215.76
Leases, leasing	-51,950.00			-51,950.00
Other operating expenses	-28,739.48		659.17	-28,080.31
Allocation to special items according to tax rules		-154,823.90		-154,823.90
Expenses unrelated to the period	-5,895.65	-158.00		-6,053.65
Interest earned	241.11			241.11
Interest and similar expenses	-3,249.75			-3,249.75
Business taxes (property tax, vehicle tax, etc.)	-5,181.97			-5,181.97
Cash surplus from operating activities (without investments)	413,388.65			
- Depriviations, +- Increase / decrease in inventories		-272,472.23		
+ Private shares, withdrawals in kind			7,910.92	
Profit				148,827.34

Fig. 311: Profit derived from gross cash surplus according BMEL. Slightly modified. Source: H. Wittmann

In contrast, the original profit and loss statement according to the German Commercial Code (HGB) only provides one column for income and expenses, without the clear division into four columns shown here.

Depreciations (and amortisations) are usually very significant expense items in the profit and loss statement. **Decreases in inventories** also represent expenses. **Increases in inventories** represent income.

Although **withdrawals in kind** are not of a monetary nature, they also represent income for company. The **private share of company expenses** represents corrections to company's expenses. For example, private shares of water costs can be calculated - at the end of the financial year.

Profit can also be determined "from behind" – using the balance sheet. This is "**profit by asset's comparison**" in accordance with Section 4.1 of the German Earning Tax Act (EStG). The term "annual financial statement analysis" is more precise than the terms "balance sheet analysis".

In accounting analysis, the term "profit" refers **to earnings according fiscal and commercial laws**. The **adjusted profit** is referred to as **the** "**ordinary profit**".

In forward-looking **business planning,** however, only **profit** is referred to. Extraordinary, one-off and non-periodic items are not taken into account in (medium-term) future planning anyway.

3.1.2 Ordinary profit

Ordinary profit is usually derived from the annual financial statements under tax or commercial law. This responsible **adjustment** can be understood as a "normalisation" of the financial statements.

To determine the ordinary profit, the "**index finger method**" can be a quick and effective approach: you go through the detailed profit and loss statement in accordance with tax or commercial law with your index finger and look for (larger) extraordinary, one-off and non-periodic items (as well as necessary depreciation adjustments). You note these items on a piece of paper. Based on these notes, you can then quickly calculate the **ordinary profit**.

Digital analysis programmes (such as JUP PS by the author) are useful for a more precise approach. There, the business' annual financial statements can be derived using the **adjustment column**. Some items can be adjusted automatically.

Incidentally, entrepreneurs (and their offspring) consistently expect the ordinary profit to be higher than the taxable profit. In many companies, however, the opposite is true. This is usually due to the fact that advance depreciation was claimed for tax purposes in previous years. An earlier reduction in profit increases the later profit! On an annual average, profit and ordinary profit are the same.

Note: Regular subsidies and grants are of considerable importance in agriculture, not only in the European Union. In order to receive them, agricultural businesses, both those that produce according to conventional and those that produce according to organic guidelines, must meet precisely defined production and environmental standards. These are subject to comprehensive monitoring. Organic farms receive subsidies that are about twice as high as those received by conventional farms. These government subsidies serve to reduce food costs for consumers.

The adjustment column can also be used for manual **transfers** from one account to another.

	Gewinn- und Verlustrechnung		2019/20 (t -1)	
			199	95
	Betrieb:	Neubert Dieter	Lt. Buchführ.	Bereinigung
	Erstellt:	06.09.2021	Euro	
1	Körnergetreide inkl. Körnermais + CCM		2.650	
3	Kuhmilch		545.804	
5	Erlöse sonst. Rindvieh		24.900	-4.995
7	Erlöse sonst. Schweineproduktion		433.337	-33.460
20	**Umsatzerlöse gesamt**		1.181.849	
21	Erhöhung / Verminderung Feldinventar			-72
23	Erhöhung / Verminderung Tierbestand		-38.455	38.455
29	Betriebsprämie inkl. Greening		61.643	
35	Auflös. Investitionszuschuss-SoPo, zeitraumzugehörig		11.457	-11.457
36	Privatanteile (meist Pkw)		7.200	-7.200
38	**Zeitraum-**	Erlöse aus Anlagenabgang (z.B.Masch'verk.)	150.423	-150.423
39	**fremd**	Auflösung Sonderposten (z.B. steuerl. Rücklage)	6.707	-6.707
41	**Sonstige betriebliche Erträge ges.**		249.861	
42	**Umsatz** (U'erlöse +Zulagen +So.Betr'ertr., ohne Dieselerst.,ZV,Lohnzuschi			1.206.319
43	Saatgut		31.835	
44	Düngemittel		27.561	
45	Pflanzenschutz		19.703	
46	Sonst. Aufwand Pflanzenproduktion		5.713	2.558
47		Tierkauf	134.588	
48		Zukauffutter	236.864	10.945
49		Tierarzt, Besamung	33.969	
50		So. Materialaufw. für Tierprod., Rein.+Desinf.		5.727
51		So. bezogene Leistungen für Tierproduktion	15.303	-5.727
54		Heizmaterial, Strom	20.560	
56		Treib- und Schmierstoffe	37.711	
57	Lohnarbeit, Maschinenmiete		90.090	13.503
59	Minder.Roh-,Hilfs-,Betriebsstoffe (RHB) u. Waren (- bei Mel			
60	**"Materialaufwand" gesamt**		654.980	
61	**Lohnaufwand**	Löhne	81.036	-33.071
62		Sozialabgaben, Wirtschaftshaushalt	14.901	
65	**AfA**	Wirtschaftsgeb., baul. Anlagen, Bodenverbess.	32.305	-11.457
66		Betriebsvorrichtungen	13.547	
67		Maschinen,Pkw,Fuhrpark,Betr.-,Geschäftsausst	47.153	
69	Außerplanmäßige Abschreibungen			
71	**Unterhalt**	Wirtschaftsgebäude, baul. Anlagen, Bodenverb.	16.249	
72		Betriebsvorrichtungen	9.270	
73		Maschinen, Pkw, sonst. Unterhalt	23.255	-7.200
76	Allgemeine Betriebsversicherungen		8.894	
77	**Pachten**	für Flächen	51.950	
83	Sonst. Betriebsaufwand		18.681	
84	**Zeitraum-**	Buchwert Anlagenabgang (vgl. Z. 38)	58	-58
85	**fremd**	Einstellungen in steuerl. Sonderposten	154.824	-154.824
90	Zinserträge u.ä.	(+)	241	
91	**Zinsaufwendungen**	(+)	3.250	
92	Grundsteuern / sonst. Betriebssteuern		5.182	
93	**Su. Aufwendungen** (betriebsw.: Agrardieselerstattung, Lohnzuschüsse, Z		1.244.427	1.036.238
94	**Gewinn** (bzw. "Jahresüberschuss") lt. Buchf.		148.828	
95	**Ordentliches Ergebnis (= berein. Gewinn)**			**170.081**

Fig. 312-1: Operational analysis with adjustments of the P&L. Source: H. Wittmann, JUP PS, sheet Bf GNP (excerpt)

The **inventory list** (in German : Inventarliste) must be available for analysis. Very importent is the **journal of the individual general ledger accounts** (in German: Kontenschreibung). There, the booking numbers are recorded and this enable **the original document to be traced**. This is also the key to clarifying many of the entries for deposits and withdrawals (see later in section 4.2.5).

If an employment contract is the case with the successor to the business, family-internal wage expenses can be found in the accounts. From a business perspective, however, the question arises for a family business: **how much does the company generate for the entire family?** Consequently, the business profit and loss statement must be corrected by **reducing** wage expenses. And private withdrawals must be **increased**, accordingly, by means of a transfer posting.

Investment deductions (IAB) and other depreciation in advance on movable assets (e.g. machinery) can initially lead to a significant reduction in taxable profit. In later years, however, profits are **artificially increased** as future depreciation is reduced. For companies with very consistent profits, accelerated depreciation can be considered a tax-saving measure. For companies with large price fluctuations (e.g. agricultural businesses), however, this can lead to considerable financial difficulties because only minimal depreciation can be claimed in future price slumps.

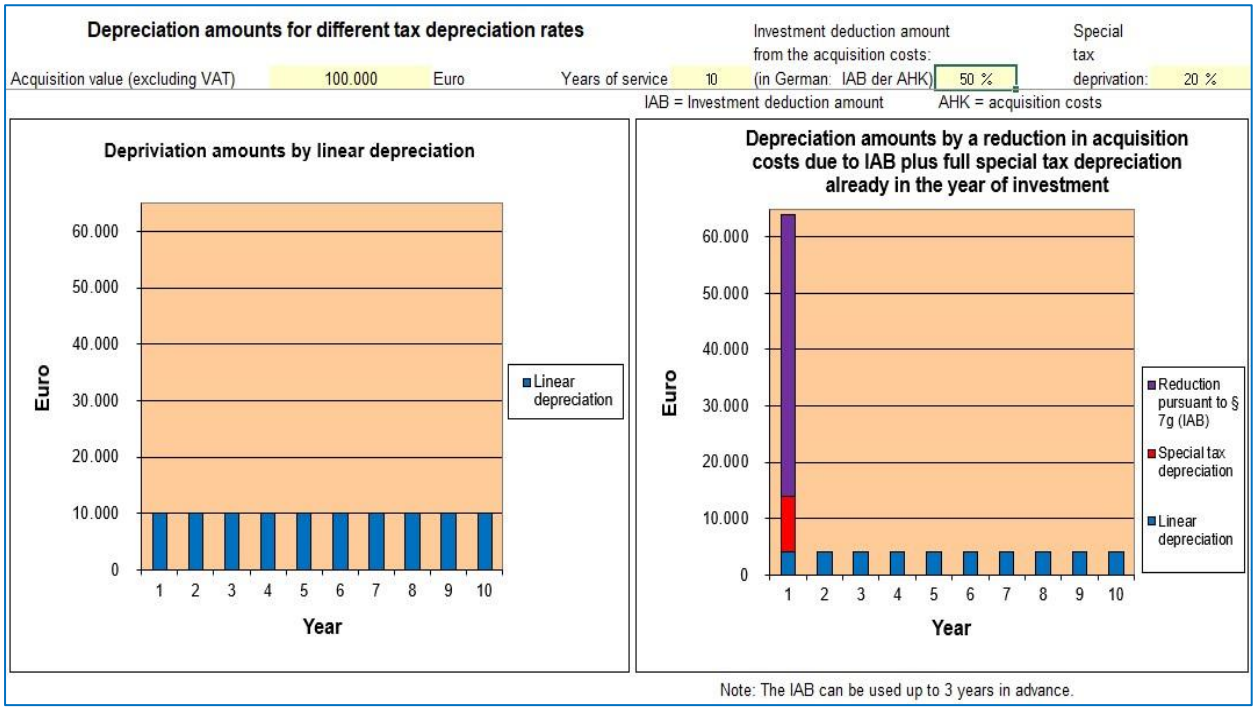


Fig. 312-2: Linear depreciation (left) vs. fiscally depreciation in advance (right), possible in German SME. Source: H. Wttmann

The German IAB is limited to companies with profits of up to €200,000. IAB (50%) and special depreciation (20%) can lead to a profit reduction of €64,000 on an investment of €100,000 in the first year, with the book value of the asset being €36,000. In the following nine years, only €4,000 can be depreciated on a straight-line basis each year (instead of €10,000).

A similar tax reduction can also be achieved in combination with "degressive depreciation", provided this is permitted. Tax depreciation must therefore be reviewed in accordance with business principles.

One-off income must be neutralised. In our example (see Fig. 312-1), an amount of €150,000 must be removed from the sale of land. A large timber harvest is also not period-appropriate, at least to a large extent.

3.1.3 EBIT and EBITDA

EBIT = Earnings before interest and taxes.
EBITDA = Earnings before interest, taxes, depreciation and amortisation.

Until around 1990, the "fiction of debt- and lease-free operations" was still taught in agriculture. In this system, neither lease nor interest expenses were taken into account. A similar fiction exists today with EBIT and EBITDA: the company is considered debt-free.

Since **interest expenses are** not **deducted** from EBIT and EBITDA, these terms show **more positive figures than profit**! As long as profit and equity are sufficiently positive, this is not a problem (at BASF, the equity ratio is up to 50%). However, companies in financial difficulties often see EBIT and EBITDA as an opportunity to deceive and confuse inexperienced supervisory board members, business journalists, and other readers. Reputable informants therefore also publish the then unsuffisent profit.

EBIT and EBITDA are only meaningful in comparison with the same month of the previous year! These terms are very lightweight. EBITDA is before depreciation and amortisation, that means it is a cash flow.

However, anyone appointed to the supervisory board of another company (e.g. a food processing company) must arm themselves with knowledge of EBIT and EBITDA.

3.2 Balance sheet

This formula applies worldwide to companies of all kinds. It even applies to households.

Assets
- Debt
= Equity

However, the **balance sheet convention** is common practice for companies (at least in Germany). Assets are added together to form **the** "**total assets**" (left). Equity and liabilities are referred to collectively as "**total liabilities**" (right).

The accountant is satisfied when total assets = total liabilities.

Active side	**Passive side**
Intangible assets Land Buildings Machinery Animals Inventories Current assets	Equity Debt capital 
Total assets	**Total liabilities + equities** (= capital)

Fig. 320: Representation according to the balance sheet convention. Source: H. Wittmann

3.2.1 Assets within the company

All tangible and intangible assets (including rights) are totalled on the assets side of a balance sheet. The values of the individual assets are taken from the **book values** in the "inventory register".

For "**tangible assets subject to depreciation**" (such as buildings, operating equipment and machinery)**,** "depreciation" is calculated on the basis of **the** assumed **useful life**. This useful life is set rather sceptically low, so that the annual depreciation for new inventory is consistently relatively high. Depreciation is accumulated and deducted from the acquisition cost of the assets.

In some cases, **inventories** (including semi-finished products) can be valued at market prices. If no such market value is available, the production costs can be used as a reference point. According to tax rules, certain inventories are classified as "non-marketable" and are therefore not valued (e.g. biomass inventories). This can be particularly important for biogas plants, as biomass inventories fluctuate extremely from year to year.

For certain inventories, such as field inventory in agriculture, there is a tax option (in Germany) to value them or not. Non-valuation may lead to the disclosure of "**hidden reserves**" for tax purposes when the business is terminated. Inventories are counted as **current assets**.

Trade receivables and positive current accounts together add to the total amount of **current assets**. It is problematic if a high amount is reported under trade receivables, but the payment has become uncertain. For example, a product buyer may have become insolvent. In this case, the entire profit and loss statement is of course questionable, as is the balance sheet.

The real estate assets of agricultural and forestry businesses are a special case. In Germany, acquisitions made after 1 July 1970 (!) are valued at acquisition cost. However, if the owner family has old properties from before this date, a flat-rate value is calculated for these, which depends on the quality of land.

The valuations are the responsibility of the tax consultancy firm, especially for the so-called **opening balance sheet** (the first balance sheet). However, entrepreneurs must be aware that in tax balance sheets, the book value can deviate significantly (downwards) from the market value, e.g. due to special depreciation, investment deductions and declining balance depreciation.

Active accrual accounting

These are expenses that have already been incurred for future financial years, e.g. advance payments of rent to third parties or the discount on loans taken out.

Nowadays, assets and liabilities are always presented consecutively – and not in the form of a balance.

	Anfangs- und Endbilanz, liq. Verm.	2018/19 (t -2)		2019/20 (t -1)	
	Betrieb: Neubert Dieter	Lt. Buchführ.	Bereinigung	Lt. Buchführ.	Bereinigung
	Erstellt: 06.09.2021	Euro		Euro	
	Bilanz	Endbilanz	Bereinigung	Endbilanz	Bereinigung
127	**Boden**	1.902.953		1.900.376	
128	**Gebäude**,baul.Anl.,Anlag.im Bau,BGA	526.388		494.083	
129	Betriebsvorricht., Gesch'ausstatt.	81.705		69.586	
130	**Maschinen**	165.111		145.953	
131	Dauerkulturen, stehendes Holz				
132	**Tiervermögen**	289.700		251.245	
133	Feldinventar		93.060		92.988
134	Immatr., Finanzanl.-, Umlaufverm.(Vorräte ohne Feldinv.) inkl. Geldv. samt aktive Rechn'abgrenz.	133.661		188.339	
135	Aktiva	3.099.518	93.060	3.049.582	92.988
136	**Verbindlichkeiten** samt passive Rechn'abgrenz.	284.741		212.532	
137	davon Verbindl. gegenüber Kreditinstituten	224.708		170.169	
138	Rückstellungen				
139	Sonderposten mit Rücklageanteil, sonst. SoPo	187.674	-187.674	324.334	-324.334
140	Eigenkapital lt. Bilanz	2.627.103	280.734	2.512.716	417.322

Fig. 321: A short example of the balance sheet. Source: H. Wittmann, JUP PS, sheet Bf GNP (excerpt)

The JUP-PS programme proposes neutralising reserves and special items in the balance sheet. However, this is only a suggestion.

3.2.2 Borrowed capital

Long- and medium-term liabilities
These are loans with a duration of more than one year. They are reported as a total in the balance sheet.

Short-term liabilities
a) Trade payables (debts to suppliers and service providers). These must be counted together at the beginning and end of each financial year.

b) Current accounts with a negative currency.

If total short-term liabilities exceed 10 per cent of sales, this is considered critical. However, it is to be expected that some of the invoices from suppliers were received shortly before the balance sheet date and therefore could not yet be paid.

3.2.3 Equity

According to the formula mentioned at the beginning of section 3.2, the following applies:

Equity = Assets – Liabilities

Equity and equity growth are the most important indicators of a company's financial stability. This is discussed in the assessment of stability (section 4.3).

3.2.4 Debts not covered by assets

If liabilities exceed assets, this is referred to as over-indebtedness. Hopefully, there are still "hidden reserves" so that the actual equity is still positive. Of course, this can only be clarified outside of accounting.

If total liabilities exceed total assets, the **equity in the balance sheet** is **negative**. This corresponds to mathematical logic and also to the entrepreneur's point of view. A programme for analysing annual financial statements (such as JUP PS) must **show negative equity.** This is displayed in the last line of Fig. 321 above.

	Assets	**Liabilities**	
Intangible assets (rights or similar)	0.00	Equity	**-165,000.00**
Fixed assets			
Financial assets	20,000.00		
Land	500,000.00	Borrowed capital and	
Buildings	600,000.00	liabilities from goods and services	1,800,000.00
Operating equipment	100,000.00		
Machinery	300,000.00		
Current assets			
Inventories	50,000.00		
Current financial assets and			
receivables from goods and services	65,000.00		
Total assets	**1,635,000.00**	**Total liabilities**	**1,635,000.00**

Fig. 324-1: Balance sheet of an over-indebted company according to digital logic. Source: H. Wittmann

Nevertheless, in Germany, this is (still) handled differently in the balance sheet according to the German Commercial Code (HGB). Its schemes are still based on the debit-credit convention. And there, the lowest value that equity can assume is **zero**.

	Assets	**Liabilities**	
Intangible assets (rights or similar)	0.00	Equity	**0.00**
Fixed assets			
Financial assets	20,000.00		
Land	500,000.00	Borrowed capital and	
Buildings	600,000.00	liabilities from goods and services	1,800,000.00
Operating equipment	100,000.00		
Machinery	300,000.00		
Current assets			
Inventories	50,000.00		
Current financial assets and			
receivables from goods and services	65,000.00		
Over-indebtedness	**165,000.00**		
Total assets	**1,800,000.00**	**Total liabilities**	**1,800,000.00**

Fig. 324-2: Balance sheet of an over-indebted company according to the convention of debit and credit. Source: H.Wittmann

To compensate for this, a position "liabilities not covered by assets" is created on the assets side of the balance sheet. And this is simply added to the assets. In plain language: **additional assets are invented** !

According to the debit-credit convention, the following also applies here:

Total on the left = Total on the right

The reason for the convention of debits and credits is that until the end of the 1960s, only mental arithmetic was possible. And ordinary mortals are not able to add up a column of numbers with changing signs. The challenge in the Middle Ages was therefore to find a system in which no value below zero appeared in a column, not even for equity. Accordingly, Luca Pacioli described the concept of debits and credits in 1494.

Digital calculators were introduced over 50 years ago. Since then, changing signs in a column of numbers have no longer been a problem! Thanks to digitalisation, it is now also possible to show equity with a minus sign in a balance sheet. You can find more on this topic in chapter "9.2 Double-entry bookkeeping".

3.2.5 Extraordinary items on the liabilities side

Provisions
The balance sheet according to fiscal and commercial laws may contain provisions for services received whose invoice amount has not yet been determined. Such provisions may be neutralised in business mangement analysis.

Special items
For each individual special item, the question arises as to whether it should be allocated : to equity or to debt capital. Some experts suggest that half should be counted as equity and half as debt capital. However, a special item based on previous investment subsidies is initially 100% equity. Such subsidies lead to increases in profits, so that money flows back to the tax authorities via taxes in subsequent years. The simplest management approach is to exclude all special items from the business analysis.

Passive accrual accounting
This refers to operating income that belongs to future financial years, e.g. advance rent payments received.

3.3 Indispensable supplements for analysis

You can not do the analysis work without the **journal of the individual general ledger accounts** (in German : Kontenschreibung). There, the booking numbers are recorded and this enable **the original entries to be traced**. This is also the key to clarifying many of the entries for deposits and withdrawals. See sections 3.1.2 and 4.2.5. However, for presentation purposes, two further areas are indispensable.

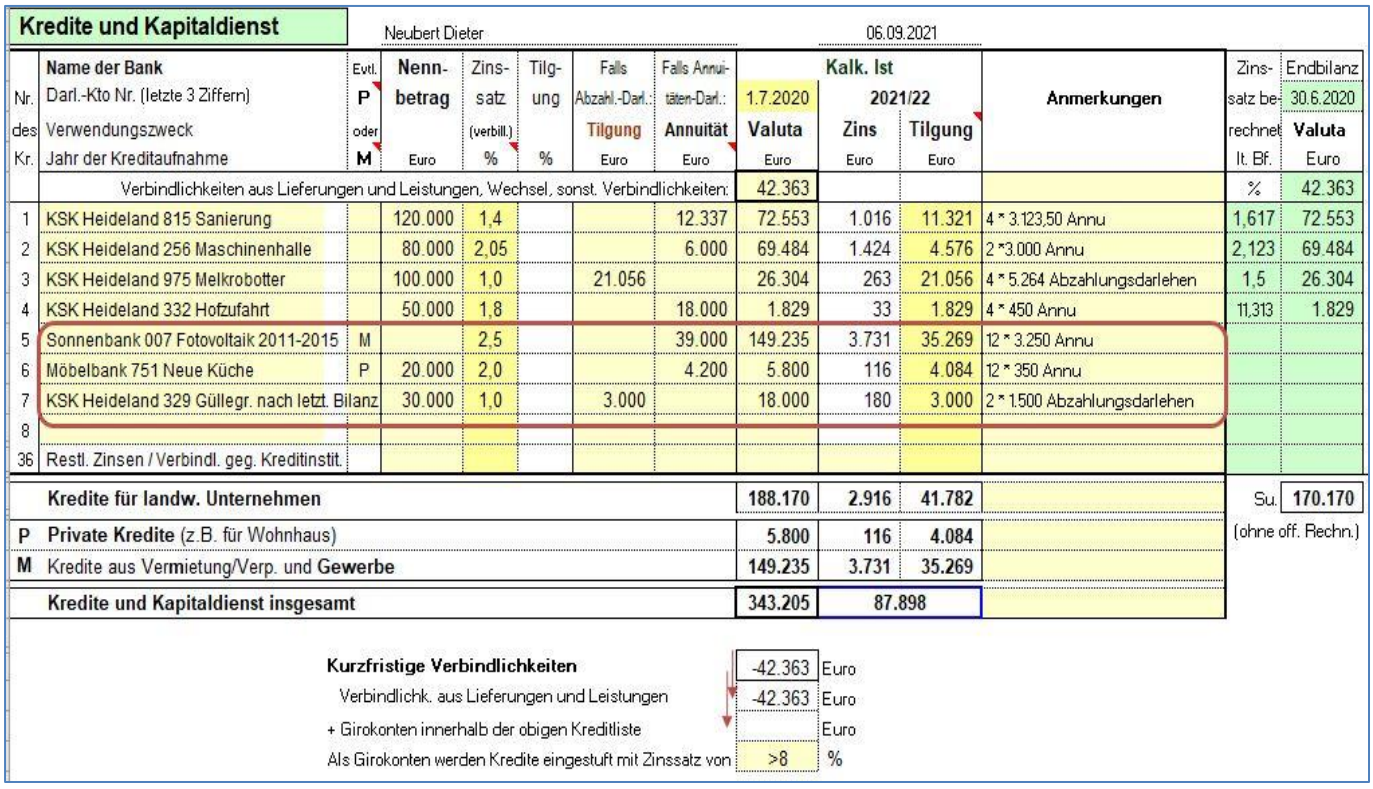
3.3.1 Capacities and production processes

The assessment of a company includes information on the legal form of the company, its workforce, its own and leased properties, its branches of activity and its production processes. The data for this can be found in the annual financial statements itself and in other accounting records. However, the data from the accounting records may not be entirely up to date or not complete, as it has no impact on taxable profit.

3.3.2 List of individual loans and short-term liabilities

If the company has taken out loans, a list of individual loans should be compiled based on bank information, showing interest expenses and repayment amounts in detail. Please note: The accounting records do not indicate whether the repayments are instalment, annuity or in the termination of the contract. Manual post-processing is therefore unavoidable.

Loans outside the company, e.g. for rental properties (see Fig. 332: marked with M in the line) and for private purposes (marked with P in the line) must also be recorded. Ultimately, the loan sheets should provide what the entrepreneur needs for the banks' "rating". The rating also includes all short-term liabilities.



Kredite und Kapitaldienst — Neubert Dieter — 06.09.2021

Nr. des Kr.	Name der Bank / Darl.-Kto Nr. (letzte 3 Ziffern) / Verwendungszweck / Jahr der Kreditaufnahme	Evtl. P oder M	Nenn-betrag Euro	Zins-satz (verbill.) %	Tilg-ung %	Falls Abzahl.-Darl.: Tilgung Euro	Falls Annui-täten-Darl.: Annuität Euro	Kalk. Ist 1.7.2020 Valuta Euro	2021/22 Zins Euro	2021/22 Tilgung Euro	Anmerkungen	Zins-satz be-rechnet lt. Bf. %	Endbilanz 30.6.2020 Valuta Euro
	Verbindlichkeiten aus Lieferungen und Leistungen, Wechsel, sonst. Verbindlichkeiten:							42.363					42.363
1	KSK Heideland 815 Sanierung		120.000	1,4			12.337	72.553	1.016	11.321	4 * 3.123,50 Annu	1,617	72.553
2	KSK Heideland 256 Maschinenhalle		80.000	2,05			6.000	69.484	1.424	4.576	2 *3.000 Annu	2,123	69.484
3	KSK Heideland 975 Melkrobotter		100.000	1,0		21.056		26.304	263	21.056	4 * 5.264 Abzahlungsdarlehen	1,5	26.304
4	KSK Heideland 332 Hofzufahrt		50.000	1,8			18.000	1.829	33	1.829	4 * 450 Annu	11,313	1.829
5	Sonnenbank 007 Fotovoltaik 2011-2015	M		2,5			39.000	149.235	3.731	35.269	12 * 3.250 Annu		
6	Möbelbank 751 Neue Küche	P	20.000	2,0			4.200	5.800	116	4.084	12 * 350 Annu		
7	KSK Heideland 329 Güllegr. nach letzt. Bilanz		30.000	1,0		3.000		18.000	180	3.000	2 * 1.500 Abzahlungsdarlehen		
8													
36	Restl. Zinsen / Verbindl. geg. Kreditinstit.												
	Kredite für landw. Unternehmen							188.170	2.916	41.782		Su.	170.170
P	**Private Kredite** (z.B. für Wohnhaus)							5.800	116	4.084		(ohne off. Rechn.)	
M	Kredite aus Vermietung/Verp. und **Gewerbe**							149.235	3.731	35.269			
	Kredite und Kapitaldienst insgesamt							343.205	87.898				

Kurzfristige Verbindlichkeiten	-42.363	Euro
Verbindlichk. aus Lieferungen und Leistungen	-42.363	Euro
+ Girokonten innerhalb der obigen Kreditliste		Euro
Als Girokonten werden Kredite eingestuft mit Zinssatz von	>8	%

Fig. 332: List of loans and extraction of short-term liabilities (below). Source: H. Wittmann, JUP PS, sheet 2 Loans (excerpt)

This list show the value date of each loan as well as the interest and repayments for the entire year. The previous development of individual loans is not relevant for the company valuation. Analysts can concentrate on the **current actual** and on **future planning years**.

In the analysis practice, consideration should already be given to which **dates** are appropriate for any subsequent operational planning (see point 8.7). In German agriculture, the financial year (FY) usually runs from 1 July to 30 June. Here is a sample of the fiscal years and balance sheet dates to be selected:

Last FY 2025/26	=> 1 July 2025	Start of the last accounting year
Variant 1 2026/27	**=> 1 July 2026**	**Start of the "current actual"**
Option 2 2027/28	=> 1 July 2027	Start of the planning year before the changeover
Option 3 2028/29	=> 1 July 2028	Start of the first changeover year, etc.

Under these circumstances, it is advisable to start the credit list (according to Fig. 332) with the **key date of 1 July 2026**. The financial year would then be the last accounting year plus one year (2026/27). This key date ensures that **repayments are not made too early** and that the calculated values correspond to future years. See also sections 8.5 and 8.7.

3.4 Additional reports from the accounting office

Upon request, the accounting departments prepare addional **reports** during the year. The **vertical comparison with previous years or previous months** is important for many companys, for example in agriculture in practically all horticultural businesses. The so-called **BWA** (business analysis) can also be ordered.

The total debit = The total credit

*Before the computerised accounting was introduced, pretty much every accounting company had its own system. At that time, the author was actif in a bureau of consultant. Once, the client's accounter had listed the many loans neatly on the liabilities side of the balance sheet, but all had their full original amounts ! Fixed loans without regular repayments? No. All loans had to be repaid regularly. Well, this accounting office had recorded the totals of **repayments** for each loan - on the assets side of the balance sheet, for each loan a line.*

This example clearly shows that accountants are particularly influenced by the debit and credit convention. The sum of the debit columns and the sum of the credit columns must match to the penny. Then the whole thing is "coherent" for accountants, and that's it.

The debts have been repaid

“Business is going very well at the moment. My parents' large loans have been repaid. Now we are debt-free. We no longer claim special depreciation allowances or investment deductions. In years with good profits we are happy to pay high taxes. In bad years, we still have sufficient depreciation allowances” (family entrepreneur V.K.).

*Note: Of course, borrowing can be very economical. But beware of financial **difficulties.***

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4. Profitability, liquidity and stability – first step of assessement

The order of profitability, stability and liquidity, which was often chosen in the past, is not sustainable in the long term. It has apparently led to the view that liquidity can only be assessed after calculating the change in equity. Therefore, we will take a brief look at the literature.

In **2022**, the Main Association of Agricultural Accounting Offices and Experts (HLBS) published the 9th edition of its well-known "Heft 14". Editor: Dr. Rainer P. Manthey. The sequence:
- Profitability and factor remuneration
- Liquidity
- Stability and risk

In "Arbeiten der DLG Band 194: Effiziente Jahresabschlussanalyse" (Papers of the German Society for Agriculture, Volume 194): Efficient Annual Financial Statement Analysis from **1997**, the order is similar:
- Profitability ratios
- Liquidity ratios
- Stability ratios

This article was published by Dipl.-Ing. agr. Jan Krümmel, management consultant at Göttingen.
This order was already used in **1984** in the book "Agricultural Business Management" published by Prof. Leiber.

Thus, it was advisable to introduce the above mentioned sequence in the state investment concept (JUP Pi) and in the programme for business analysis and planning JUP PS.

Anyone who teaches students at secondary schools, technical colleges or in master craftsman training must them say that liquidity can be assessed and planned throughout the year!

To do this, the accountant only needs to provide the gross cash surplus. This method is known as the "**direct method**" for getting cash flows.

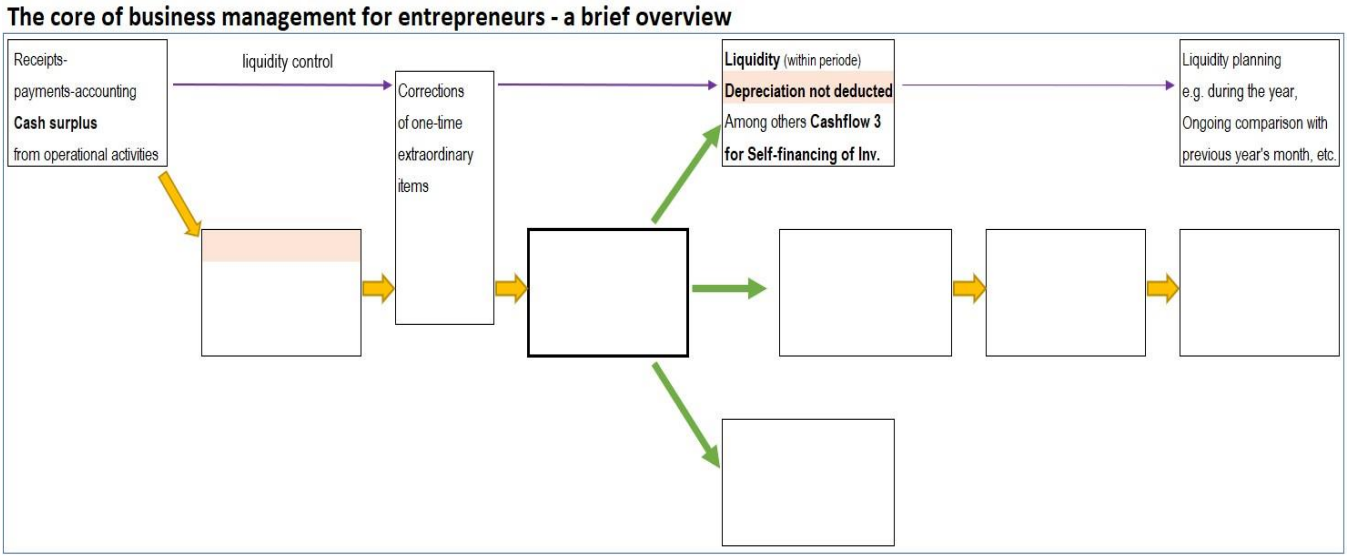

Fig. 400-1: Direct monitoring of liquidity during the year based on gross cash surplus. Source: H. Wittmann

Once a company's annual financial statements are available, liquidity can be also assessed on the basis of the ordinary profit. This is the **indirect method**. Liquidity is assessed together with the profitability and the stability of the company.

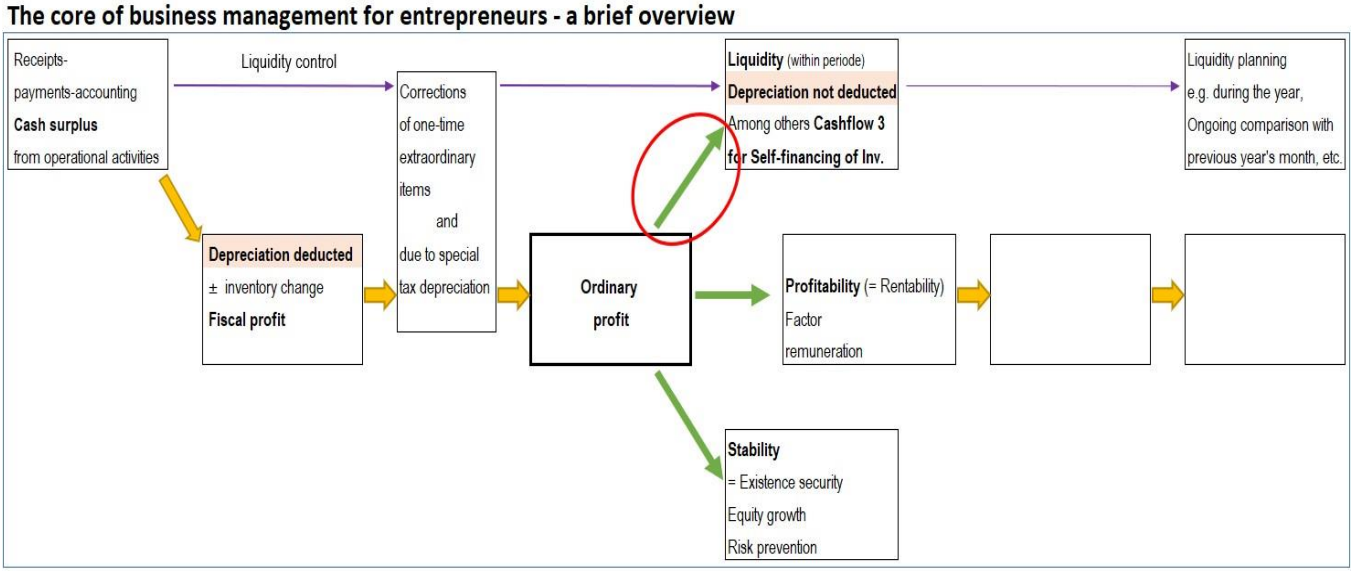

Fig. 400-2: Direct and indirect tracking of liquidity—indirect based on ordinary profit (red circle). Source: H. Wittmann

This order does not make the assessment of stability secondary. Yet, whether it is or was possible to increase equity capital can normally only be determined after the end of the year. However, this order does not mean that the assessment of stability is of tertiary importance.

The fully completed version of this diagram is shown back in chapter "1. The core of business management for entrepreneurs", Fig. 100-1.

4.1 Profitability

The profitability (economic efficiency) figures refer **exclusively to the company**. Without long-term profitability, good liquidity and stability cannot be achieved. The starting point is always the **ordinary profit**.

4.1.1 Share of fixed costs in total contribution margin %

Right at the beginning of the first step of the annual financial statements, the total contribution margin and the fixed costs of the business premises (excluding costs for wages, leases, rent and interest) should be clearly stated.

Here is an example with three financial years.

Gesamtdeckungsbeitrag	(inkl. regelm. Zulagen)	471.308	446.233	443.137
Fixkosten	(ohne Löhne, Pacht-, Rechte- und Zinsaufwendungen)	158.475	168.709	158.779
Fixkostenanteil am Gesamtdeckungsbeitrag	%	34 %	38 %	36 %

Fig. 411: Total contribution margin, fixed costs and share of fixed costs. Source: H. Wittmann, JUP PS, Sheet Kurz-A

This is a quickly determined indicator of **efficiency and productivity**. This relative value shows how much of the total contribution margin is consumed by fixed costs. A percentage of over 40% may indicat that assets are not being used sufficiently. The entrepreneur must then try to increase the total contribution margin. It is rarely possible to reduce fixed costs in the short term.

4.1.2 Profit rate %

Question: What percentage of $1,000 in sales remains as **ordinary profit**? The profit rate (or return on sales) is easy to calculate. However, interpreting it is often difficult. For companies with a wage labour system for all employees, this percentage is often in the single digits. However, there are also highly profitable companies with external employees, such as Microsoft and Deere. These software and technology manufacturers have a profit rate of over 10%.

In companies with family labour, the profit rate must be significantly higher than in companies with external labour, as the family has to pay its private expenses (including earning tax) from the ordinary profit. For example, a family-run dairy farm should achieve a profit rate of more than 30%, while a dairy farm that only employs paid workers can be quite satisfied with a profit rate of 5% (each as an average over the years).

Even within agriculture, large differences of profit rates are common. For example, profit rates in pig farming are generally low compared to dairy farming. This is related to the amount of working hours involved. When assessing the profit rate, it is therefore helpful to use reference values from a horizontal comparison of similar farms.

With high sales, it is important that the profit rate is at least positive. Low profit rates are generally critical, as they can easily become negative. However, a good profit rate is also unsatisfactory if sales are too low.

4.1.3 Profitability of all factors combined

The remuneration of individual factors is easy to communicate: **labour earning** and **return on capital**. For agriculture, the **ground rent for land use** must also be calculated. (See section 4.1.4). However, business management experts prefer to assess the remuneration of factors collectively. Two key figures are used for this purpose, both expressed as percentages:

a) Relative factor remuneration
b) Net profitability

"Relative factor remuneration" is always applicable, e.g. even in case of exclusively external workers. However, for companies that operate solely (or almost solely) with family workers, "net profitability" is preferred, as the formula for this is much simpler.

a) Relative factor remuneration %

First, the so-called operating earnings (in German : Betriebseinkommen) must be calculated. Payed factors are tob e added:

Operating earnings = ordinary profit + wages paid + rents paid + interest paid

Next, the costs for internal **and** external factors must be added together. Finally, the operating earnings must be divided by the total factor costs.

Relative factor remuneration % = operating earnings / total factor costs

This percentage should be above 100 per cent (as a multi-year average).

An example of the steps – 3 financial years

Betriebseinkommen (= Ord. Ergebnis + bez. Löhne, Pachten und Zinsen)					**315.119**	**279.788**	**288.147**
Lohnansatz Familien-AK	14,00	14,25	14,50		93.380	95.048	96.715
+ Lohnaufwand (bez. Löhne)				Bf GNP Zeilen 61, 62, -28	60.119	61.145	62.866
+ Pachtansatz eigene Flächen	454	458	477		50.081	50.522	52.542
+ Pachtaufwand (bez. Pachten)				Bf GNP Zeile 77	47.775	49.925	51.950
+ Zinsansatz Eigenkapital im Unt. ohne Boden			1,0 %		10.235	10.049	10.297
+ Zinsaufwand (bez. Zinsen)				Bf GNP Zeile 91, -27	3.770	4.135	3.250
= Faktorkosten insg.				Z. 3 ... 5	265.360	270.824	277.620
Rel. Faktorentlohnung % = Betriebseinkommen / Faktorkosten insg.				Z. 2 / Z. 6	**119 %**	**103 %**	**104 %**

Fig. 413-1: Operating earnings and relative factor remuneration %. Source H. Wittmann, JUP PS, sheet Kurz-A (excerpt)

b) Net profitability %

For this purpose, the ordinary profit can be entered directly into the numerator of the formula. Only the wage claim, lease claim and interest claim of the company's own factors need to be estimated and included in the factor costs. The division is therefore as follows:

Net profitability % = Ordinary profit / Factor costs of own production factors

This percentage should also be above 100 per cent (as a multi-year level). On average, family farms (in Germany) often only achieve 70 per cent. Only the more successful farmers have the chance to exceed 100 per cent. Of course, the wage claim per family worker is a decisive factor here. In agriculture, €15 per hour was often assumed – as gross costs for own labor, which also include private insurance and private taxes. In 2025, the wage claim in agriculture was raised to around €19 per hour – in some German regions. Besides, the entrepreneur himself must determine "how expensive" he estimates his family labour to be.

An example of the steps – 3 financial years

Ordentliches Ergebnis (= Bereinigter Gewinn)				Bf GNP Zeile 95	**203.455**	**164.583**	**170.081**
Lohnansatz Familien-AK	14,00	14,25	14,50		93.380	95.048	96.715
+ Pachtansatz eigene Flächen	454	458	477		50.081	50.522	52.542
+ Zinsansatz Eigenkapital im Unt. ohne Boden			1,0 %		10.235	10.049	10.297
= Ansätze für eigene Produktionsfaktoren (eig. Faktorkosten)				Zeilen 3 ... 5	153.696	155.619	159.554
Nettorentabilität % = Ordentl. Ergebnis / Ansätze für eigene Faktoren				Zeile 1 / Zeile 6	**132 %**	**106 %**	**107 %**

Fig. 413-2: Ordinary profit and net profitability in %. Source: H. Wittmann, JUP PS, sheet Kurz-A (excerpt)

4.1.4 Profitability of the individual factors labour, land and capital

For agriculture, where the ground rent for land use must also be calculated, this results in a "triple combination" (in German : Dreigespann) of factor utilisation.

In most companies, work has to be done. Therefore, the average earning from work should be determined. This can be calculated by deducting an **interest rate** (e.g. 2 per cent of own capital) from the ordinary profit. In agriculture, a **lease rate** for own arable land must also be deducted. **External wages of the company,** on the other hand, must be added to the ordinary profit. The **residual amount** divided by the hours worked then gives the total labour earning **per hour** in the company.

Example of the "triple combination" (Dreigespann) of factors in agriculture – 3 financial years

Arbeitseinkommen	= Ord. Erg. minus Zins-,Pachtansätze, + bez. Löhne	Euro / AKh	**18,80**	**15,28**	**14,09**
Grundrente	= Ord. Erg. minus Lohn-,Zinsansätze, + bez. Pachten	Euro / ha	705	529	557
Gesamtkapitalrendite	= Ord. Erg. minus Lohn-,Pachtansätze, + bez. Zinsen	% v. Kap. ohne Bod.	5 %	2 %	2 %

Fig. 414: Earnings from labour, ground rent and return on capital. Source: H. Wittmann, JUP PS, sheet Kurz-A (excerpt)

Once converted per working hour, the labour earning can be easily communicated at the coffee table – even to people who have not studied business management. A direct comparison with the legal minimum wage is not entirely accurate, but it is not completely wrong either.

The formulas used refer to the **total** use of a factor:

- the **entire** workforce
- the **total** area used
- the **total** capital

In the case of capital, there is a desire to also calculate the **return on equity**. For company valuation, however, it is advantageous that the fluctuations in the return on total capital are smaller than those in the return on equity. The somewhat coarser return on total capital is sufficient for valuation purposes.

Assessment criteria

Earnings per hour worked

Good if earning per hour worked for all employees **>** average hourly wage for external workers

Ground rent per hectare

Good if basic rent per hectare **>** average lease payment per leased hectare

Total return on capital %

Good if the total return on capital **>** average interest rate for borrowed capital

In some industries, only capital is used and no labour, e.g. the photovoltaic elements. The formula then becomes very simple, as it refers to only one factor, namely capital.

4.2 Liquidity – including deposits and withdrawals

A distinction is made between point-in-time liquidity and period liquidity. Point-in-time liquidity can be determined daily of the basis of **short-term liabilities**: **negative current account plus trade payables**. These should not exceed 10% of sales.

If the company consists of several sub-operations (e.g. for tax reasons), it is of course extremely unfavourable if the current account in one sub-operation is negative and in another positive. Nowadays, this can be checked with an account balance app. In the following, the term "liquidity" always refers to **period liquidity**.

4.2.1 About the term 'cash flow' – a preliminary check

A key concept in liquidity is cash flow. Typically, **depreciation** (and amortication of licences) is **never deducted in cash flows**. The following first three key figures, (a) to (c), are suitable for analysis. They differ in terms of **the residual amount** (see below).

However, reserves and changes in inventories often play a major role in large companies. In business management basics, they can be ignored for the time being.

a) Cash flow for self-financing = cash flow for internal financing = cash flow 3
This concept can be applied to all areas of business. Cash flow for self-financing shows how much investment can be paid for from own funds generated during a specific period. This is the key indicator for period liquidity, which can be easily measured using replacement investments (= depreciation).

b) Free cash flow
Some companies publish it, e.g. the German corporations ZF and BASF. Free cash flow takes into account **total investments**, also not just replacement investments. However, deposits and withdrawals are not taken into account, which is why blank spaces are displayed here.

Cash flow from operating activities (interest expenses deducted)
+ …
- …
- **Total investments**
= **Free cash flow**

The **residual amount** of free cash flow can be used **for withdrawals**, including distributions**, and for repayments**. For companies, free cash flow therefore means:

If high investments have been made, distributions cannot be financed !
If no investments have been made, high distributions are possible !

Question: Who thinks that way? Conclusion: Free cash flow can be completely misleading!

c) Debt service limits
Readers who have nothing to do with agriculture can skip the sections on debt service limits. That is why the texts on this topic are **underlaid in grey**.

This concept was developed early on in agriculture. Cash flow 3 reflects it perfectly, but was only invented later. Now nobody needs debt service limits anymore. The number of farms is declining rapidly; in Germany, it is already below 250,000. That is why there will soon be no separate agricultural business management.

The **residual amount** of the **debt service limit**s is to be used for **debt service** (= interest expenses and repayments).

Two other inventions with similar names

Discounted cash flow (DCF)
The author first heard the term "cash flow" in 1975. One of his professors at the University of Göttingen had returned from a position at the World Bank. He reported that this bank grants loans on the basis of DCF calculations. The World Bank's question: If we invest a certain amount, how much will flow back as cash flow in the coming years? DCF is therefore a measure of the expected **profitability** of an investment!

The DCF can **only** be used **for future calculations**: the estimated cash flows **for subsequent years** are **discounted** to present value using financial mathematics. DCF is therefore **not** a means of analysing annual financial statements!

Cash flow statement
This is discussed in **section 4.4** together with the **income statement** both in accordance with IFRS 18. The interpreneurs will **not need** the tese terms. That is why the texts for these statements are **marked in yellow.**

In any case, liquidity problems must be disclosed when assessing a company! Since cash flows are now widely used, it makes sense to address them early on in consultations. This keeps the pedagogically desirable "**tension curve**" high during a consultation.

4.2.2 Gross cash surplus

The gross cash surplus (= company income minus company expenses) is reported by the accountants continuously **throughout the whole year**. This allows for a constant comparison with the same month of the previous year.

All "private shares in company expenditure" contained in the gross cash surplus must be offset. In order to assess ongoing business activities, the gross cash surplus must be adjusted of "one-off payments", e.g. proceeds from the sale of land and irregular subsidies.

4.2.3 The two methods for deriving cash flows

The "**direct method**" is based on the "**gross cash surplus**". This method is easy to understand and therefore preferable from an educational point of view.

The « **indirect method** » is based on the so-called "**practitioner formula**":

Cash flow from operating activities = ordinary profit + depreciation

The indirect method can only be used **after** the annual financial statements have been prepared! Nevertheless, it is used more frequently than the direct method.

Direct method	Indirect method
Gross cash surplus	**Ordinary profit**
± One-off payments	**+ Depreciation**
e.g. from sale of usable space	(added back to ordinary profit)
Cash flow 1 = Cash flow from operating activities (interest expenses deducted)	

4.2.4 The three most important cash flows

All cash flows have one important advantage: they are **not as easy to manipulate** as profit, which can be "shaped" by depreciation, for example. Cash flows of the type described as cash flows 1 to 3 are, when monitored on an ongoing basis, **early indicators** of undesirable financial developments.

Ordinary profit	
+ Depreciation	(added back to ordinary profit)
= Cash flow 1	**(cash flow from operating activities**, interest expenses deducted**)**
+ Adjusted deposits	
- Adjusted withdrawals	
= Cash flow 2	**(cash flow for repayments and self-financing of investments)**
- Repayments	according to business management principles
= Cash flow 3	**(cash flow for self-financing of investments)**

Cash flows 1 to 3 represent a staggered calculation based on profit. When analysing the annual financial statements, the "ordinary profit" replaces the profit.

Adjusted deposits, adjusted withdrawals and repayments in accordance with business principles are explained in sections 4.2.5 and 4.2.6.

Business education experts often ask whether company-related cash flows should be based on adjusted values or on the unadjusted results of the accounting department. It should be noted that the debt service limits described in section 4.8 below were always based on adjusted values. Adjusted values result in '**sustainable Cashflows**'.

Cash flow 3 is basically a reflection of the debt service limits: **without one-off special cashs** such as land sales or money from savings, without extraordinary repayments, etc. It is intended to show whether the self-financing capacity is **normally** sufficient. Of course, deviations from this are necessary when it comes to liquidity planning during the year or year-on-year planning.

Cash flow 3 as the **residual amount** shows the **funds generated** during a period (analysed or planned), that can be used for investments – or for savings.

For fans of diagrammes:

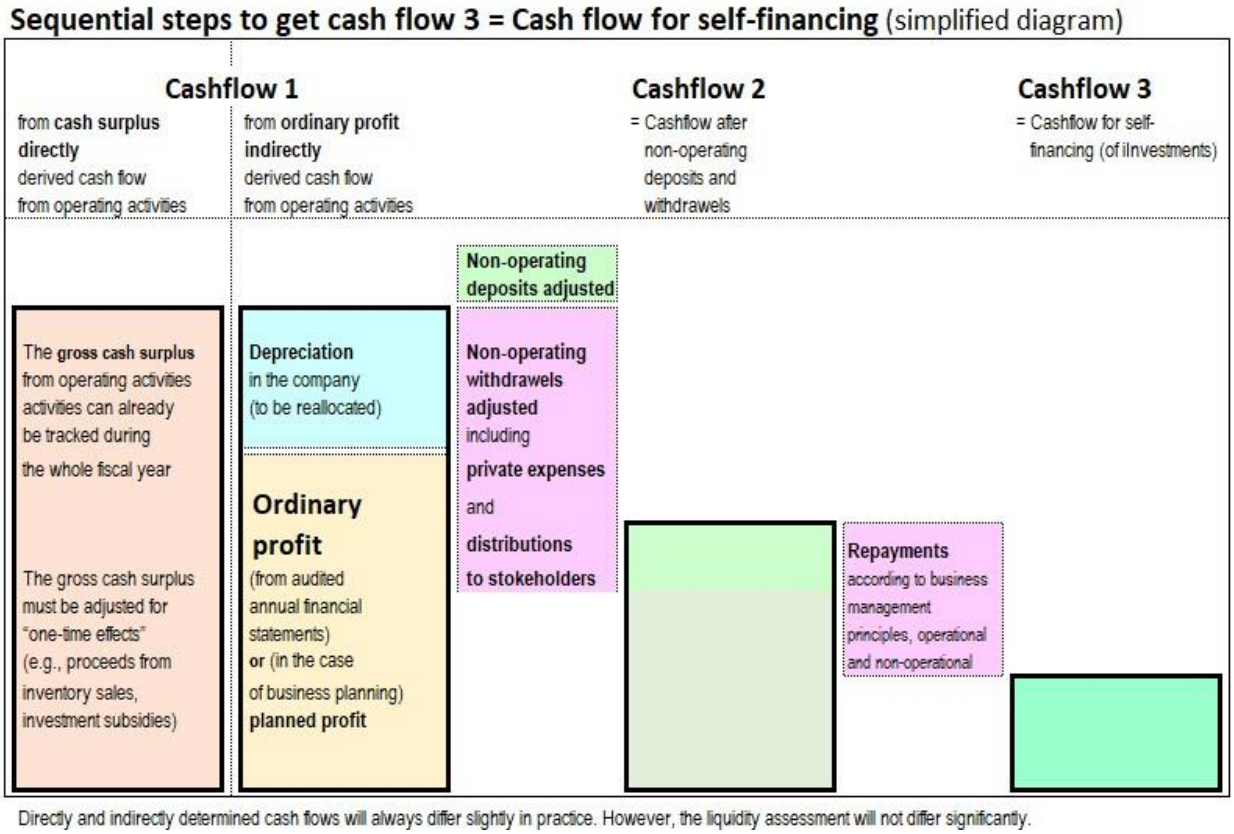

Fig. 422: A diagram of staggered calculation up to cash flow 3. Source: H. Wittmann

Some companies publish their cash flow. If interest expenses are deducted (as was previously customary), this is the "**cash flow from operating activities".**

Ravensburger AG in Zahlen
Umsatzerlöse: 373,15 Mio. Euro (2014, Vorjahr: 358,68 Mio. Euro)
Betriebsergebnis: 53,07 Mio. Euro (2014, Vorjahr: 46,18 Mio. Euro)
Jahresüberschuss: 37,57 Mio. Euro (2014, Vorjahr: 33,16 Mio. Euro)
Cashflow: 46,84 Mio. Euro (2014, Vorjahr:41,7 Mio. Euro)
Eigenkapital: 255,36 Mio. Euro (2014, Vorjahr: 230,11 Mio. Euro)
Mitarbeiter: 1838 (2014, Vorjahr: 1719)

Fig. 424: 2014 Media release from Ravensburger AG which reports cash flow

Often, only cash flow 3 is required. In this case, cash flows 1 and 2 can be omitted.

Ordinary profit
+ **Depreciation** (added back to ordinary profit)
...
+ Adjusted deposits
- Adjusted withdrawals
...
- Repayments (according to business principles)
= Cash flow for self-financing (cash flow 3)

Anyone who is elected to a supervisory board should continuously note the same cash flows in their notebook. Otherwise, they may one day find that they have failed to recognise a negative development in the company he is responsible for.

4.2.5 Adjusted deposits and adjusted withdrawals

Adjusted deposits

These are non-operational revenues. They include earnings from outside sources, e.g. from independently operated petrol stations or photovoltaic systems, as well as rental income from apartments. Deposits increase cash flow 2 (and cash flow 3). In contrast, inflows from savings accounts are "neutral" (from a business perspective), as private assets decrease by the **same amount**.

Inflows from non-operating loans must **never** be classified as income or revenue. Tax refunds should be offset against private tax expenses (included in withdrawals, if applicable).

In large companies, equity is often increased through a new share issue, but this equity is **not self-generated**. Therefore, it is not part of self-financing. It is excluded from adjusted deposits.

Adjusted withdrawals

These are non-operational payments. In family businesses, it should be noted that the alimentaion of family members must be paid from ordinary profit. Private expenses, which include private insurance and private taxes, are therefore correspondingly high.

Withdrawals for non-business assets (including private assets) are, of course, **not a** consumption. They are therefore "neutral" for the liquidity assessment. Even "withdrawals for non-operating earning" reported in the annual financial statements **often** do not constitute consumption. These may be attributable to the construction of rental apartments or photovoltaic systems. Such withdrawals increase assets, albeit non-operating assets.

In large companies, **distributions** to shareholders are **regular** withdrawals, despite their fluctuating amounts. Distributions are **not** available for investment within the company.

From a business managment perspective it is important whether the withdrawals end up in the entrepreneur’s **private savings** accounts. It must also be clarified whether deposits from non-operational earnings actually flow in or whether the deposits simultaneously reduce **private savings**. That's why, as a company analyst, you may have to make a lot of corrections.

The company's ordinary profits may be insufficient, but the entrepreneurial family may say, "We always have money in the house." Perhaps , large photovoltaic systems have been installed in recent years. If there are no remaining loans for such investments, the cash flow can provide considerable funds that can be used from other companies of the owner.

	Ord. Ergebnis, Cashflow 1, Nichtbetriebliches, Cashflow 2	2019/20	
		199	95
	Betrieb: Neubert Dieter	Lt. Buchführ.	Bereinigung
	Erstellt: 05.10.2022	Euro	
96	**Ordentliches Ergebnis (= berein. Gewinn)**		**170.081**
97	*Cashflow 1 (= Gewinn + betriebl. AfA)*		*251.629*
	Einlagen		
98	Nichtldw. Erwerbseinkommen (u.a. aus Gewerbe, vor AfA, vor Zinsen)		50.000
99	Nichterwerbseinkünfte (z.B. aus Vermiet., Verpacht., Kapitalvermög.)		
100	- Zinsausgaben für vermietete Objekte / für Gewerbe		-4.000
101	Einlagen aus Privatvermögen		
102	Einkommensübertragungen		
103	Sonstige Einlagen / Einkommen	3.608	
104	**Einlagen ges.**	3.608	
105	**Berein. Einlagen = Nichtbetr. Einnahmen ges.**		49.608
	Entnahmen		
106	Lebenshaltung	37.785	33.071
107	Aufwand Wohn-/Altenteilerhaus (ohne Zinsausgaben)		
108	Zinsausgaben für Privat (z.B. für Wohnhaus)		
109	Altenteil	9.203	
110	Entn. für sonst. Einkommensübertrag. (z.B. Spenden)		
111	Private Versicherungen	14.006	
112	Private Steuern	52.548	
113	Entnahmen zur privaten Vermögensbildung	150.000	-150.000
114	Entnahmen für nichtlandwirtschaftliche Einkünfte		
115	Sonstige Entnahmen / Ausschüttungen	2.056	
116	**Entnahmen ges.**	265.598	
117	**Berein. Entnahmen = Nichtbetr. Ausgaben, Privataufwand, ges.**		148.669
118	*Cashflow 2 (= Cf 1 + berein. Einlagen - berein. Entnahmen)*		*152.568*

Fig. 425-1: From cash flow 1 to cash flow 2 via deposits and withdrawals. Source: H. Wittmann, JUP PS, sheet Bf GNP (excerpt)

The annual financial statements in the example in Fig. 425-1 show minor "other deposits" amounting to €3,608. Deposits from a photovoltaic system that are not recorded in the annual financial statements were added: €50,000 before interest minus €4,000 in interest expenses.

The company was relieved of family-internal wage expenses amounting to €33,071 (see Fig. 312-1 above). These were transferred to withdrawals.

4.2.6 Repayments according to business management principles

For cash flow for self-financing of investments (Cashflow 3), debt repayments must be deducted. For the company assessment, these must be processed "**in accordance with business management principles**". To do this, analysts may have to do some research. However, this cannot be blamed on the accounting office, as the repayments are simply irrelevant for the profit according tax or commercial law.

	Cashflow 2, Tilgungen, Cashflow 3	2019/20	
	Betrieb: Neubert Dieter	199 Lt. Buchführ.	95 Bereinigung
	Erstellt: 05.10.2022	Euro	
118	*Cashflow 2 (= Cf 1 + berein. Einlagen - berein. Entnahmen)*		*152.568*
		betrieblich	nichtbetriebl.
119	**- Tilgungen** (nach betriebswirtschaftlichen Grundsätzen)	54.538	34.000
120	**Cashflow 3** (aufgrund bereinigter Werte, "aus eigener Kraft")		**64.030**

Fig. 426: From cash flow 2 to cash flow 3 via repayment of loans. Source H. Wittmann, JUP PS, sheet Bf GNP (excerpt)

Accordingly, operating **and** non-operating repayment must be estimated (at least roughly) by the analyst. Figure 426 shows €34,000 for the repayment of a loan for photovoltaic systems.

It is important to explain "**repayments in accordance with business management principles**" in more detail. You must also take the following into account. First of all, loans must be presented in accordance with their contractual terms and conditions.

Repayment suspension
If such suspensions are granted in the financial years, the procedure must still be carried out as if the repayment suspension had **not** been granted. Otherwise, financial difficulties could be **concealed**.

Exraordinary repayments
Conversely, special repayments should not be taken into account. In a well-run company, this could indicate a financial problem that does **not** actually exist.

Repayment of excessive short-term liabilities
According to business principles, a **fictitious repayment** of such liabilities may also be appropriate.

Fixed-term loans and bridging loans
In such cases, no repayments are due before the final maturity date. However, if such a loan is directly linked to a savings agreement (or an endowment life insurance policy), mandatory savings contributions must be made, which are similar **in nature to loan repayments**.

4.2.7 Benchmarks for cash flows

Depreciation is used as **a benchmark** (yardstick) **for cash flows**. In the 2020 report by BASF Ludwigshafen (a German group), cash flow from operating activities is measured against total depreciation.

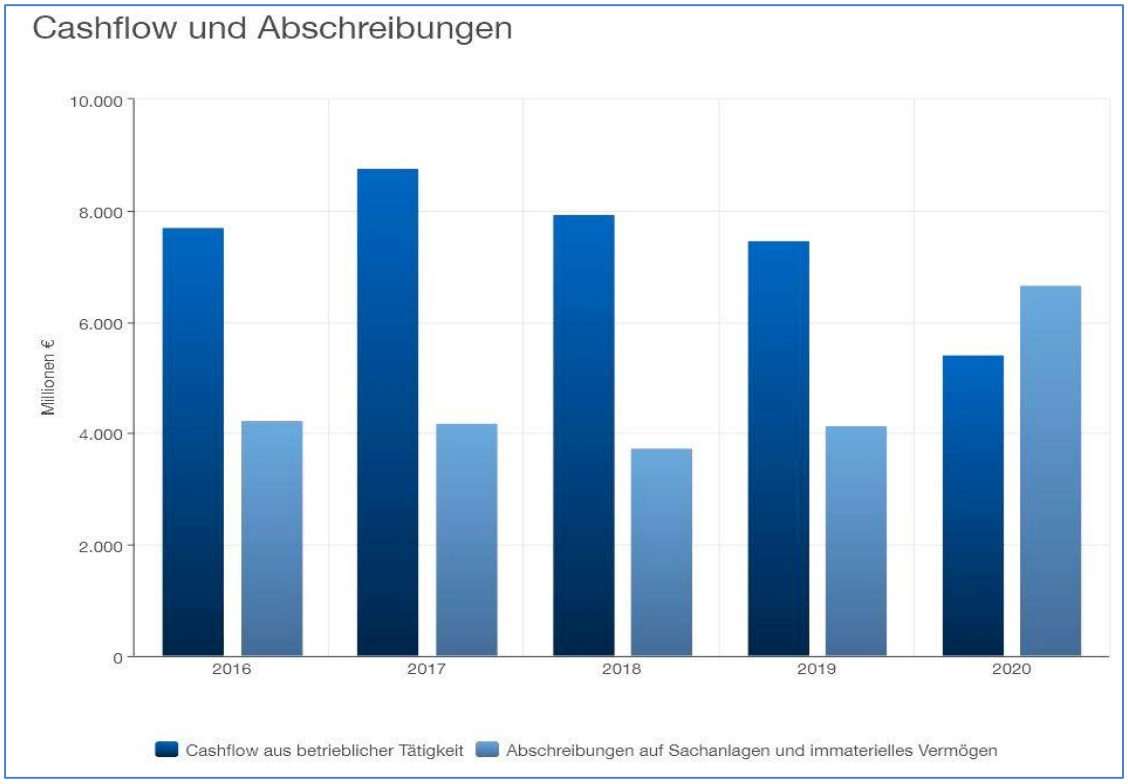

Fig 427-1: Cash flow compared with depreciation (+ amortisation), 2016 to 2020. Source: BASF Annual Report (2020).

It makes sense to measure cash flows **not** against total investments, but against a figure that is relatively constant for the company. **Depreciation** is a good option here. Investments equal to depreciation are generally referred to as "replacement investments". Cash flow 3 shows how much equity remains after non-operating inflows and outflows and after repayments. The question is therefore whether **at least the replacement investments** can be financed without credit. In other words: how much "leeway" remains to make entrepreneurship enjoyable?

Two metrics (benchmarks) are suitable for cash flow 3.

Long-term benchmark:	**Total depreciation**
Medium-term indicator:	**Depreciation on machinery and permanent crops**

Total depreciation includes depreciation on buildings. However, no replacement investments in new buildings are expected in the first few years. Machinery (and permanent crops), on the other hand, must be replaced on an ongoing basis.

To **evaluate a simple investment**, **cash flow 1 minus repayments** is often sufficient, e.g. in the case of a photovoltaic system. This already shows whether other areas of the entrepreneur's business can be "cross-financed" or whether cash flow from other areas of the business is actually being "burned".

Scales for assessing liquidity (criterias for agriculture)

Very critical	= If **Cf 3** is **negative**. Even small investments must be financed externally. And even private expenses may have to be paid by the bank, even though nothing is being invested!
Critical	= If **Cf 3 < AfA machinery and permanent crops**. Replacement investments in machinery and permanent crops can only be paid for to a limited extent from Cf 3.
Good	= If **Cf 3 > depreciation on machinery and permanent crops,** **but < total depreciation.** This also means: "The medium-term debt service limit is not exceeded".
Very good	= If **Cf 3 > total depreciation**. This also means: "The long-term debt service limit is not exceeded".

Please note: High savings obligations (e.g. payments into an endowment life insurance policy) also limit the availability of Cf 3 for investments in the company.

Replacement investment coverage %

If you compare cash flow 3 with replacement investments, you can display a relative value in %: this is the "replacement investment coverage %". The higher the value, the better.

a) **Total replacement investment coverage %** = Cf 3 / Total depreciation
b) **Replacement investment coverage only for machinery + permanent crops %**
= Cf 3 / Depreciation for machinery + permanent crops

The following chart (Fig. 426-2) compares a company's previous results with its planned future figures. In addition to the optimisation, three alternative target operations were calculated for the company. The cash flow 3 of each variant is compared with a) the total depreciation (long-term benchmark) and b) the depreciation of machinery and permanent crops (medium-term benchmark).

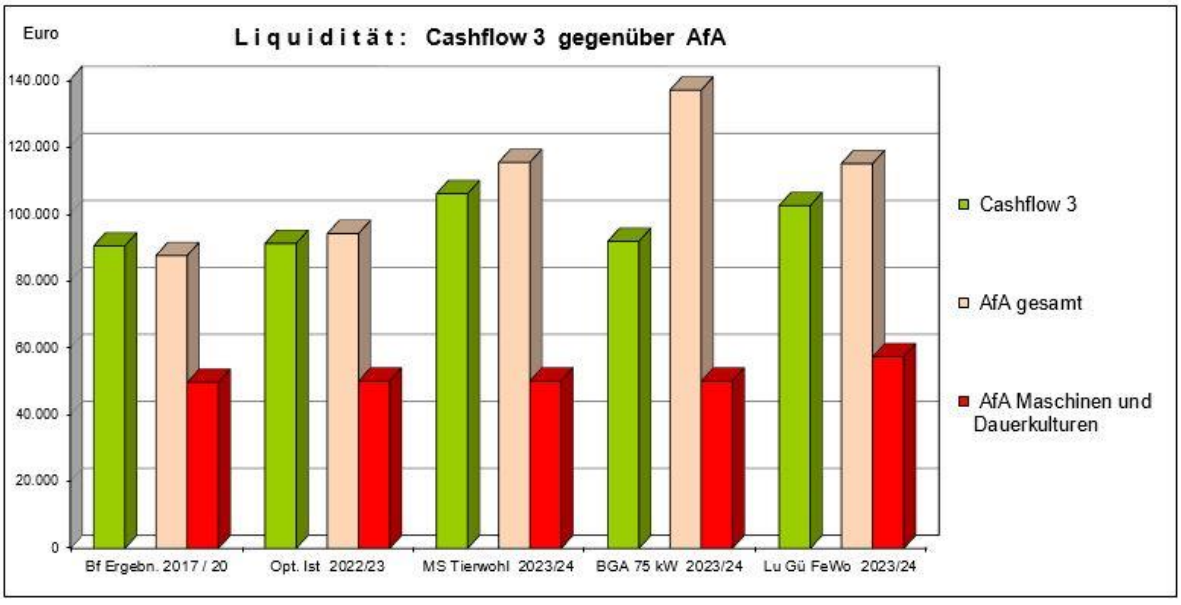

Fig. 427-2 **:** Cash flow 3 of several plans compared to that from accounting. Source H. Wittmann, JUP PS, sheet G LiqStab.

In the example in Fig. 427-2, cash flow 3 is significantly higher than the depreciation for machinery (measure b) in all five variants. However, Cf 3 does not exceed the total depreciation (measure a) in any

of the target variants. This is not necessary, however, as the depreciation for new buildings does not have to be reinvested immediately.

When **considering the future** in the context of liquidity planning during the year (or in year-on-year planning), the **specifically planned repayment** must be taken into account instead of the "repayment according to business principles".

If, for example, a repayment suspension was taken into account **in the planning**, the parties involved (entrepreneur, consultant, bank) will already be aware that this situation will not continue indefinitely. Consequently, a one-off **deposit from a mature savings agreement** or similar must also be included in the planning.

Cash flow for self-financing, free cash flow and debt service limits are interrelated. They differ in terms of the **residual amount**. As already explained, the cash flow for self-financing retains the financeable **investments** as **a residual amount**.

4.2.8 Debt service limits and their utilisation %

Readers who are not involved in agriculture can skip the sections on debt service limits. The text on this topic is therefore highlighted **in grey**.

In agriculture, liquidity has been measured for decades using debt service limits. The term was already in use before cash flow became widespread. The **residual amount** is the maximum **annual debt service.** Interest expenses are therefore added (back) to the ordinary profit.

a) Long-term perspective

Ordinary profit (total depreciation deducted) **+ Interest expenses** + Adjusted deposits - Adjusted withdrawals = **Long-term debt service limit**

b) Medium-term perspective

Buildings often have a long useful life. They do not need to be reinvested immediately.
This means that the amount that can be paid to banks in the medium term can be increased by the depreciation for new buildings. This is the medium-term debt service limit.

Ordinary profit (total depreciation deducted) **+ Depreciation on buildings** and amortication of licences + Interest expenses + Adjusted deposits - Adjusted withdrawals = **Medium-term debt service limit**

The same medium-term conclusion can be drawn if cash flow 3 is measured using depreciation on machinery and special crops (see cash flow metrics in section 4.2.7)!

Fundamental relationship with cash flow 3:

Long-term debt service limit – debt service = cash flow 3 – total depreciation

It is as if one were looking at the same painted glass pane once from the front (cash flow) and once from the back (debt service limit). The question is asked once from this direction and once from the opposite direction. The answer is mirror-image.

„Cash flow for self-financing" (Cf 3):
How much **investment** can be financed with the generated funds after deduction of **debt service**?
Long-term « debt service limit »:
How much **debt service** can be financed with the generated equity after deduction of **investments** in the amount of depreciation?

The debt service limits can be derived from cash flow 3. The following calculations are correct, even if you have to think « a bit around corners » when calculating.

Long-term debt service limit = **Cash flow 3** – Total depreciation + Debt servie
Mid-term debt service limit = **Cash flow 3**
– Total depreciation **excluding** building depreciation + debt service

The "utilisation of the debt service limit %" was often cited as a relative indicator. Example:

Utilisation of mid-term debt service limit % = debt service divided by mid-term debt service limit.

4.2.9 Advantages of cash flow for self-financing of investments

• Cash flows are also useful **in companies without loans or debts**.

• Consideration can be given to how high **the price of a company's most important product** must be in order for cash flow 3 to at least finance the renewal of the machinery from its own funds. For this calculation, the price of milk can be increased step by step until Cf 3 is within the desired range. This is, e.g., then the price of milk that covers the costs. The resulted target price can be referred to as **the cash flow 3 threshold**.

• It is possible to show when the **Cf 3** falls **to zero** if product prices (e.g. the price of wheet) fall.

At Cf 3 = zero, it is still possible to meet credit obligations and finance private living expenses. However, even a small investment (e.g. replacing a simple machine) means that a new loan must be taken out.

• Cf 3 can be used to easily demonstrate **sensitivity** (i.e. vulnerability to price changes) in business planning.

• Cf 3 can also be used to estimate the future **development of short-term liabilities**.

• Cf 3 is also of central importance for **liquidity planning within a year**, based on cash flow from operating activities.

• Cf 3 is **also** helpful **when planning the gradual closure of a business**. In this case, the profit and ordinary profit are **not** important, but cash flows are all **the more so**. Question: Are the cash flows sufficient to live on and make repayments in accordance with the contracts in the remaining years? In such a situation, it is simply nonsensical to talk about "debt service limits".

Conclusion:
For entrepreneurs, cash flows 1 to 3 (with depreciation as a benchmark) are unbeatably good!

4.3 Stability

The stability indicators show the extent to which the company is immune against collapse or "tip over". Stability means that the company is not immediately threatened by price slumps, product market downturns, explosions in purchase prices, epidemics and calamities, entrepreneur illness, and so on. The term stability also includes the risk provisioning.

4.3.1 Adjusted change in equity

This indicates whether there has been an **increase or decrease in substance**. That means, whether the entrepreneurial family (or the group) has become "richer" or "poorer." As with cash flows 2 and 3, the analysis of "adjusted change in equity" also extends to the non-operating (and private) sphere.

	Analyse Gesamtbetrieb			Wirtschaftsjahr			3 Bf-J.
				2017/18	2018/19	2019/20	2017 / 20
				Euro	Euro	Euro	Euro
	Stabilität						
15	Ordentliches Ergebnis			203.455	164.583	170.081	179.373
16	+ Bereinigte Einlagen	= Nichtbetr. Einnahmen		46.180	47.031	49.608	47.606
17	- Bereinigte Entnahmen	= Nichtbetr. Ausgaben, Privataufwand		-96.788	-156.818	-148.669	-134.092
18	- Nichtbetriebl. AfA (für Gewerbe etc., z.B. Photovoltaik, vermietete Objekte)			-20.000	-20.000	-20.000	
19	**Bereinigte Eigenkapitalveränderung IST** (+ - Substanz)			**132.847**	**34.796**	**51.020**	**72.888**
	Bereinigte Eigenkapitalveränderung SOLL = Maximum der drei folgenden Werte:						
20	Faustzahl (für Familienbetriebe): mindestens	15.000	Euro	15.000	15.000	15.000	
21	30 % des ordentlichen Ergebnisses			61.037	49.375	51.024	
22	5 % des Fremdkapitals			14.998	14.237	10.627	
23	Bereinigte Eigenkapitalveränderung SOLL			61.037	49.375	51.024	
24	Bereinigte EK-Veränderung IST / SOLL (%)			218 %	70 %	100 %	
	Beurteilung			**sehr git**	**schlecht**	**gut**	

Fig 431: Adjusted change in equity and its assessment. Source: H. Wittmann, JUP PS, sheet Kurz-A (excerpt)

For „adjusted change in equity" depreciation is deducted, but **repayment of loans are not deducted**. This is the difference to the Cf 3 calculation. Three "target values" for agricultural purposes have been introduced (in Germany) as assessment criteria for adjusted equity.

- At least 5% of borrowed capital
- At least 30% of ordinary profit
- At least €15,000 (lowest limit, which small businesses should also comply with).

The target value of 5% of borrowed capital is based on the idea that debts should be repaid within 20 years at the latest. The target value of 30% of ordinary profit is a guideline.

Some readers may find it somewhat unusual that Fig. 431 includes a special line (number 18) for **non-operating depreciation**. In principle, non-operating depreciation must also be deducted from the adjusted change in equity.

4.3.2 Equity ratio %

This is the share of equity in the company's assets, a very important term. For this key figure, the asset valuations in the balance sheets must be checked manually, even if only roughly.

4.3.3 Debt coverage %

The sum of "**easily liquidated assets**" is entered in the numerator of the following formula. This includes current assets (also cash assets) and fixed assets excluding buildings and land, e.g., the book value of machinery. Debt capital is entered in the denominator.

Debt coverage % = Easily liquidated assets / Debt capital

The assessment is based on the question of whether the sale of the relatively easily liquidated assets is sufficient to repay the debts (e.g., in the event of the death of the entrepreneur in a family business). In case the easily liquidated assets are less than the debt capital, the dept coverage is below 100%.

4.3.4 Degree of obsolescence %

For this, the **book values** of the inventory are calculated **as a percentage of the acquisition costs**. The higher the percentage, the younger the assets. The degree of obsolescence from the last financial year is sufficient for this purpose.

	Analyse Gesamtbetrieb		Wirtschaftsjahr 2017/18	2018/19	2019/20
			Euro	Euro	Euro
29	**Veralterungsgrad**	**Gebäude**, baul. Anlagen, Anlagen im Bau, BGA			41 %
30	(= Buchwerte in % der	Betriebsvorrichtungen, Geschäftsausstattung			14 %
31	Anschaffungskosten)	**Maschinen**			25 %

Fig. 434 : Obsolescence of buildings, installations and machinery. Source: H. Wittmann. JUP PS, sheet Kurz-A (excerpt).

A high degree of obsolescence (i.e., book value close to original value) can nevertheless be problematic if it was achieved through immense debt.

A low degree of obsolescence may indicate a master of low fixed costs, but perhaps also an investment backlog. If **own funds have been parked privately** and are to be reinvested in the company (e.g., as soon as the career choice of a possible successor has been clarified), the stability is to be assessed positively, even with low degrees of obsolescence.

The "first step of the assessment" is now complete. In practice, it is important to move on rapidly to the "**second step analysis**," i.e., the **individual branches** of the business or production processes (chapter 5). This is of primary interest to the entrepreneur, as it may reveal "**adjustment screws**" that need to be addressed.

It should be added that the criteria mentioned—profitability, liquidity, and stability—are also useful for assessing the planning results of alternative developments or for year-on-year planning.

Quotes on cash flow for self-financing of Investments (Cf 3)

“Now you're finally getting to the profit, as we see it” (technical student B., 2005). This comment was made after the technical teacher—coming from profitability and stability—finally arrived at cash flow 3.

“I always start my final consutations with cash flows 1 to 3. Because if I start with profit, the clients have already tuned out by the time I get to cash flow 3” (management consultant T.).

"Our customers understand cash flows 1 to 3. However, our internal balance sheet evaluation program is structured according to cash flow from activities, etc. My observation is that entrepreneurs find this system difficult to understand“ (banking expert H.).

Quotes on cash flow in general

”The three most important financial indicators are the contribution margin (MW=1.74), the company profit (MW=1.98), and the cash flow (MW=2.04)." (Survey of farmers conducted by Prof. Theuvsen, University of Göttingen, and Prof. Sundermeier, University of Kiel, on the use of key figures, 2015. (MW = mean value of the rating).

“Cash flow is probably the most widely used business indicator” (Jörg Carstens – Camac Solutions, software provider, 2021).

Quotes on stability and risk management

“As a farmer, you have to keep two years' consumer spending in easily liquidated savings so that you can weather price slumps” (family entrepreneur E. W.).

“Don't tremble now in winter, you lived well in summer” and “Save during times of need, because that's when you have time for it” (ironic sayings of the maid A. W.).

“My brother emigrated to Canada with his wife, where they had bought a farm. In Canada, there is no compulsory building fire insurance. They did not take out voluntary insurance. But then the farm burned down. Rebuilding was out of question” (a collegue of the author).

Quote on the equity

There are a few companies with a 100% equity ratio, e.g. the German family-run textile company “Trigema” with around 1,000 employees. The boss between 1969 and 2025, Wolfgang Grupp, took over debts equivalent to €8.7 million from his father in 1969, which were repaid until 1975. This company has only equity (quoted from Wikipedia).

Mathematician joke about position determination

A group of balloonists don't know where they are. They lower the balloon and ask a thoughtful hiker on the country road, “Do you know where we are?” The man they ask, a mathematician, replies, “You are in the gondola of a balloon!”

4.4 Income statement and cash flow statement in accordance with IFRS 18

Professionals interested in business administration related to companies do not need to read or even learn this section 4.4 (see points 4.1 and 4.2). This text is therefore highlighted in yellow.

On 13 February 2026, EU Commission President Ursula von der Leyen signed the EU regulation on the IFRS 18 standard. On 16 February 2026, this regulation was published in the Official Journal of the EU. This means that IFRS 18 is now legally binding in EU member states. This is a victory for the IASB in its efforts to promote the use of income statements and cash flow statements in accordance with IFRS 18.

The IASB, which consists mainly of accountants rather than entrepreneurs, emphasises that the new IFRS 18 standard is beneficial for investors, i.e. buyers of companies or shareholdings. At the end of February 2026, a Member of the European Parliament wrote to the author on this subject: "At the same time, it is very important for European companies that we apply internationally comparable standards in the area of accounting and do not go down a special path that would weaken their competitiveness in the global environment. ' The MEP certainly copied this from someone else. According to this, IFRS 18 is also advantageous for companies. The previous pages showed that, among other things, the contrary 'cash flow for self-financing of investments" is essential in order to avoid illiquidity or bankruptcy, for example!

Further information on the course of events so far!

1. My article 'Stop the 'three activities in IFRS 18.PDF' was submitted to the European Commission at the beginning of January 2025. A delay in submitting my objections (there was a three-month deadline) can be ruled out. However, the EU Commission did not respond accordingly.

2. According to its own EU laws, the EU Commission may only approve a new standard if the advantages outweigh the disadvantages. Even if teachers and consultants only spend 10 or 30 minutes working with the income statement and cash flow statement in accordance with IFRS 18 in future, this will mean many millions of euros in usage costs worldwide. The EU Commission apparently followed unfounded assessments by the IASB and EFRAG.

3. By approving IFRS 18, the EU Commission has created **new bureaucracy**. In autumn 2025, it had announced a 100-day programme to reduce bureaucracy.

4. Critical publications, such as those by Savita A. Sahay, Rutgers University, New Jersey, USA: **Usefulness of Cash Flow Statements** (see https:/doi.org/10.1007/978-3-030-91231-4_72) have apparently had as little effect as my letters to the European Commission, EFRAG, etc.

The good news:

The analysis and planning programmes (such as JUP PS) can stick to their well-founded terms. Around 2000, the following subtotals were declared 'standard' for the income statement:
Result from ordinary activities + financial result + extraordinary result = profit.
JUP users were not affected by these subtotals. **The subtotals specified as standard were just ignored**.

In future, however, it will be necessary to specify:

- Cash flow from operating activities (interest expenses deducted, as before).
- Cash flow from operating activities (interest expenses not deducted in accordance with IFRS 18).

And: in cash flow from financing activities according to IFRS 18, **new loans are treated as equivalent to generated equity** – which, for example, had a blinding effect on the BayWa supervisory board members.

'Standard' means norm (or even law) in English. In German, 'standard' is more likely to be thought of as state of the art (or state of the art in culinary arts). If one day snow chains become mandatory throughout the EU all year round, you won't comply, will you?

Some colleagues believe that the 'cash flows from the three activities' according to IFRS 18 can be combined with the familiar business cash flows, e.g. free cash flow. But this is as impossible to combine as fire and water. Mixing them is not possible!

a) Details to income statement

This is the central task of business economists worldwide: to support entrepreneurs (including future entrepreneurs) in such a way that their companies prosper. The primary concern is liquidity. And in the worst case, it is about avoiding illiquidity and bankruptcy.
The following overview illustrates the drastic changes in the income statement required by IFRS 18.[1]

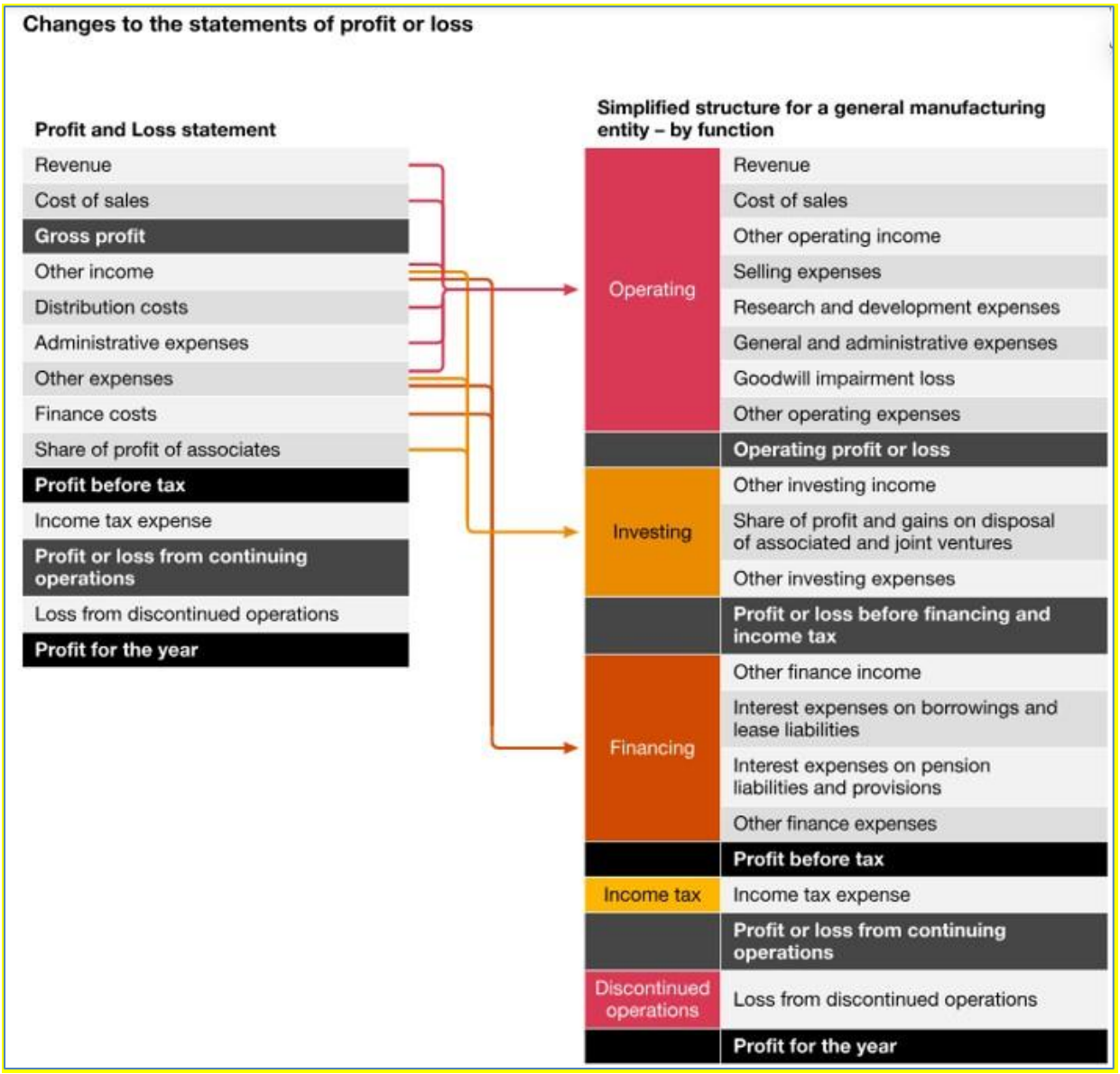

Fig. 440: Comparison of previous income statement and income statement in accordance with IFRS 18.
Source : Glutting Verena. PwC Company (2024) IFRS 18: New regulations, consequences, implementation.

[1] Glutting Verena. PwC Company (2024) IFRS 18: New regulations, consequences, implementation. PwC is the brand under which the member firms of PricewaterhouseCoopers International Limited (PwCIL) operate and provide professional services.

Some commentators refer to operating activities as 'core business'. According to IFRS 18, interest payments are no longer part of core business. However, interest expenses are already excluded from EBIT (and EBITDA), see section 3.1.3. Highly indebted companies like to highlight EBIT alone. This is because EBIT often still shows a positive sign, while profit is significantly negative. The preference then is: better to talk only about EBIT. This '**coloured information**' for unsuspecting readers of business news (including supervisory boards) is made completely legal by IFRS 18.

Activities are viewed very differently here than **work** in other sciences. Economics teaches that the factors of production are **labour** and **capital**, plus **land** in agriculture. In business management, it is necessary to determine how high **labour income** and **return on capital** are, including **ground rent** in agriculture.

From the perspective of economics, honest entrepreneurship and business analysts, **interest expenses for borrowed capital are very much part of the 'core business'** of companies. Almost all companies operate with borrowed capital, and the trend is increasing! In addition, most entrepreneurs learned earlier in technical college, master craftsman training or university:

Ordinary result + depreciation = operating cash flow

This easy-to-remember 'practical formula' does not exist according to IFRS 18! Incidentally, no entrepreneurs or business-related consultants are involved in the IASB and similar standard-setting bodies, at least not in decision-making positions. They simply do not have the time!

Research conducted by the author in 2025 on the question of which terms **professional business evaluators** use as a guide shows that they largely base their judgements on future calculations, specifically on the basis of discounted cash flow (DCF).[1] '... the DCF method uses the **future cash flow** of the company ... as a basis.' Other professional company valuers mention a whole series of terms in addition to DCF. **Almost all of these are familiar from annual company analysis**[2] (sequence according to original quote): debt, liquidity ratio, intrinsic value according to the DCF method, free cash flow, EBIT margin, sales growth, historical growth in book value, net margin, free cash flow margin, equity ratio, return on equity, current ratio, return on capital employed, price-earnings ratio (P/E) & ratio of enterprise value to EBIT (EV/EBIT). Other professional company valuers, on the other hand, rely entirely on the **equity share** (equity method)[3]. There is no evidence to suggest that anyone in this profession is waiting for an income statement in accordance with IFRS 18 or is valuing companies on the basis of the cash flow statement.

b) Regarding the cash flow statement:

The cash flow calculation by the International Accountants Standardisation Board (IASB) is not a staggered calculation, like the derivation of cash flows 1 to 3. It is a multi-layered calculation (a 'Big Mac', so to speak).

Cash flow from operational activities (interests not deducted)
+ Cash flow from investiv activities
+ Cash flow from financial activities (from new loans, repayements, including interests of loans
= Total cash flows (change in financial funds)

The allocation of interest expenses in accordance with IFRS 18 is taken into account in the above layered presentation. Inflows of new debt capital are even included in the cash flows from financing activities (and thus in the total cash flows):

Total new equity + total new debt = total new expenditure

This means that if the amount of debt capital raised is large enough, liquidity will always be good! Great, isn't it? Examples:

- If there are high withdrawals and these are financed with new loans, everything is fine.
- If high distributions are made and these are financed with new loans, everything is also fine.
- If repayments (or even interest expenses) are paid with new loans, everything is also fine.

It cannot be emphasised enough: the 'sum of cash flows' in the cash flow statement shows that all expenses were **paid for with equity and debt**! That's **banal, trivial, a platitude**, right?
The origin of this multi-layer calculation is the long-established cash flow statement.
The following applies to it:

Total capital inflows = total capital outflows.

Before the introduction of digital accounting systems (from the 1960s onwards), 'account reconciliation' (total on the left = total on the right) was indeed a laborious task in accounting departments.

Unfortunately, someone replaced the term 'capital flow' with 'cash flow', even in German. A terrible case of 'false friends'!

In contrast, the company-related cash flow for self-financing of investments (cash flow 3) described above (under point 4.2.3 ff) is a good '**early indicator**' for entrepreneurs and supervisory boards. This is especially true if cash flow 3 is used as a measure for **replacement investments (= depreciation)**.

The aim of company-related analysis must be to transition as quickly as possible to **partial and full cost accounting** (second stage of assessment). This can then be followed by corporate planning without the risk of building castles in the air.

Conclusion: Take the pressure off the accountants responsible for the cash flow statement! They are simply overwhelmed when it comes to cash flows. It is not their job. Don't get me wrong: accountants do an important job. They should be proud of it. But their mindset is different. It is rare for an accountant to make the transition to entrepreneur or business consultant. Conversely, it is a step down.

c) To income statement and cash flow statement together

For users of analysis and planning programmes (such as JUP PS) and cash flow management programmes (such as those from Agicap), IFRS 18 will basically **change nothing**. The terms prioritised by business consultants will remain untouched. However, IFRS 18 will require the coding of accounting programmes to be revised. This will require a considerable amount of time for the developers of analysis and planning programmes to adapt the codes.

It should be borne in mind that discussions on IFRS 18 **began around 2016**, more than 9 years ago. At that time, it was not yet apparent that the nature of artificial intelligence in business administration still needed to be taught. At that time, it was not yet so clear that economic education was so deficient. And at that time, it was not yet so urgent that we needed to produce and technise more effectively in order to compete on the world market.

In a few years, it will become apparent that the income statement and cash flow statement according to IFRS 18 are a mess that needs to be **revised**. In with the potatoes, out again in 10 years? Who likes this kind of zigzag course? The result will be a terrible mess. However, political mistakes are not usually corrected for 20 years.

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[1] Chamber of Industry and Commerce for Lower Bavaria in Passau
ihk.de ihk-niederbayern.de/Beratung-Service/Unternehmensnachfolge, Merkblatt Unternehmensführung

https://www.ihk-niederbayern.de/pdfs/merkblatt-unternehmensbewertung-data.pdf
[2] FOUNDERS LEAGUE GmbH, c/o SNOCKS GmbH, Glücksteinallee 43, 68163 Mannheim, represented by: Niusha Shahmoradi (info@foundersleague.de), https://www.foundersleague.de/blogs-mentoring/kennzahlen-fuer-investoren
[3] EUROCONSIL, Sebastian Göring, Stammheimer Straße 10, 70806 Kornwestheim, email: sebastian.goering@euroconsil.de
https://www.euroconsil.de/unternehmensbewertung-methoden-und-praxis-von-equity-investments/

5. Costs-benefits-calculation – second step of assessement

The term used for is also “Cost-benefits accounting” or simply “cost accounting.” The sequence “Benefits-costs calculation” is also widely used because the benefits are always listed first, from which the costs are then deducted.

Costs-benefits-calculation **includes internal turnover within the company**. A tractor producer can purchase the engines from suppliers or he can produce them in-house. In both cases, the producer incurs costs for the engines. However, none of these internal turnover appear in the tractor manufacturer's income statement.

In agriculture, barley can be produced that is not sold on the market but used as feed for livestock. Here, too, there is no monetary recording in the income statement. However, the harvest quantity (e.g., for barley) and the quantity fed (e.g., to dairy cows) can be noted in the bookkeeping office's added report on natural resources.

It is practical, to already use the **terms of planning**, i.e., variable costs and contribution margin. This ensures a “**barrier-free**” link between operational analysis and operational planning.

5.1 Controlling in business management

In this context, the word “controlling” is used. In English, “to control” does not mean to check, for which there is “to check.” To control means to steer, that is **controlling = steering**. This means “**to have something under control**.” Real controlling always takes place with a **target**, as in the control loop of a room heating system. The target hast to be readjusted in the next cycle.

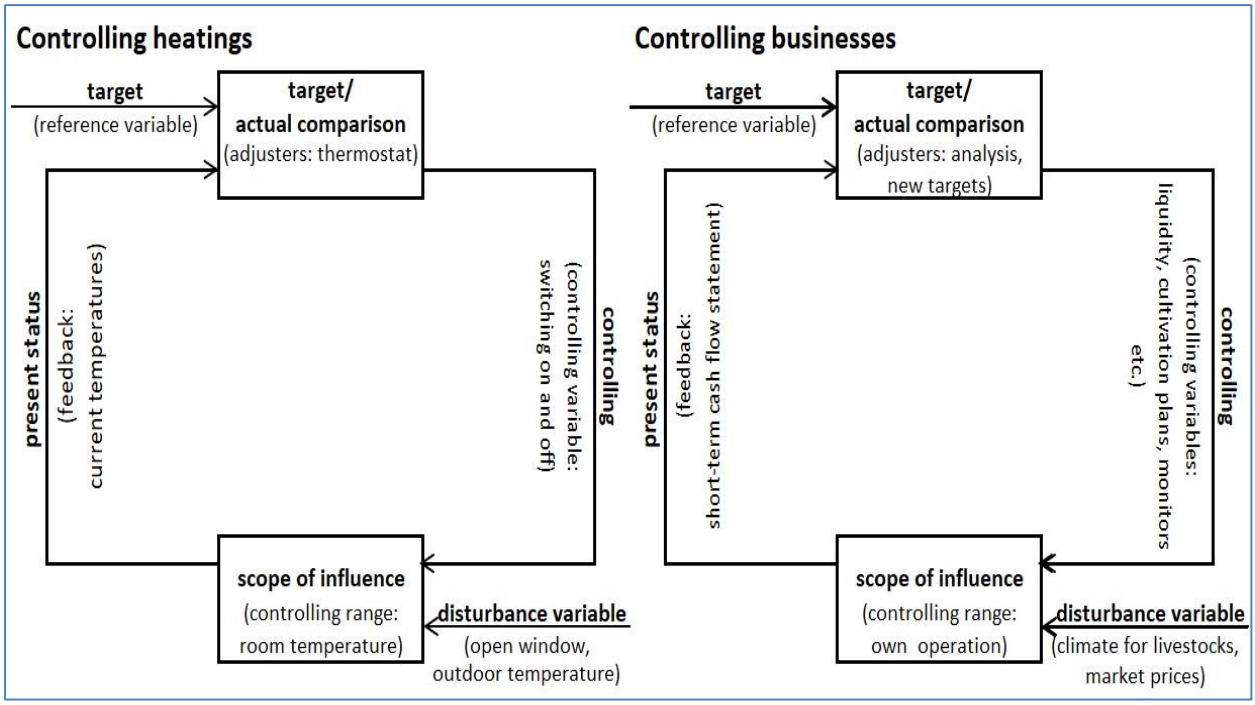


Fig. 510: Controlling for heating and for business. Source H. Wittmann. See also http://finance.wiwi.tu-dresden.de/Wiki-fi/index.php/Controlling, part „Grundkonzept des Controlling als kybernetisches System“, and http://www.docju.de/themen/controlling/handouts/regelkreise.pdf

Chronological classification of key terms :

- **Analysis** This can cover many years in the past.
- **Planning** This is aimed at the future and often covers several years to come.
- **Controlling** This concerns the **present**, the **very recent past** and the **very near future**.

In **business controlling**, time periods are a real problem: the analysis of costs is only possible months after the end of the fiscal year. Within financial controlling the most you can do is to be timely, e.g., based on the **quarterly cash reports from the accounting department**

In **production controlling** you will always have faster tools than in **controlling in business management**. For example, in the US-states they introduced IOFC = income over feed cost. This calculation can be used on a daily basis, provided that the full costs of basic feed (e.g. costs of grassland and feed corn) are reasonably clear.

There are two forms of costs-benefits-calculation:

- **Partial cost calculation = contribution margin calculation**
- **Full cost calculation**

In full cost analysis, you are forced to immediately allocate all fixed and overhead costs to the branches of operation (or to production processes). However, it is often sufficient to analyze only the contribution margins. That is why partial costs is dealt with first. But, when setting prices for market product offers, full cost analysis can not be circumvented, see section 5.3.

Further on, **no** distinction is made between production processes and branches of business.

5.2 Partial costs

5.2.1 Benefits, variable costs and contribution margins

Benefits and variable costs comprise allways the internal turnover.

- **Benefits** = Revenues of the production process according to P&L **+ Internal turnover generated**
- **Variable costs** = Expenses for the production process according to P&L **+ Internal turnover consumed**

This means that the internal turnover for both items must be added.

Contribution margin = benefits – variable costs

The term “contribution margin” is still relevant in all economic sectors. It is necessary to check the **account entries** (= journal of individual business transactions) sorted by subject matter (in German « Kontenschreibung » or « Journal der Sachkonten »), as to go back to the **original invoices**, e.g. if an invoice from a contractor contains several services in different branches of the business.

In some cases, several branches of the business must be assessed together. In crop production, for example, a multi-year crop rotation is necessary for soil hygiene. The one production process often supports another which is out of being profitable itself.

A particular challenge can be the subsequent determination of “**period-specific benefits**,” for example, if the costs of a production process were mainly incurred in the old financial year (FY), but the associated benefits are not expected until the following FY. This is the case, for example, with crops in agriculture, where the FY is usually divided between June 30 and July 1.

5.2.2 Total contribution margin

It is calculated by adding the single contribution margins together. Note:
"**The total contribution margin is used to cover fixed costs and generate a profit**." The total contribution margin (in German : Gesamtdeckungsbeitrag) should enable a sufficient ordinary profit.

Thus, the total contribution margin is the center of the partial cost calculation. This shows the following diagram with agricultural content.

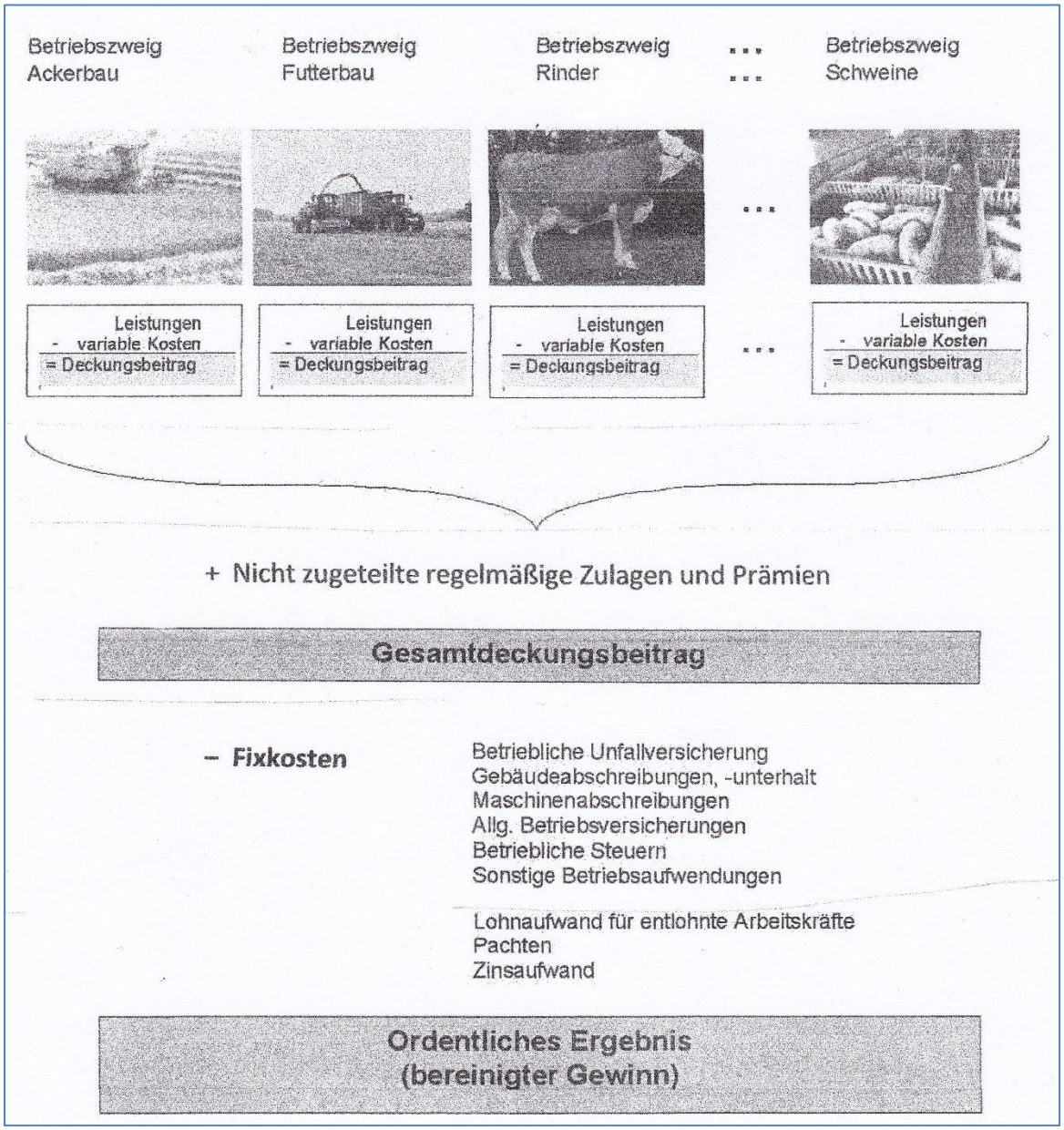


Fig. 522: Partial costs calculation - from the benefits over the total contribution margin to the ordinary profit.
Source: LEL Schwäbisch Gmünd, Arbeitsbuch für den Buchführungsunterricht an Fachschulen 2001.

Back in the 1970s, Friedrich Hehr programmed a computerized accounting system at the Ministry of Agriculture in Stuttgart (Germany) that transformed business transactions into a contribution margin scheme, thereby enabling a "**search of weak points**." When the accounting data was entered, an secondary coding was made, which allocated the cash and internal turnover to the individual production processes. However, this expanded accounting analysis was limited to the partial cost scheme.
A second coding of this type is used today when farmers want to track special costs, e.g., of milking robots. But this procedure are not used anymore in accounting offices.

5.2.3 Fixed costs and overhead costs

It is difficult to allocate these costs to production processes. Therefore, their allocation is omitted in contribution margin accounting. Fixed costs include occupational accident insurance, building depreciation and maintenance, machine depreciation, general business insurance, business taxes, and other operating expenses such as accounting, work clothes, and IT costs. Overhead costs include wages for salaried employees, lease expenses, and interest expenses. Overhead costs are often added into fixed costs.

5.2.4 Ancillary benefits

These are, of course, attributable to the individual production processes, such as the sale of old cows in milk production. The allocation of regular allowances and bonuses is not mandatory in contribution margin calculation, provided that it does not change the economic ranking of the production processes among themselves. The allowances must, of course, be allocated as cost-reducing values in **full cost** calculation.

5.2.5 Share of fixed costs on the total contribution margin %

The **share of fixed costs of the operation** (excluding costs for wages, leases, and interest) **on the total contribution margin** is an easily calculated key value. It was already addressed in the profitability assessment at the beginning of the first step analysis of the annual financial statement (see section 4.1.1).

5.3 Full costs

It is generally advantageous to carry out full cost calculation in two levels : First partial, then - digging deeper - full costs.

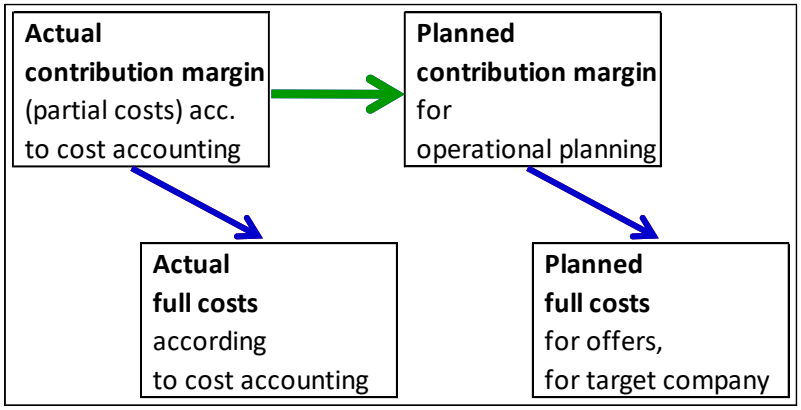


Fig. 530 : Same terms in analysis as in planning partial and full costs. Source H. Wittmann.

Partial cost calculation up to the total contribution margin is far less time-consuming and costly than full cost calculation. That's because depreciation and other fixed costs do not have to be allocated to the individual production processes.

If there are no major changes in fixed costs after that, full costs calculation can pause for about five years. For a smaller brewery that only makes replacement investments over some years, it is sufficient to monitor how turbulent raw material and energy costs affect contribution margins in the meantime. However, even smaller companies that start using full cost calculation should repeat this for two consecutive years.

At any rate: **First, create a very good partial cost calculation!** It is nonsense to base a full cost calculation on a sloppy partial cost calculation.

5.3.1 Full cost breakdown according German Agricultural Society (DLG)

There are several ways of getting the work done. One extreme case is that the work is carried out only by external companies, e.g., subcontractors or contractors. The other extreme is, the work is carried out using the company's own machinery. This can be done either by unpaid family members or by employees. How can these different work completion methods be compared in terms of cost?

To this end, the German Agricultural Society published a full cost breakdown in 2000 in which the **work completion costs are summarized together in one block**. This block includes variable and fixed machine costs, contractors, and labor costs.

Direct costs
+ Work completion costs (labor costs and machinery costs together)
+ Building costs
+ Legal costs
+ Land costs
+ Other costs
= **Full costs**

The block for labor **and** machinery costs makes it easy to compare **in-house mechanisation versus labor performed by external servise companies**.

Total benefits
- Total full costs
= Result of the branch (or production process)

The DLG refers to this key figure as the "**calculated branch result**" (in German Kalkuliertes Betriebszweigergebnis, BZE). The sum of all BZE is also known as "**entrepreneurial profit**."

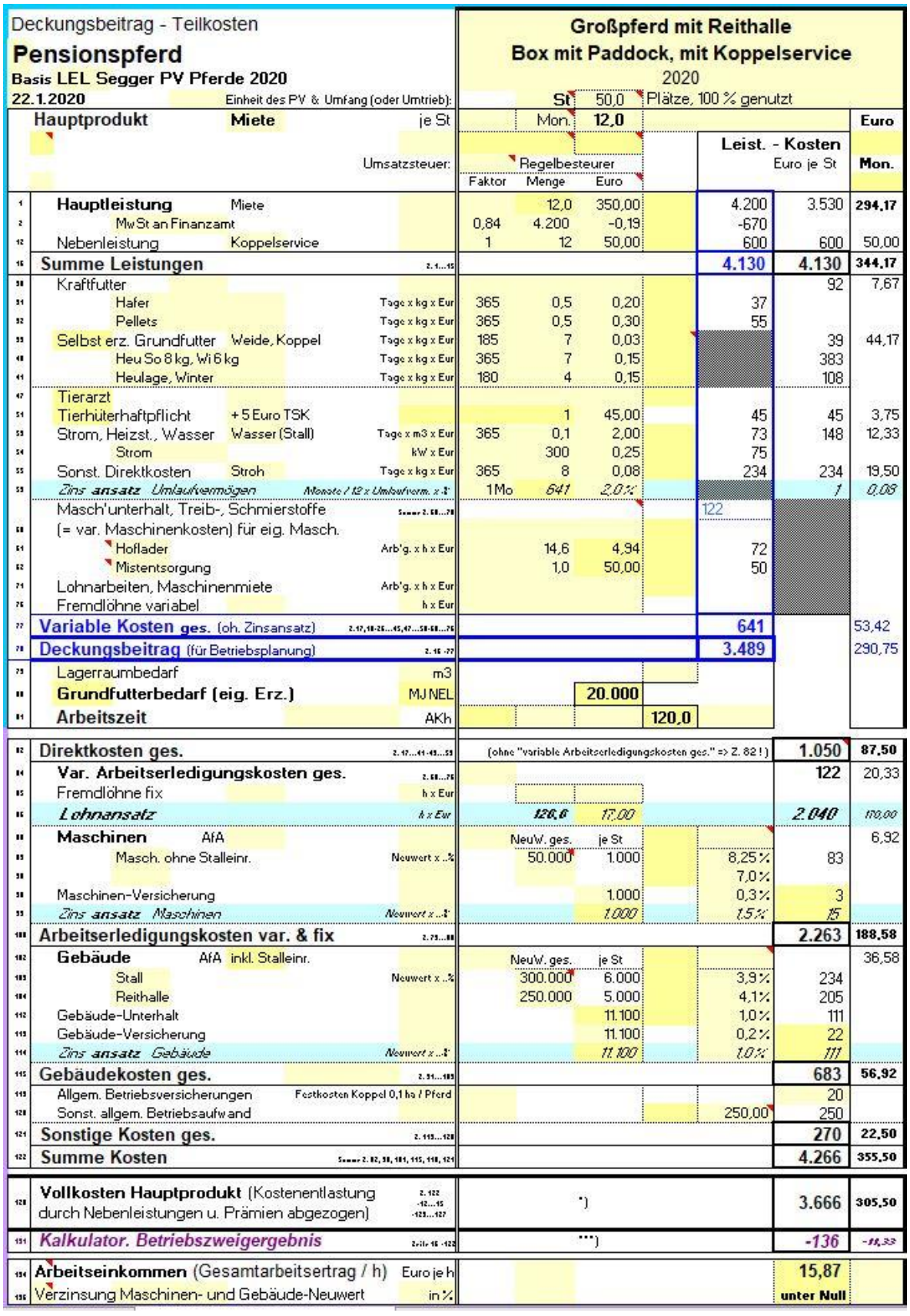
5.3.2 Contribution margin calculation embedded in full costs scheme

In the following fig. 532, the full cost column (second right column) shows "direct costs" as its first sum, in accordance with the DLG classification scheme (€1,050). This column of figures then runs through to the **total full costs** (€3,666) and the **imputed branch result** (€- 166).

In the column left of this the variable costs are added (€641). This embedded column ends with the **contribution margin of the branch** (€3,489). In addition, a few quantitative requirement values have to be entered within the space of contribution margin, such as the working time requirement in hours (120) and Basic feed requirement in megajoules (20,000).

This embedding scheme highlights how differently the **variable labor costs** are treated. In the contribution margin calculation, they are part of the **total variable costs**, but according to the DLG full cost scheme, they belong to the **work completion costs**.

Only when the calculated operating result is above zero you can you speak of **full cost coverage**.



Deckungsbeitrag - Teilkosten

Pensionspferd

Basis LEL Segger PV Pferde 2020

22.1.2020 — Einheit des PV & Umfang (oder Umtrieb): St 50,0 Plätze, 100 % genutzt

Großpferd mit Reithalle
Box mit Paddock, mit Koppelservice
2020

										Euro
	Hauptprodukt	**Miete**	je St		Mon.	**12,0**				**Euro**
			Umsatzsteuer:		Regelbesteurer			Leist. - Kosten	Euro je St	**Mon.**
				Faktor	Menge	Euro				
1	**Hauptleistung**	Miete			12,0	350,00		4.200	3.530	**294,17**
2	MwSt an Finanzamt			0,84	4.200	-0,19		-670		
12	Nebenleistung	Koppelservice		1	12	50,00		600	600	50,00
15	**Summe Leistungen**							4.130	4.130	**344,17**
30	Kraftfutter								92	7,67
31	Hafer		Tage x kg x Eur	365	0,5	0,20		37		
32	Pellets		Tage x kg x Eur	365	0,5	0,30		55		
33	Selbst erz. Grundfutter	Weide, Koppel	Tage x kg x Eur	185	7	0,03			39	44,17
40		Heu So 8 kg, Wi 6 kg	Tage x kg x Eur	365	7	0,15			383	
41		Heulage, Winter	Tage x kg x Eur	180	4	0,15			108	
47	Tierarzt									
51	Tierhüterhaftpflicht	+ 5 Euro TSK			1	45,00		45	45	3,75
53	Strom, Heizst., Wasser	Wasser (Stall)	Tage x m3 x Eur	365	0,1	2,00		73	148	12,33
54	Strom		kW x Eur		300	0,25		75		
55	Sonst. Direktkosten	Stroh	Tage x kg x Eur	365	8	0,08		234	234	19,50
59	*Zins ansatz Umlaufvermögen*		*Monate / 12 x Umlaufverm. x %*	1 Mo	*641*	*2,0 %*			*1*	*0,08*
	Masch'unterhalt, Treib-, Schmierstoffe		Summe Z. 60...70					122		
60	(= var. Maschinenkosten) für eig. Masch.									
61	Hoflader		Arb'g. x h x Eur		14,6	4,94		72		
62	Mistentsorgung				1,0	50,00		50		
71	Lohnarbeiten, Maschinenmiete		Arb'g. x h x Eur							
75	Fremdlöhne variabel		h x Eur							
77	**Variable Kosten ges.** (oh. Zinsansatz)		Summe Z. 47,60-70,45,47...58-60...75					641		53,42
78	**Deckungsbeitrag** (für Betriebsplanung)		Z. 15 -77					3.489		290,75
79	Lagerraumbedarf		m3							
80	**Grundfutterbedarf (eig. Erz.)**		MJ NEL			20.000				
81	**Arbeitszeit**		AKh				120,0			
82	**Direktkosten ges.**		Summe Z. 47...61-65...53	(ohne "variable Arbeitserledigungskosten ges." => Z. 82 !)					1.050	**87,50**
84	**Var. Arbeitserledigungskosten ges.**		Summe Z. 60...75						122	20,33
85	Fremdlöhne fix		h x Eur							
86	*Lohnansatz*		*h x Eur*		*126,6*	*17,00*			*2.040*	*170,00*
88	**Maschinen**	AfA			NeuW. ges.	je St				6,92
89	Masch. ohne Stalleinr.		Neuwert x ...%		50.000	1.000		8,25 %	83	
98								7,0 %		
98	Maschinen-Versicherung					1.000		0,3 %	3	
99	*Zins ansatz Maschinen*		*Neuwert x ...%*			*1.000*		*1,5 %*	*15*	
100	**Arbeitserledigungskosten var. & fix**		Summe Z. 75...88						2.263	**188,58**
102	**Gebäude**	AfA inkl. Stalleinr.			NeuW. ges.	je St				36,58
103	Stall		Neuwert x ...%		300.000	6.000		3,9 %	234	
104	Reithalle				250.000	5.000		4,1 %	205	
112	Gebäude-Unterhalt					11.100		1,0 %	111	
113	Gebäude-Versicherung					11.100		0,2 %	22	
114	*Zins ansatz Gebäude*		*Neuwert x ...%*			*11.100*		*1,0 %*	*111*	
115	**Gebäudekosten ges.**		Summe Z. 91...103						683	**56,92**
119	Allgem. Betriebsversicherungen		Festkosten Koppel 0,1 ha / Pferd						20	
120	Sonst. allgem. Betriebsaufwand							250,00	250	
121	**Sonstige Kosten ges.**		Summe Z. 115...120						270	**22,50**
122	**Summe Kosten**		Summe Z. 82, 88, 101, 115, 118, 121						4.266	**355,50**
128	**Vollkosten Hauptprodukt** (Kostenentlastung durch Nebenleistungen u. Prämien abgezogen)		Z. 122 -12...15 -120...127		*)				3.666	**305,50**
131	*Kalkulator. Betriebszweigergebnis*		Zeile 15 -122		***)				*-136*	*-11,33*
134	**Arbeitseinkommen** (Gesamtarbeitsertrag / h)		Euro je h						15,87	
135	Verzinsung Maschinen- und Gebäude-Neuwert		in %						unter Null	

Fig. 532: Contribution margin calculation and full costs in the same scheme. Source: H. Wittmann, i VD Landwirtschaft.xlsb.

Note: In agriculture, the basic feed (hay, grass, silage) for **roughage eaters** is not immediately charged in monetary terms in the contribution margin calculation scheme. Instead, they are determined separately in megajoules (MJ) per hectare of feed area. This is unsurpassed in terms of computational elegance in business planning. Of course, the costs of this megajoules must be included in the full cost calculation.

5.4 Unit costs

Full costs are related to a branch of business or a meaningful part thereof : e.g., 1 hectare of potato cultivation in agriculture, or the annual production of rye bread at a bakery. Now, unit costs are calculated per unit produced, e.g., (for a farmer) per 1 ton of potatoes or (for a baker) per 1 kg of rye bread.

In Fig. 532, the full costs per boarding horse is €305.50 in one month, assuming 100% utilization of barn and riding hall. The unit costs per boarding horse and month is €305.50.

5.5 Costs calculation with company allocation sheet

Coming from the "first step of annual financial statement analysis," the accounting data must be transformed into the contribution margin scheme. With operating allocation sheet, the **allocation** (e.g., of fertilizers) and the **assignment** (to the production processes) can be made logically understandable. The **internal turnover** (e.g., of feed) can be worked out within the operating allocation sheet.

5.5.1 From P&L scheme to contribution margin scheme

The example in fig. 551-1 shows the allocation of €103,109 in expenses according to the accounting records for contract work and machine rental. For demonstration purposes, €15,013 has not yet been allocated to the "grassland silage" production process.

Zuordn. PV-	**Haupt-Zuteilung** **Leistungen - variable Kosten**	**Ertr. / Aufw.** lt. Bf G-N-P (ggf. berein. Werte) Euro	**Innen-Umsatz** lt. BAB, a...d (aus Anlag. zur Bf, Sauenplaner etc.) **Versetz.Tiere**; **Futter**; Saatgut	**Stroh** + Verrechn. mit intern. **NeB**	Leist. / var.Kost. **zu Produkt.-verfahren zugeteilt**	Verbleibend. **Rest (Euro)** (evtl. noch zuzuteilen)
	Lohnarbeit und Maschinenmiete	103.109				
1	**Milchkühe**					
2	Zuchtfärsen	232			232	
23	**MSchweine**	7.023	Mahlen und Mischen		7.023	
51	**Silomais**	19.964			19.964	
57	So.Ackerfutter	945			945	
58	SM "frei Ernte"	5.500			5.500	
60	Grundf.-Zukauf	9.224			9.224	
42	Grünl. Weide	1.549			1.549	
43	**Grünl. Silage**					
46	Grünl. Heu	2.059			2.059	
64	Roggen	4.385			4.385	
65	WGerste	1.562			1.562	
71	CCM Verk und IU	15.050			15.050	
85	En-Mais	20.603			20.603	
	(noch) nicht zugeteilt					15.013

Fig. 551-1: Allocation of accounting costs. Source: H. Wittmann, JUP K, operating allocation sheet HaupZut (excerpt).

It makes sense for the consultant to spend a day with the client for this type of cost accounting. It is beneficial if you can present the entrepreneur with interim results in the form of contribution margins at lunchtime. This will keep their attention high when allocating fixed costs in the afternoon.

Such an operating allocation sheet can therefore be used to create the **contribution margin calculation retrospectively**. This can be summarized in an **ex post operating plan**, which leads back to the ordinary profit. This ex post operating plan also serves as a control loop.

Betriebsplan im Nachhinein (ex post) => für Buchführungs-Ist **2019/20**

				Um-fang	Grundfutter MJ NEL		Arbeit AKh		Betrag / Db Euro	
		206,6 ha LF	Blatt Nr.	ha, St	je Einheit	gesamt	je E.	ges.	je Einh.	gesamt
1	Rauhfutt'fr	Milchkühe +Ka bis marktreif	1	186,5	-30.000	-5.595.000	35,0	6.528	1.727	322.045
		Zuchtfärsen	2	35,0	-24.000	-840.000	16,0	560	1.119	39.163
		Verkaufsfärsen	3	22,0	-16.000	-352.000	10,0	220	224	4.934
	Grundfutter	Grünl. Weide	42	8,0	41.000	328.000	14,0	112	-319	-2.555
		Grünl. Silage	43	19,8	46.000	910.800	10,0	198	-778	-15.403
		Grünl. Heu	46	10,0	29.000	290.000	11,0	110	-880	-8.803
		Silomais	51	42,3	84.000	3.553.200	8,0	338	-1.159	-49.035
		So.Ackerfutter	57	3,0	54.000	162.000	11,0	33	-951	-2.853
		Grundf.-Zuk.	59	20,0	46.000	920.000	10,0	200	-1.043	-20.863
		Grundf.-Zuk.	60	8,0	84.000	672.000	3,0	24	-1.713	-13.700
		MSchweine	23	2.472			0,5	1.236	51,15	126.450
		WWeizen	61	10,4			6,0	62	247	2.569
		Roggen	64	25,2			6,0	151	202	5.089
		CCM Verk, IU	71	37,4			6,0	224	24	910
		WRaps	74	10,7			6,0	64	49	522
		EnMais	85	39,8			8,0	318	56	2.238
		Greening	89	35,0			4,0	140	-128	-4.471
		Forst	131	5,0			5,0	25	305	1.524
		Lohnarb.,MaM	135	1,0			30,0	30	1.066	1.066
2	**Var. Kost./ Leist. nicht zugeteilt**, z.B. Änd. Roh-,Hilfs-,Betriebsstoffe									-76
3	Hofarbeiten, Wirtschaftsfuhren						10 %	1.057		
4	**Summe aus Betriebszweigen**				49.000			11.630		**388.751**
5		ha 206,60			[Grundfutterbilanz]		AKh/AK	2.177		[Db-Summe Betriebszweige]
6	Summe Folge-Ernte höher als Ernte im WJ => mit Abzug zum Ord. Ergebnis des WJ !						**AK =**	**5,3**	Abzug	**-1.395**
9	Betriebsprämie inkl. Greening									61.643
13	Sonstige Zulagen und Zuschüsse									1.224
14	**Summe der nicht zu PV zugeteilten regelmäßigen Zuwendungen**									**62.867**
15	Nicht zugeteilte "Sonstige Betriebserträge" (Entschädigungen u.ä.)									129
17	***Nicht zugeteilter Unterhalt Betriebsvorrichtungen u. Maschinen, Treibst.*** *(negatives Vorzeichen)*									-579
18	***Gesamtdeckungsbeitrag***							Z. 4 +6...8 +14...17		**449.773**
	Fixkosten:									
19	Unterhalt	Wirtschaftsgebäude, baul. Anlagen, Bodenverbess.								19.336
20	Abschreibung	Wirtschaftsgebäude, baul. Anlagen, Bodenverbess.								20.848
21		Betriebsvorrichtungen								13.547
22		Maschinen, Pkw, Betriebs- und Geschäftsausstattung								47.153
24	Vorsteuer a. Ersatzinvestit. bzw.AfA (beim pauschal. Landw.)						MwSt-Satz in %	19,0		15.494
25	Betriebliche Unfallversicherung									6.881
26	Allgemeine Betriebsversicherungen									8.894
27	Betriebssteuern									5.182
28	Sonstiger allgemeiner Betriebsaufwand									28.080
29	**Festkosten** des Betriebes insg.				Ist			Z. 18 ... 27		**165.415**
30	**Löhne u. Gehälter**	ohne var.Löhne			Bf-Ist	AK				62.866
31	Miet- u. Pachterträge									-3.548
32	**Pachten**	Fläche			Bf-Ist	ha	109,00	Euro / ha	477	51.950
38	Kapitalerträge									-241
39	**Zinsen**	Verbindlichkeiten			Bf.-Ist	Euro				3.250
40	***Ordentliches Ergebnis = Bereinigter Gewinn***							Z. 18 -(29...39)		**170.081**

Fig. 551-2: Ex post operating plan – Steps from contribution margin to ordinary profit. Source H. Wittmann, JUP K, sheet Bf Bp.

This “ex post operating plan” includes a roughage energy balance for roughage eaters, which is important for agriculture. The **working hours** will be needed later for the hourly earnings and for the full cost calculations.

5.5.2 Full cost calculation based on company allocation sheet

Additional **allocation lists for fixed costs**, e.g., for depreciation, are required. Some simplifications are certainly possible here. For example, all silos can be combined into one silo plant (with a single investment date). A shovel loader purchased at a later date can be recorded together with the associated tractor.

Since cost accounting is of business management nature, the useful life of the inventory must be determined **differently** from the tax inventory list. For example, a company car that has been in service for 12 years must be depreciated over 12 years or even longer in duration. By estimating the expected **residual value** it is possible to use a similar approach to that used for calculating scheme of machine costs.

Automatic allocation is problematic in many cases. You will find allocations based on the working hours a production process needs. But it is questionable whether depreciation always increases proportionally with the time spent. There are both highly technical production processes and those that require a lot of manual labor, such as direct marketing to customers.

It cannot be right that, in the case of relatively small amounts, such as for the accident insurance association, great efforts are made to ensure fair allocation, but in the case of cost-intensive depreciation, automatic allocation is applied without much thought.

Here in fig. 552 are the results of a full cost accounting with operating allocation sheet. The rye cultivation production process is structured according to the DLG's full cost scheme.

Produktionsverfahren			Roggen	Vollkosten	ha
Buchführ.-Ist	2019/20	t / ha	Euro	Euro	
Umfang ha	25,2	4,76	je	USt-Abrechnung: 22 = Pauschalierung, brutto verbucht	
Euro ges.	Euro je ha		t	Gewichtseinheit t	Roggen
21.000	833		175	**Hauptleistung**	
4.000	159		33	Nebenleistungen	
25.000	**992**		208	**Leistungen** (Prämien und Ausgleichszahlungen siehe unten bei Kostenentlastung)	
4.159	165		35	Saatgut	
4.252	169		36	Mineraldünger	
				Zukauf organ. Dünger	
4.000	159		33	Pflanzenschutz	
680	27		6	Sonst. Direktkosten, lt. vorangegangener Deckungsbeitrags-Abrechnung	
126	*5*		*1*	*Zinsansatz Umlaufvermögen 11 %*	
13.217	**524**		110	**Direktkosten**	
11.783	**468**		98	**Direktkostenfreie Leistung** (vor Prämien und Ausgleichszahlungen)	
				Variable Löhne	
907	36			**Fremdlöhne fix**	
1.285	*51*		*19*	***Lohnansatz***	
101	4			Betriebl. Unfallversicherung (Berufsgenossenschaft)	
4.300	171		36	Lohnarbeiten, Maschinenmiete	
				Leasing Maschinen	
2.520	100		21	**Variable Maschinenkosten** (Maschinenunterhalt, Treibstoffe, ohne Wasser)	
4.032	160		34	AfA Maschinen, Pkw, Geschäftsausstattung	
151	6			Versicherung Maschinen	
353	*14*			*Zinsansatz Maschinen 11 %*	
13.649	**542**		114	**Arbeitserledigungskosten**	
-1.866	-74		-16	Direkt- und arbeitserledigungskostenfreie Leistung (DAL)	
328	13			Unterhalt Gebäude	
655	26			AfA Gebäude, allgemein mit Betriebsvorrichtungen	
151	6			AfA Gebäude für Unterbingung Maschinen	
				Pacht / Miete Gebäude (z.B. Lager)	
76	3			Versicherung Gebäude	
202	*8*			*Zinsansatz Gebäude 11 %*	
1.412	**56**		12	**Gebäudekosten**	
14.011	556			Pachtzahlungen, Pachtansatz (gerechnet wie gezahlte Fremdpacht!)	
14.011	**556**		117	**Flächenkosten**	
1.260	50			Sonst. allg. Betriebsaufwand, Betriebsversicher. (ohne Vers. für Masch.+Geb.), Betriebsste	
1.260	**50**		11	**Sonst. Kosten**	
43.549	**1.728**		363	**Summe Kosten**	
				Gewerbesteuer	
				Kostenentlastende Nebenleistungen und Prämien inkl. Ausgleichszahlunger	
4.000	159			Nebenleistungen	
7.510	298		63	Betriebsprämien (Kosten für ZA abgezogen)	
32.039	**1.271**		**267**	**Vollkosten Hauptprodukt *)**	
-11.039	**-438**		**-92**	***Kalkulatorisches Betriebszweigergebnis***	
5.644	224		47	Direkt- und arbeitserledigungskostenfreie Leistung (**DAL**) zzgl. Prämien u. AZL	

Fig. 552: From P&L scheme to full cost calculation scheme. Source H. Wittmann; JUP K, sheet rye production, (excerpt).

The “calculated operating result” (BZE) is the **net profit from the production process**. In the rye example, it is strongly negative, even though the lease costs per hectare appear moderate.

The real problem with cost accounting “with operating allocation sheet” is **the very high time consumption** of the analyst. It has been reported from the German Rhineland-Palatinate that the average time required for cost accounting in specialized agricultural companies is 20 working hours

(including all preparations and debriefings). This has been confirmed in Lower Saxony, Germany, for master craftsman training.

In favorable cases, an experienced person can manage it in 5 to 10 hours. But for agricultural corporations with large fields and barns, the time required with costs allocation sheets can be two weeks. In industrial companies, this can even be a year-round task for controllers. A management consultant can only offer such cost accounting “with operating allocation sheet” if the entrepreneur also pays for the time required.

5.6 Costs calculation **without** company allocation sheet

A mostly “**sufficiently accurate cost accounting**” is also possible without operating allocation sheet, **quasi from the back**. The procedure is therefore the reverse of that with operating allocation sheet. If it is known how much fertilizer costs per hectare of wheat, per hectare of potatoes, etc., the total product can be **extrapolated** for the entire farm. The extrapolation for all production processes can then be compared or reconciled with the expenses according to the company’s P&L statement. Routine is an advantage here. Data from horizontal comparisons is useful.

5.6.1 From contribution margin scheme to P&L scheme

It is advisable **to create the “Current actual” variant,** which is adjusted to the last accounting results. At any rate, care must be taken to ensure that the credit sheets are not repaid too quickly on paper.

If operational planning is to be calculated afterwards in a “year-by-year” scheme, a specific annual sequence is appropriate. This has already been mentioned above in section “3.3.2 List of Loans, and short-term liabilities.” Here is an example for a financial year (FY) from July 1 to June 30:

Last FY 2025/26	=> July 1, 2025	Start of last accounting year
1st variant 2026/27	**=> July 1, 2026**	**Start of “current actual”**
2nd variant 2027/28	=> July 1, 2027	Start of planning year before changeover
3rd variant 2028/29	=> July 1, 2028	Start of 1st changeover year, etc.

An example of implementation is shown in Fig. 561-1: The contribution margins are **recalculated** on the right. The 3rd column of figures on the left shows the **projection** of benefits and variable costs. In the 2nd column of figures, internal turnover are deducted so that these **values are comparable with the accountant's P&L scheme** (1st column of figures).

Mittel mehr. Bf-J.	Hochrechnung Bf-lst		Deckungsbeiträge Bf-lst		Milchkühe	Grassilage	MSchweine	Roggen	LoArb,MaMiet
2017 / 20	Ertrag	Leistungen	B.: Neubert Dieter		FV Ka marktreif	3-4 Schnitte	(jährl. erz.)		
In Spalte C ggf. beachten:	Aufwand	var. Kosten		Nr. PV =>	1	53	34	84	161
Entschäd.Rabatte. 124	im Bf-Schema	vor Abzug	T: 06.09.2021	USt =>	1	1	1	1	1
Bestandsänder. 351	2021/22	Innenumsatz			St.	ha	erz. St.	ha	
Körnergetreide 4.453	4.399	73.310	1 **2021/22**	**Umfang**	**187,2**	19,82	**2.724**	25,2	**1**
So. pflanzl. Prod. 52.495	72.764	72.764	2 Menge, erzeugt; Abfuhr	St, kg, t	9.388	8,5			
Rindvieh, Milch 614.645	609.420	686.172	3 Hauptprodukt: Verk., Innen-Ums.	St, kg, t	9.361		97,7	6,0	1
Schweine 383.422	404.514	404.514	4 Preis	Euro je St, je kg oder je t	0,325		1,52	154,00	1.584
So. tier. Prod.			5 **Hauptleistung**	Euro	3.042		148,50	924	1.584
Ertr. SoKu, Forst 1.489	1.772		6 Neb'leist.: Kalb, ausgesond. Tiere /Ware	Euro	207				
LU, Neb'betr im U. 1.584	1.584		7 Weit.Neb'leist.: Verk. Stroh, Wolle, Mist	Euro				140	
			8 **Leistungen ges.**	Euro	**3.249**		**148,50**	**1.064**	**1.584**
Saatgutzukauf 30.206	32.922	32.922	9 Saatgut / Bestandsergänzung	Euro	325	47	61,00	150	
Zukaufdünger 27.832	30.907		10 Zukaufdünger / Zukauffutter	Euro	786	68	58,00	146	
Pflanzenschutz 17.725	17.694		11 Pflanz'schutz / Tierarzt, Besamung	Euro	164	17	0,34	85	
Tierzuk.,Best'erg. 153.660	166.619	243.371	12 Hagelversich. / Tierversicherung	Euro	11		0,35	8	
Zukauffutter 249.378	261.254	330.165	13 Berat., Leistungskontr., Klauen	Euro	40		0,04		
Tierarzt, Besam. 35.733	34.351		14 Heizst., Strom, Wasser, Abwasser	Euro	63		3,36		
So. Mat. Pflanz. 7.793	8.164		15 Trockn.,Lager.,Vermarkt.,Sonstiges	Euro	50	34	0,34	17	
So. Mat. Tierpr. 5.908	11.096		16 Var. Masch'kosten eig. Maschinen	Euro	92	126	1,60	121	420
Berat,LKV,Klauen 9.282	7.961		17 Lohnarb.,Masch'miete Lohntrockn,-schrot.	Euro		336	1,89	147	
Forst, Kellerei			18 Variable Löhne	Euro					
Aufw. Neb'betr.			19 **Summe variable Kosten**		**1.531**	**628**	**126,92**	**674**	**420**
Heizst.,Str.,Wass. 21.340	21.333		20 **Deckungsbeitrag**	Euro	**1.718**	**-628**	**21,58**	**390**	**1.164**
Var. MK + B'vorr. 56.495	58.266								
MR, LU, MaMiet 75.930	75.899								
Var. Löhne									
Tier-Versich. 4.067	4.067								
Hagel-,so.var.Ver. 336	285								
Su. Ertr. ohn Präm 1.058.563	1.094.453								
Su. var. Aufwand 695.685	730.818								
GDb BZ ohn Präm 362.878	363.635								

Fig. 561-1: From contribution margin calculation scheme (on the right) to P&L scheme (on the left). Source H. Wittmann. JUP PS, sheet 3 Db (excerpt). Partial costs and their projections (in German: Hochrechnung), without operating allocation sheet.

The alignment can be made quite accurately. But, if there are plausible reasons, a difference may remain. A larger difference is highlighted in color in this JUP PS program. If the 3- or 5-year accounting average is used for alignment, the remaining deviation will often be plausible.

If fixed costs are also entered in the program JUP PS, the **ex-post-calculation can be displayed completely in the P&L scheme**. Since the company allocation sheet is bypassed, an **internal turnover auxiliary table** (the Imax sheet in JUP PS,) is required. The maximal internal turnover is reported back (see Fig. 561-2, right hand).

	GuV - Nichtbetr. Einkommen - Privataufwand	Mittel Bf-J. 2017 / 20	Bf-Ist 2020/21	Innerbetr. Umsatz Bf-Ist	Eig. Anteil (Geld)	Max. mögl. Innenumsatz Bf-Ist	Leistungen u. var. Kosten Bf-Ist
	Betrieb: Neubert Dieter						
	Erstellt: 06.09.2021	Euro	Euro	Euro	%	siehe 6 Imax	gesamt
1	Körnergetreide inkl. Körnermais + CCM	4.453	4.399	68.911	94%	73.310	73.310
2	Sonst. Pflanzenproduktion	52.495	72.764			67.780	72.764
3	Kuhmilch	569.431	569.462	Innerbetr. verwendet %		Max. verwendbar	
4	Erlöse Rindermast	8.496					
5	Erlöse sonst. Rindvieh	36.718	39.958	76.752	100%	76.752	116.710
6	Erlöse Ferkel						
7	Erlöse sonst. Schweineproduktion	383.422	404.514				404.514
8	Sonst. Tierproduktion (ggf. inkl. Mistverkauf, Tierwohl)						
20	**Umsatzerlöse gesamt**	1.175.178	1.096.976				
41	**Sonstige betriebliche Erträge ges.**	74.614	61.000	a) Getreidesaatgut, b) Sonst. Saat- und Pflanzgut			
42	**Umsatz** (U'erlöse +Zulagen +So.Betr'ertr., ohne Agrardieseler	1.250.143	1.157.976			4.654	4.654
43	Saatgut	30.206	32.923			9.044	28.269
44	Düngemittel	27.832	30.907				
45	Pflanzenschutz	17.725	17.694				
46	Sonst. Aufwand Pflanzenproduktion	7.793	8.164				
47	Tierkauf	153.660	166.619	76.752	eig. Tiere		243.371
48	Zukauffutter	249.378	261.254	68.911	21%		330.165
49	Tierarzt, Besamung	35.733	34.351				
50	So. Materialaufw. für Tierprod., Rein.+Desinf.	5.908	11.096				
51	So. bezogene Leistungen für Tierproduktion	9.282	7.961				
54	Heizmaterial, Strom	20.537	20.530				
55	Wasser, Abwasser	803	803				
56	Treib- u. Schmierstoffe (Agrardieselerstatt. saldier	25.769	25.769				
57	Lohnarbeit, Maschinenmiete	75.930	75.899				
60	**"Materialaufwand" gesamt**	660.556	693.970				
61	**Lohnaufwand** Löhne (ggf. Lohnzus	46.658	46.658				
62	Sozialabgaben	14.718	14.718				
63	Betriebl. Unfallversicherung (Berufsgenossenschaft)	7.230	7.230				
70	**Abschreibungen ges.**	87.430	87.430				
71	**Unterha** Wirtschaftsgebäude, baul. Anl., Bodenverb.	14.828	14.828				
72	Betriebsvorrichtungen	12.709					
73	Maschinen, Pkw, sonst. Unterhalt	18.017	32.497				
75	Hagel-, Tier-, Waldschadensversicherung	4.403	4.351				
76	Allgemeine Betriebsversicherungen	8.678	8.678				
77	**Pachter** für Flächen	49.883	49.883				
83	Sonst. Betriebsaufwand	22.026	22.026				
89	**Sonst. betriebl. Aufwendungen ges.**	234.533	132.263				
90	Zinserträge u.ä.	257	257				
91	**Zinsaufwendungen** (ggf. Zinsverbill. saldiert)	3.718	2.916				
92	Grundsteuern / sonst. Betriebssteuern	5.184	5.184				
95	**Ordentliches Ergebnis (= berein. Gewinn)**	**190.373**	**167.864**				
96	Cashflow 1 (= Gewinn + AfA)	277.803	255.294				

Fig. 561-2: Towards P&L scheme. Source H. Wittmann; JUP PS, sheet 6 GNP. Projections without operating allocation sheet.

Regarding internal turnover in the example: Most of the young cows produced are used as replacements for existing cows. In addition, cow husbandry supplies female calves for young cow breeding. This results in a maximum internal turnover of €76,752. This amount reduces the purchase of animals from other farms. In the case of grain, part of it is sold, leaving 94% of the output for internal turnover (calculated in monetary terms). The calculated amount (€68,911) is fully deductible as turnover for feed (no turnover was calculated for seed). In this dairy cattle and fattening pig farm, this represents 21% of the monetary expenditure for feed.

The analyst who has carefully recalculated the contribution margin can reward himself with a "**sufficiently accurate full cost calculation**" without operating allocation sheet.

5.6.2 Full cost calculation based on contribution margins

Proposals can be made automatically for a number of fixed costs allocations. For example, the **machine depreciation can be allocated to the production processes in proportion to the variable machine costs**. Only a few data items have to be processed manually, such as "other costs" (e.g., property taxes, premiums for general business insurance, costs for accounting and tax consulting).

The depreciation of buildings and their equipment for animal husbandry must be transferred from the inventory list. For crop production processes, it is easier to enter the building depreciation per hectare usable land. An additioal list outside can be useful for this.

The values extrapolated in the following table (in the second left column) are directly comparable with the results of the P&L (first column). The can again be made quite accurately by calculation. If there are plausible reasons, a difference may remain here as well.

If fixed costs are also entered in the program, the **ex-post-calculation can be displayed completely in the P&L** scheme. Note: All figures in this example are exclusive of VAT.

	Vollkosten-Kalkulatior **Bf-Ist**		**ha LF:**	**Hoch-**	**Milchkühe**	**Kuh-**	**Grassilage**	**MSchweine**	Roggen	LoArb,MaMiet
	B.: Neubert Dieter		206,64	rechnung	FV Ka marktreif	milch	3-4 Schnitte	(jährl. erz.)		
					1		53	34	84	161
	Datum: 06.09.2021		**Gesamt**	**Summen**		je				
	2		**2021/22**	**zugeteilt**	St.	100 kg	ha	erz. St.	ha	
1	**2021/22**	**Umfang**			**187,2**		19,82	**2.724**	25,2	**1**
2	Hauptprodukt	St, kg, t (netto)			9.361	9.361		97,7	6,0	1
3	Preis	je St, je kg oder je t			0,325			1,52	154,00	1584,00
4	**Hauptleistung**		Abgl. in 6 GNP		3.042	32,50		148,50	924	1.584
5	Nebenleistungen		"		207	2,21			140	
6	**Leistung ges.**			1.240.191	**3.249**	34,71		**148,50**	**1.064**	**1.584**
7	Saatgut	/ Bestandsergänzung	Abgl. in 6 GNP		325	3,47	47	61,00	150	
8	Dünger	/ Zukauffutter	"		786	8,40	68	58,00	146	
9	Vollkosten eig.Grundfutter 2)		144.684	144.527	626	6,69				
10	Pflanzenschutz	/ Tierarzt, Besamung	Abgl. in 6 GNP		164	1,75	17	0,34	85	
11	Heizstoffe, Strom, Wasser		"		63	0,67		3,36		
12	So. Direktkost. (Vers.,Berat.,Trockn.,Sonst.)		"		101	1,08	34	0,73	25	
13	Zinsansatz Umlaufvermögen 3)	1,00 %	vgl. Z. 21 u. 27	5.287	15	0,16	5	0,32	4	1
14	**Direktkosten nach DLG**			889.312	**2.080**	22,22	**171**	**123,75**	**410**	**1**
15	**DKf Leistung**	(vor Prämien + AZL)		396.391	**1.169**	12,49		**24,75**	**654**	**1.583**
16	Masch'Unt. + Treibst. (= var. Masch'kost.)		58.266	58.266	92	0,98	126	1,60	121	420
17	Lohnarb., Masch.'miete, var. Löhne		75.899	75.899			336	1,89	147	
18	Lohnansatz, -aufwand 4.1)	13,49	146.189	146.262	481	5,14	146	5,83	87	437
19	Maschinenleasing									
20	AfA Masch. ohne BetrVorr.*)	0,85	49.588	49.517	78	0,83	107	1,36	103	357
21	Zinsansatz Maschinen 4.3)	1,08 %	vgl. Z. 13 u. 27	1.503	2	0,02	3	0,04	3	11
22	**Arbeitserledigungskosten**			331.447	**653**	6,98	**718**	**10,72**	**461**	**1.225**
23	**Rechte inkl. Lieferrechte**									
24	Gebäudemiete									
25	Gebäude-AfA inkl. BetrVorr.		37.842	38.487	149	1,59	15	1,69	12	250
26	Gebäudeunterhalt *) 1)	0,39	14.828	15.102	37	0,40	6	2,13	5	98
27	Zinsansatz Gebäude 4.3)	1,08 %	vgl. Z. 13 u. 21	6.157	24	0,26	2	0,27	2	40
28	**Gebäudekosten**			59.746	**210**	2,24	**23**	**4,09**	**19**	**388**
29	**Flächenkosten** inkl. AfA+Zi Dauerkult. 4.2)		100.332	101.156			291		534	
30	**So. Kosten** inkl. Versich., außer var.Vers. 5)		43.118	42.563	105	1,12	65	1,90	65	40
31	**Summe Kosten**			1.424.224	**3.048**	32,56	**1.268**	**140,46**	**1.489**	**1.654**
	Kostenentlastung - bezogen auf die Hauptleistung:									
32	Nebenleistungen		siehe oben Z. 5		207	2,21			140	
33	Betriebsprämien		61.000	60.959			295		295	
35	**Vollkosten Hauptleistung** (je ha,Tier)		Su. Kosten -Nebenleist.& Präm.		**2.841**	30,35	**973**	**140,46**	**1.054**	**1.654**
36	**Kalkulat. Betriebszweigergebnis**		Leistung. inkl.Präm -Su. Kosten		**201**	2,15		**8,04**	**-130**	**-70**
40	Vollkosten je Hauptprodukt-Einheit =		**Kostendeck.Erlös f.Hauptpr.**		0,30		20,27	1,44	175,67	

Fig. 562: From full costs scheme (on the right) to P&L scheme (on the left). Source H. Wittmann; JUP PS, sheet 7 VoKo.
Full costs and their projections, without operating allocation sheet. Only a few examples of production processes are shown.

The entire cost accounting "**without operating allocation sheet**" will only take a fifth (or less) of the time than "**with operating allocation sheet**," provided that a good routine is in place. Of course, candidates must first acquire this routine at technical college. The technical teacher would do well to see himself as a "**driving instructor**," supported by tutors if necessary, e.g., clever graduates from previous years.

It is interesting to note that the technical students are **then very motivated to calculate the planned full costs** of their target variations. In several comparative analysis of "with operating allocation sheet" and "without operating allocation sheet" for the same business, the deviations were not large, e.g., in dairy farms, the total milk costs differed by one cent per kg.

Whether with operating allocation sheet or without, **allocation problems** are to be expected with both methods, e.g., in case of halls with multiple uses. For overhead costs, such as the annual accounting expenses per cow, it can be helpful to look at special calculations from educational institutions.

Conclusion: In specialized businesses, cost accounting without operating allocation sheet is a real alternative for entrepreneurs to obtain "**sufficiently accurate partial and full costs**." However, if the business is large and diverse, there is no way around using "with operating allocation sheet."

5.7 Embedding special analysis - the exemple of viticulture

It is advantageous if accounting analysis **and** operational planning can be carried out using the same program. For many agricultural production processes, contribution margin analysis, e.g., in JUP PS, also provides a well-founded basis for operational planning. In some areas of production, however, there may be a desire—or even a necessity—to interpose special fundamental analysis and calculations. This is unavoidable in biogas plants, for example.

JUP_K (a programme with allocation sheets) can be inserted as a general cost-benefits calculation.

For viticulture with a winery, the "embedding" in JUP PS can be outlined as shown in the following diagram. The diagram also takes into account measures of "new diversification": tasting facilities, vacation apartments, and similar ancillary businesses.

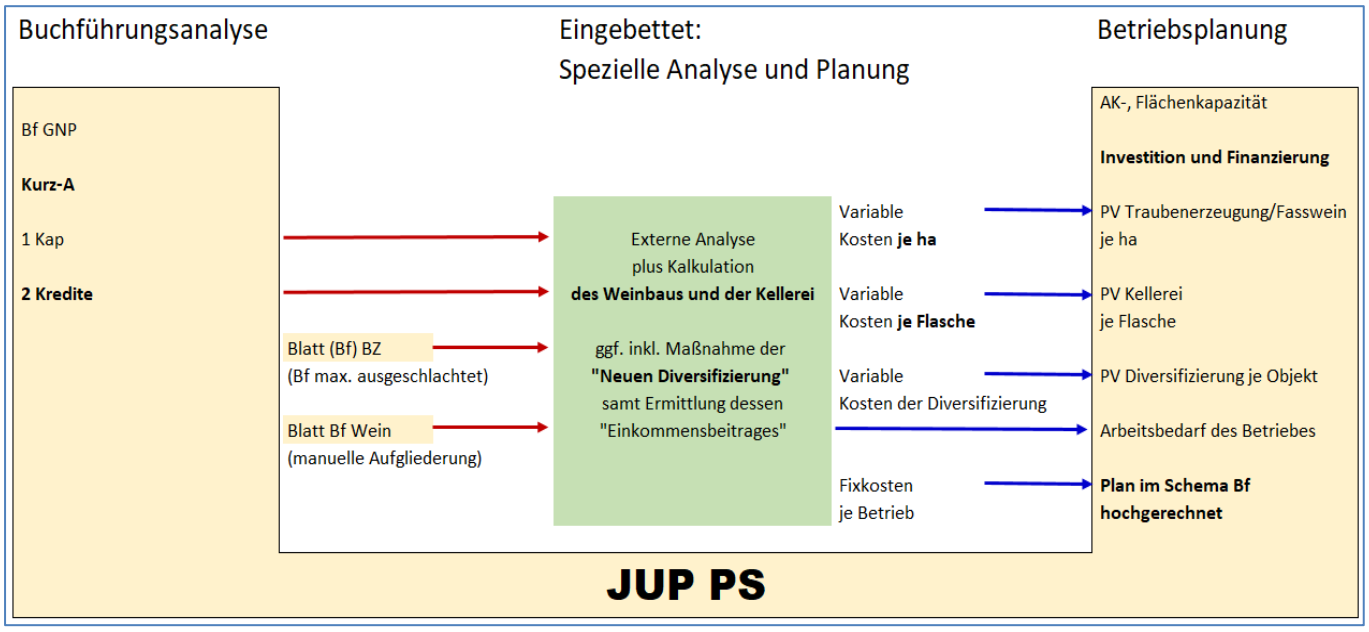


Fig. 570: Embedding special analysis and calculations in the integrated analysis and planning program JUP PS.
Source H. Wittmann.

6. Consolidated financial statements of several sub-operations

A growing proportion of companies comprise several sub-operations. Some of which are based on new business ideas, while others are created by spinning off from existing operations for tax reasons. "**Special business assets"** (in German: Sonderbetriebsvermögen, e.g. from predecessor) can also be considered sub-operations. This tax designation applies to land that is leased for use. Such special business assets may include buildings and significant loans of the company that serve the overall company.

The annual financial statements of such sub-operations can be combined into "**consolidated annual financial statements**" by an consultant or analyst itself, provided that the sub-operations are not very complex.

It is essential that the **amounts flowing from sub-operation to sub-operation are neutralized** (see Fig. 600-2). It easier the job, if the accounts of the sub-operations have been separated "**as if they were strangers**". But, why should something be combined only to have to be unraveled again for partial and full cost accounting? Only if amounts flowing from sub-operation to sub-operation the work of consolidation is unavoidable. Otherwise, a simple **addition of** the results of the entrepreneur's sub-operations of the following type is sufficient.

	Landwirtschaftlicher Betrieb und nichtlandw. Betriebe einer Unternehmerfamilie bzw. einer Unternehmensgruppe		WJ	**Einfache Addition** - ohne "Konsolierung von Zahlungen zwischen den Teilbetrieben" 2022 / 23	2022 / 23	2022 / 23	2022 / 23	2022 / 23	
	Erstellt für:	Erstellt am:	Teilbetrieb	Land- u. Forstw. (ggf. Konzern laut JUP VertKons) 1	Biogasanlage gewerblich 2	LU gewerblich 3	Fotovoltaik 4	FeWo außerhalb L+F 5	**Summe**
1	Gewinn, steuerlich		Euro						0
	Rentabilität								
2	**Ordentliches Ergebnis** bzw. betriebswirtschaftl. Berein. Gewinn		Euro						**0**
3	+ Lohnaufwendungen inkl. Sozialabgaben (gezahlt)		Euro						0
4	- Zinsansatz für Eigenkapital im Teilbetrieb		Euro						0
5	- Pachtansatz (für Eigenflächen)		Euro						0
6	**= Gesamt-Arbeitsertrag**	Z. 2 +3 -4 -5	Euro	**0**	**0**	**0**	**0**	**0**	**0**
7	Arbeitsbedarf im Teilbetrieb (**eig. und fremde AKh**)		Akh						0
8	**Arbeitseinkommen je Akh** - eigen u. fremd	Z. 6 / 7	Euro / Akh	0,00	0,00	0,00	0,00	0,00	0,00
	Liquidität								
9	Ordentliches Ergebnis bzw. betriebswirtschaftl. Berein. Gewinn	Z. 2	Euro	0	0	0	0	0	0
10	+ Abschreibungen ges.		Euro						0
11	+ Berein. Einlagen = Nichtbetr. Einnahmen ges. (verbucht im Teilbetrieb)		Euro						0
12	- Berein. Entnahmen = Nichtbetr. Ausgab., Privataufw. (verbucht im Teilbetrie		Euro						0
13	- **Tilgungen** (nach betriebswirtschaftlichen Grundsätzen)		Euro						0
14	**= Cashflow 3**	Z. 9 +10 +11 -12 -13	Euro	**0**	**0**	**0**	**0**	**0**	**0**
15	Langfristige Kapitaldienstgrenze	Z. 9 +16 +11 -12	Euro	0	0	0	0	0	0
16	Zinsen netto		Euro						0
17	Kapitaldienst = Zinsaufwand + Tilgungszahlungen	Z. 15 +13	Euro	0	0	0	0	0	0
18	**Verbindlichkeiten** lt. (bereinigter) Bilanz		Euro						**0**
19	- Kredite von anderen eigenen Teilbetrieben		Euro						0
20	= Netto-Verbindlichkeiten des Teilbetriebes	Z. 18 -19	Euro	0	0	0	0	0	0
	Stabilität								
21	Ordentliches Ergebnis bzw. betriebswirtschaftl. Berein. Gewinn	Z. 2	Euro	0	0	0	0	0	0
22	+ Berein. Einlagen = Nichtbetr. Einnahmen ges. (verbucht im Teilbetrieb)		Euro	0	0	0	0	0	0
23	- Berein. Entnahmen = Nichtbetr. Ausgab., Privataufw. (verbucht im Teilbetrie		Euro	0	0	0	0	0	0
24	- Nichtbetr. AfA, die für die EKV von Berein. Einlagen abzuziehen sind		Euro						0
25	**= Bereinigte Eigenkapitalveränderung**	Z. 21 +22 -23 -24	Euro	**0**	**0**	**0**	**0**	**0**	**0**
26	Eigenkapital lt. berein. Bilanz (ohne Kredite an andere eigene Teilbetriebe)		Euro						0

Fig. 600-1: Scheme for a simply addition of sub-operations. Source H. Wittmann. First part of the program JUP VertKons

In the case of sub-operations, the financial years (FY) are often not "**congruent**." The FY of a commercial operation is generally the calendar year. In agriculture, the FY is predominantly the period from July 1 to June 30, so-called pasture farms may have a fiscal year from May 1 to April 30. For horticultural and forestry businesses, the fiscal year is different again. However, the fiscal years do not always have to be congruent in order to assess a company. After consulting with their tax office, some farmers were able to have all sub-businesses aligned with the agricultural financial year.

The following example (Fig. 600-2) shows that only the summary of the sub-operations reveals **actual depreciation and interest of the "group."** It shows the income statement of a civil law partnership (as the main business) and the income statements of two special business assets. The civil law partnership pays leases to one of the special business assets. **The amount must be deleted for both sub-operations, because the figures cancel each other out** in the "consolidated financial statements." In case of interest on loans granted between the sub-operations they must also be written off for the entire operation.

Konsolidierung Gewinn		Hauptbetr.	2019/20	SondB Vat	2020	SondB Sol	2020	"Konsolidiert"	
Betrieb:	Sauenrhoda GbR+SondB Vater+SondB Sohn	Lt. Buchführ.	Bereinigung	Lt. Buchführ.	Bereinigung	Lt. Buchführ.	Bereinigung	Lt. Buchführ.	Bereinigung
	Getreide incl. Körnermais	9.428						9.428	
	Sonst. Pflanzenproduktion	57.640						57.640	
	Erlöse Ferkel	338.566	-7.812					338.566	-7.812
	Erlöse sonst. Schweineproduktion	118.604	17.906					118.604	17.906
	Forst	60		129				189	
	Lohnarbeit, Maschinenmiete	4.616						4.616	
	Pacht- und Mieterträge	9.002		40.235	-40.235			49.237	-40.235
	Erhöhung / Verminderung Feldinventar	-483						-483	
	Erhöh./ Vermind. Bestand fertige/ unfert. Erzeugnisse	-10.710						-10.710	
	Erhöhung / Verminderung Tierbestand	10.094	-10.094					10.094	-10.094
	Zulagen und Zuschüsse gesamt	81.495						81.495	-24.806
	Sonstiger Betriebsertrag (z.B. Entschädigungen)	4.983						4.983	
Zeitr.fr	Erlöse aus Anlagenabgang (z.B.Masch'verk.)	15.400	-15.400					15.400	-15.400
Umsatz			592.189		129				592.318
	Saatgut	7.752						7.752	
	Düngemittel	30.303						30.303	
	Pflanzenschutz	25.677						25.677	
	Sonst. Aufwand Pflanzenproduktion	8						8	
	Tierkauf	36.326						36.326	
	Zukauffutter	163.206						163.206	
	Tierarzt, Besamung	40.254						40.254	
	So. Materialaufw. für Tierprodukt., Rein.+Desinf.	3.208						3.208	
	So. bezogene Leistungen für Tierproduktion	10.484						10.484	
	Heizmaterial, Strom	41.322						41.322	
	Wasser, Abwasser	2.830						2.830	
	Treib- und Schmierstoffe	36.167						36.167	
	Lohnarbeit, Maschinenmiete	3.068						3.068	
	Verpackung, sonstiges Material	11.083						11.083	
	Minder. Roh-, Hilfs-, Betriebsstoffe (RHB) u. Waren								
"Materialaufwand" gesamt		411.688						411.688	
Lohnaufwand	Löhne								
	Sozialabgaben, Wirtschaftshaushalt								
	Betriebl. Unfallversicherung (Berufsgenossenschaft)	3.405						3.405	
	Wirtschaftsgeb.,baul. Anlag.,Bod'verbess.,BGA	814		23.382		6.171		30.367	
	Betriebsvorrichtungen	1.841		762				2.603	
	Maschinen,Pkw,Fuhrpark,Betr.-,Geschäftsausstatt.	13.354						13.354	
Abschreibungen ges.		16.009		24.144		6.171		46.324	
Unterha	Wirtschaftsgebäude,baul.Anlagen,Bodenverb.,BGA	1.416						1.416	
	Betriebsvorrichtungen	5.244						5.244	
	Maschinen, Pkw, sonst. Unterhalt	35.633						35.633	
	Hagel-, Tier-, Waldschadensversicherung	5.509						5.509	
	Allgemeine Betriebsversicherungen	7.442		2.355				9.797	
Pachte	für Flächen	27.141						27.141	
	Leasing Maschinen, Miete Gebäude	40.235	-40.235					40.235	-40.235
	Wasser-, Bodenverbände, Landw.-Kammer-Umlage	2.283						2.283	
	Sonst. Betriebsaufwand	7.880						7.880	
Zeitr.fr.	Buchwert Anlagenabgang (vgl. Z. 38)	1.090	-1.090					1.090	-1.090
	Sonst. zeitraumfremde Aufwendungen	-39	39					-39	39
Sonst. betriebl. Aufwendungen ges.		133.834		2.355				136.189	-41.286
	Zinserträge u.ä. (+)	1.317						1.317	
Zinsaufwendungen	(+)	11.905		7.502				19.407	
	Grundsteuern / sonst. Betriebssteuern	1.389		779				2.168	
Su. Aufwendungen	(Materialaufwand ... Steuern, -Zinserträ.)	576.913		34.780		6.171		617.864	
Gewinn	(bzw. "Jahresüberschuß") lt. Buchf.	61.782		5.584		-6.171		61.195	
Ordentliches Ergebnis (= berein. Gewinn)			62.862		-34.651		-6.171		22.040

Fig.600-2: Consolidation of sub-operations. Source H. Wittmann, main sheets of the program JUP VertKons (excerpt).

This sheet also includes a short balance sheet. If one sub-company has negativ equity it is shown !

7. Intra-year liquidity planning

Early warning indicator

Entrepreneurs like to rely on their "**Finger-tip sensitivity**." However, they should also keep an eye on a few (hopefully good) **early warning indicators**, like Cashflow 3 in relation to depriations. In companies at the debt limit, this certainly includes monitoring short-term liabilities. Well-run and equity-strong companies will primarily keep an eye on the latest figures for the so-called "cash cows", the profit generators.

Intra-year planning and control

Estimations per year are sufficient for a rough calculation. In companies with a huge of liquidity problems, intra-year liquidity planning will be unavoidable, e.g., on a monthly basis. It is often the creditor banks that require more precise liquidity planning.

All one-time and extraordinary payments must be included, including inflows from matured savings agreements or similar. In the intra-year planning Cash flow 3 is calculated in two differnt forms (Fig. 700-2).

• On the one hand, the "**Cash flow 3 from own resources**" (or Cf3 from own economic frorces) as in accounting analysis and in standard mid-term business planning (chapter 8).

• On the other hand, the "**Cash flow 3 including one-off payments**" (or Cf 3 incl. non-periodic an non-sustainable payments).

Inflows from **new loans** are, of course, **part of liquidity planning**—but they are **never part of any cash flow**.

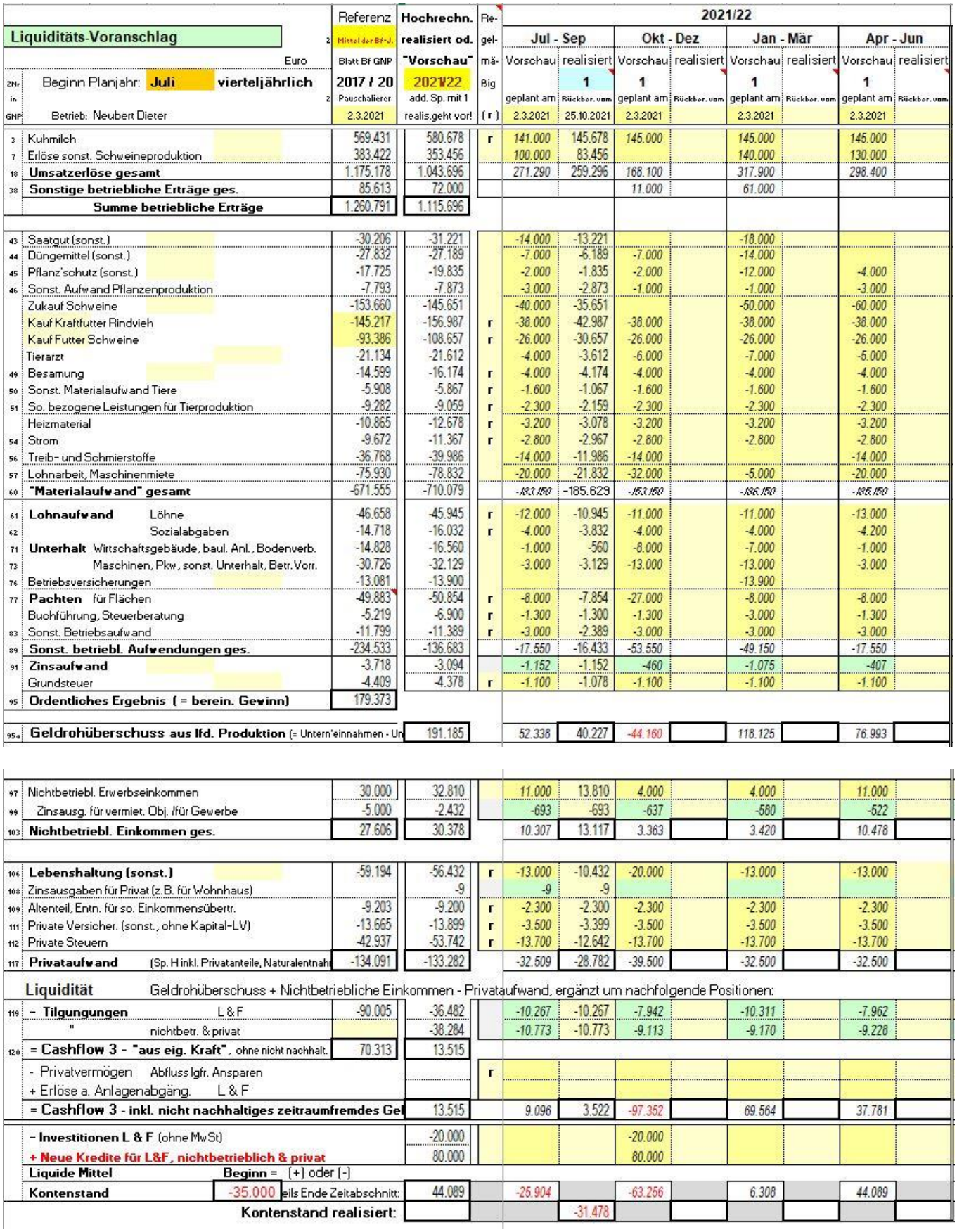
	Sales revenue
+	Other operating revenue of a regular nature
-	Regular operating expenses (incl. interest expenses)
=	**Gross cash surplus** (often already corresponds to **cash flow 1**)
+	Calculated regular deposits
-	Calculated regular withdrawals incl. private expenses, distributions, dividends
=	Cash flow 2 (does not have to be shown in the liquidity plan)
-	***Real actual repayments***
=	**Cash flow 3 from own economic forces**
±	Extraordinary payments (from the sale of inventory, for Inheritance payment, etc.)
=	**Cash flow 3 incl. non-periodic and non-sustainable payments**
-	**Investments**
+	***New loans***
=	**Change in cash**
	and **new account balance**, change added to the old balance

Fig. 700-1: Gross cash surplus, to two kinds of cashflow 3, change in cash. All embedded in liquidity plan during the year. Source H. Wittmann.

It may be reasonable to plan monthly and settle account reports quarterly, in which case the quarterly cash report from the accounting department must be evaluated.

In the following example (fig 700-2), planning was done on a quarterly basis. For the first new quarter, the actual figures from the quarterly cash report from the accounting department have already been entered.

In contrast to the mid-term planning, where “repayments according to business management principles” are required, here, in a precise intra-year planning repayment extensions and suspensions of loans must also be taken into account.



Liquiditäts-Voranschlag	Referenz	Hochrechn.	Re-	2021/22							
	Mittel der Bf-J.	realisiert od.	gel-	Jul - Sep		Okt - Dez		Jan - Mär		Apr - Jun	
Euro	Blatt Bf GNP	"Vorschau"	mä-	Vorschau	realisiert	Vorschau	realisiert	Vorschau	realisiert	Vorschau	realisiert
ZNr Beginn Planjahr: Juli vierteljährlich	2017 / 20	2021/22	Big		1	1		1		1	
in Pauschalierer	add. Sp. mit 1			geplant am	Rückber. vom	geplant am	Rückber. vom	geplant am	Rückber. vom	geplant am	Rückber. vom
GNP Betrieb: Neubert Dieter	2.3.2021	realis.geht vor!	(r)	2.3.2021	25.10.2021	2.3.2021		2.3.2021		2.3.2021	
3 Kuhmilch	569.431	580.678	r	141.000	145.678	145.000		145.000		145.000	
7 Erlöse sonst. Schweineproduktion	383.422	353.456		100.000	83.456			140.000		130.000	
18 **Umsatzerlöse gesamt**	1.175.178	1.043.696		271.290	259.296	168.100		317.900		298.400	
38 **Sonstige betriebliche Erträge ges.**	85.613	72.000				11.000		61.000			
Summe betriebliche Erträge	1.260.791	1.115.696									
43 Saatgut (sonst.)	-30.206	-31.221		-14.000	-13.221			-18.000			
44 Düngemittel (sonst.)	-27.832	-27.189		-7.000	-6.189	-7.000		-14.000			
45 Pflanz'schutz (sonst.)	-17.725	-19.835		-2.000	-1.835	-2.000		-12.000		-4.000	
46 Sonst. Aufwand Pflanzenproduktion	-7.793	-7.873		-3.000	-2.873	-1.000		-1.000		-3.000	
Zukauf Schweine	-153.660	-145.651		-40.000	-35.651			-50.000		-60.000	
Kauf Kraftfutter Rindvieh	-145.217	-156.987	r	-38.000	-42.987	-38.000		-38.000		-38.000	
Kauf Futter Schweine	-93.386	-108.657	r	-26.000	-30.657	-26.000		-26.000		-26.000	
Tierarzt	-21.134	-21.612		-4.000	-3.612	-6.000		-7.000		-5.000	
49 Besamung	-14.599	-16.174	r	-4.000	-4.174	-4.000		-4.000		-4.000	
50 Sonst. Materialaufwand Tiere	-5.908	-5.867	r	-1.600	-1.067	-1.600		-1.600		-1.600	
51 So. bezogene Leistungen für Tierproduktion	-9.282	-9.059	r	-2.300	-2.159	-2.300		-2.300		-2.300	
Heizmaterial	-10.865	-12.678	r	-3.200	-3.078	-3.200		-3.200		-3.200	
54 Strom	-9.672	-11.367	r	-2.800	-2.967	-2.800		-2.800		-2.800	
56 Treib- und Schmierstoffe	-36.768	-39.986		-14.000	-11.986	-14.000				-14.000	
57 Lohnarbeit, Maschinenmiete	-75.930	-78.832		-20.000	-21.832	-32.000		-5.000		-20.000	
60 **"Materialaufwand" gesamt**	-671.555	-710.079		-132.150	-185.629	-132.150		-186.150		-186.150	
61 **Lohnaufwand** Löhne	-46.658	-45.945	r	-12.000	-10.945	-11.000		-11.000		-13.000	
62 Sozialabgaben	-14.718	-16.032	r	-4.000	-3.832	-4.000		-4.000		-4.200	
71 **Unterhalt** Wirtschaftsgebäude, baul. Anl., Bodenverb.	-14.828	-16.560		-1.000	-560	-8.000		-7.000		-1.000	
73 Maschinen, Pkw, sonst. Unterhalt, Betr.Vorr.	-30.726	-32.129		-3.000	-3.129	-13.000		-13.000		-3.000	
76 Betriebsversicherungen	-13.081	-13.900						-13.900			
77 **Pachten** für Flächen	-49.883	-50.854	r	-8.000	-7.854	-27.000		-8.000		-8.000	
Buchführung, Steuerberatung	-5.219	-6.900	r	-1.300	-1.300	-1.300		-3.000		-1.300	
83 Sonst. Betriebsaufwand	-11.799	-11.389	r	-3.000	-2.389	-3.000		-3.000		-3.000	
89 **Sonst. betriebl. Aufwendungen ges.**	-234.533	-136.683		-17.550	-16.433	-53.550		-49.150		-17.550	
91 **Zinsaufwand**	-3.718	-3.094		-1.152	-1.152	-460		-1.075		-407	
Grundsteuer	-4.409	-4.378	r	-1.100	-1.078	-1.100		-1.100		-1.100	
95 **Ordentliches Ergebnis (= berein. Gewinn)**	179.373										
95a **Geldrohüberschuss aus lfd. Produktion** (= Untern'einnahmen - Un		191.185		52.338	40.227	-44.160		118.125		76.993	
97 Nichtbetriebl. Erwerbseinkommen	30.000	32.810		11.000	13.810	4.000		4.000		11.000	
99 Zinsausg. für vermiet. Obj. /für Gewerbe	-5.000	-2.432		-693	-693	-637		-580		-522	
103 **Nichtbetriebl. Einkommen ges.**	27.606	30.378		10.307	13.117	3.363		3.420		10.478	
106 **Lebenshaltung (sonst.)**	-59.194	-56.432	r	-13.000	-10.432	-20.000		-13.000		-13.000	
108 Zinsausgaben für Privat (z.B. für Wohnhaus)		-9		-9	-9						
109 Altenteil, Entn. für so. Einkommensübertr.	-9.203	-9.200	r	-2.300	-2.300	-2.300		-2.300		-2.300	
111 Private Versicher. (sonst., ohne Kapital-LV)	-13.665	-13.899	r	-3.500	-3.399	-3.500		-3.500		-3.500	
112 Private Steuern	-42.937	-53.742	r	-13.700	-12.642	-13.700		-13.700		-13.700	
117 **Privataufwand** (Sp. H inkl. Privatanteile, Naturalentnahr	-134.091	-133.282		-32.509	-28.782	-39.500		-32.500		-32.500	
Liquidität Geldrohüberschuss + Nichtbetriebliche Einkommen - Privataufwand, ergänzt um nachfolgende Positionen:											
119 - **Tilgungungen** L & F	-90.005	-36.482		-10.267	-10.267	-7.942		-10.311		-7.962	
" nichtbetr. & privat		-38.284		-10.773	-10.773	-9.113		-9.170		-9.228	
120 **= Cashflow 3 - "aus eig. Kraft"**, ohne nicht nachhalt.	70.313	13.515									
- Privatvermögen Abfluss lgfr. Ansparen			r								
+ Erlöse a. Anlagenabgäng. L & F											
= Cashflow 3 - inkl. nicht nachhaltiges zeitraumfremdes Gel		13.515		9.096	3.522	-97.352		69.564		37.781	
- Investitionen L & F (ohne MwSt)		-20.000				-20.000					
+ Neue Kredite für L&F, nichtbetrieblich & privat		80.000				80.000					
Liquide Mittel **Beginn =** (+) oder (-)											
Kontenstand -35.000 eils Ende Zeitabschnitt:		44.089		-25.904		-63.256		6.308		44.089	
Kontenstand realisiert:					-31.478						

Fig. 700-2: Intra-year planning and controlling. Source H.Wittmann, JUP PS, sheet LiquiVor (excerpt).

8. Mid-term operational planning

If the past and future are presented using the same concepts, the transition is "**barrier-free**." For operational planning, only a few additional terms are necessary, such as sensitivity and amortisation.

8.1 Sensitivity

Sensitivity tests can be used to show how much operating profits will decline if revenues decrease or costs increase. Example: **How much will cash flow 3 decline if prices/sales revenues are lower than expected?**

The **volatility** (fluctuation) of prices can have existential consequences if financial precautions of stability are not taken. In general, the question can be easily answered by "tweaking" the price of the main product or the price of the most important kind of production.

8.2 Amortisation

One question that arises with large investments is: "**When will the invested money be paid back?**" The concept of amortisation is very old. Today, it reappears as "**pay-off period**" or "**break-even time**." When considering such factors, it quickly becomes clear that some investment projects will not be paid off on time.

Investments with a short term appear more favorable than those with a long term when this criterion is applied. A reconstruction often has a better amortisation than a new building. In the longer term, however, a new building (possibly perhaps at a new location) may still be more advantageous. This means that amortisation is hardly suitable as the sole criterion. Nevertheless, the above question should always be taken into consideration.

8.3 Planning with contribution margin versus without contribution margin

In general, operational planning based on variable costs and total contribution margin is preferable. In agriculture, the basis per hectare, per head of livestock (e.g., dairy cow), and per unit produced (e.g., per fattened cattle) is suitable for this purpose. Whenever possible, the entire herd (e.g., all cows together) should not be taken as the calculation unit, but only a small, manageable unit.
A restaurant-café may want to separate morning business, lunch, afternoon coffee, and dinner. Here, too, the "contribution margin" approach is usually preferable.

However, there are also sectors where only the "without contribution margin" approach makes sense, i.e., planning directly in the accounting scheme. This is the case in horticulture, for example. In wine production. Thus, the contribution margin per hectare can be calculated for grape production and, at the same time, the contribution margin as a whole for the winery.

8.4 Static versus dynamic planning

In "**static planning**," calculations are based on **expected average** yields and prices, and **expenses over several years**. If, for example, an installation is expected to generate sufficient cash flow after four years, it is assumed that this will also be the case in 10 years.

If, on the other hand, planning is carried out in time steps, including the expected fluctuations in revenue and costs in future times, this is referred to as "**dynamic planning**." That sounds tempting. However, the ups and downs of quantities and market prices can rarely be predicted with a high degree of certainty. So, in principle, you can stick with static planning. A certain degree of dynamic planning is involved in the year-on-year analysis (discussed in section 8.7).

8.5 Actual year – which one?

A “targeted company status” to be planned must be measured against the “actuel company status.” But how is this to be defined?

Current actual

The current actual refers to an analysis of **the recent past and the present**! It may be advisable to update the loan list for **the current actual** with the help of banks. This the case if available annual financial statements are already somewhat older. Above all, care must be taken to ensure **that repayments are not calculated too quickly on paper**.

A recommendation for year-by-year planning (for a financial year from July 1 to June 30):

Last financial year 2025/26	=> July 1, 2025	Start of last accounting year
1st variant 2026/27	**=> July 1, 2026**	**Start of “current actual**”
Variant 2 2027/28	=> July 1, 2027	Start of planning year before changeover
Variant 3 2028/29	=> July 1, 2028	Start of 1st changeover year, etc.

Calculated actual

In contrast to the current actual, the (pre-)calculated actual represents **genuine future planning**.
To do this, you need to calculate what will happen in the future “**if you let things continue as they are**.” This means: same organisation as before, with average income and expenses, and average expected prices and costs.

This can result in significant deviations from the accounting results (see below) due to **changes that are beyond one's control**. In a family business, a death may require the hiring of an external worker, who hast o be paid. A transport company may be forced to switch to other energy sources. Farmers who still keep cows in tie-stall barns may suddenly be confronted with price reductions for milk due to animal welfare. Above all, it will often be the case that the accounting years were either extremely good or extremely bad, so that the “updated actual” must deviate from this.

Optimized actual

This term refers to an operating plan that makes optimal use of existing resources. Examples: higher capacity utilization, more effective production processes, better conservation methods of stocks, favorable refinanced short- and long-term liabilities. In the optimized actual, smaller investments and conversions can be planned, provided they are essential for optimization. Strategy: “**First get better, then bigger!**”

But there are also companies where there is not much that could be optimized. And some production processes that are not very profitable when viewed in isolation sometimes support the company's real “cash cows.” The “optimized actual” planning variant is often summarized with the “calculated actual.” In any case, it is hardly possible to directly compare a target variant with the accounting results. The question is whether apples are being compared with oranges.

Accounting actual

This term was introduced by the author himself. He considered the term to be “crisp” because it was directly linked to the accounting results. However, there were difficulties in understanding among colleagues at JUP PS. For this reason, the term “current actual” was adopted at JUP PS (see above). Yet, there are experts who, even in JUP PS, want to reconstruct the last accounting year (= accounting actuel). They deliberately take the **loan value** from the **opening balance** sheet. And they want to report the contribution margins for the last accounting year as accurately as possible. This is not intended as standard in JUP PS. But the program allows this view.

8.6 Alternativ target companies

This is the **classical approach to business planning**. It allows the entrepreneur to see which direction to take and where a large investment would be worthwhile. This requires the calculation of alternative **target companies** (see Figure 427-2 under section 4.2.7 “Benchmarks for cash flows ”).

8.7 Year-on-year planning

There are consultants who handle more than fifty percent of their cases according to the **year-on-year** scheme. This approach is also sometimes chosen at technical colleges. It is particularly recommended in the following situations.

1) If the **decision to convert** production has already been made before planning starting point. In agriculture, this is the case, for example, when converting from conventional farming to organic farming (or vice versa). Possible planning sequence for this:

=> Year before conversion
=> 1st year of conversion
=> 2nd year of conversion
=> Year(s) after conversion.

2) When **a major investment** has just been implemented, so that new “target alternatives” cannot be considered again.

3) If the company’s owner is in such **financial difficulties** that the first step is to consider how to rescue the business step by step.

8.8 Forecast of short-term liabilities

In year-on-year planning, the development of short-term liabilities can also be estimated. This is particularly important if cash flow 3 is insufficient or even negative.

	GuV - Nichtbetr. Einkommen - Privataufwand			Kalk. Ist 2021/22
	Betrieb: Unrund			(Regelbest.)
	31.05.2021		BMEL-Code	Euro
	Vorschau Kontostand der **kurzfristigen Verbindlichkeiten** - Sollwert: max. 10 % der Umsatzerlöse !			
126	**Kontostand:** Giroüberziehungen, Verbindl. aus Liefer. u. Leistungen		Anfang WJ	-99.668
127	**Cashflow 3** (= Eigenmittel für Investitionen und Ansparungen im WJ)		z.121	-30.543
128	- Geplante Investitionen		lt. 1 InFi (0)	
129	+ Investitionszuschuss		lt. 1 InFi (0)	
130	- Weitere Investitionen	Ersatzinvest. Maschinen	- betrieblich u. nichtbetr.	-29.000
131	- Anderer regelm. Geldabfluss			
132	- Außerordentl. Geldabfluss			
133	+ Anderer regelm. Geldzufluss			
134	+ Außerordentl. Geldzufluss			
135	**+ Zusätzliche Kredite**		- betrieblich u. nichtbetr.	130.000
136	**Kontostand:** Giroüberziehungen, Verbindl. aus Liefer. u. Leistungen		Ende WJ	-29.211

Fig. 880: An exemple of expected development of short-term liabilities. Source H. Wittmann, JUP PS, sheets 6 GNP. This sheet is only displayed at year-by-year-planning.

In the example of this family business, it would be expected that short-term liabilities would increase to Euro 99,868 + 30,543 + 29,000 = around €160,000 within a year. Only a newly planned transitional loan of €130,000 can prevent this family’s liquidity.

When considering the future in a **year-by-year** scheme, the **specifically planned repayment** must be included (instead of the “repayment according to business principles” in the business assessment). If a repayment suspension is taken into account in the planning, the parties involved (entrepreneur, advisor,

bank) will already be aware that this situation cannot remain permanent. Conversely, such planning must also take into account a one-time **payment from a maturing savings agreement** or similar.

8.9 Actual/plan versus plan/actual

Actual/plan comparisons are predominantly used: for example, the calculated actual figures are compared with the target operations. However, entrepreneurs (and banks) are sometimes interested in a **plan/actual** comparison. This shows, for example, what was planned three years ago and how the figures have developed according to the last two annual financial statements.

Quote on cash flow in business planning

28 But who among you
wants to build a tower
and does not first sit down
and calculate the cost
to see if he has enough to complete it?
29 Otherwise,
when he has laid the foundation
and is unable to finish it,
Analysts
who sees it
will begin to mock him.
30 And say,
This man began to build,
and was not able to finish.

The Bible, Luke 14:28-30, according to the translation by Martin Luther.
To autor's knowledge, this is the first application of cash flow for self-financing of investments.

Quote on amortisation

A farmer wants to build a hall for the machinery. The business consultant looks at the intended location and remarks: "This would be a good site for a new barn in the future." The farmer replies: "I am now 48 years old. I would rather retire at 58 than build another barn!"

Quotes on calculating

Teacher: "There is a Swiss proverb that says: 'A day of calculating often brings more than a month of working'." Student K. replies ironically: "So I only need to work for a month to avoid having to calculate for a day!"

A business management teacher from northern Germany once said: "Investment decisions are made 'with the gut' (based on gut feeling). Unfortunately, entrepreneurs don't do enough calculations."
The author replied: "Then it's up to us to improve their business studies lessons and training."

Two more things to make you smile

Someone sees an acquaintance going into the credit department of the bank. After a while, the acquaintance comes back out. The first gay asks him, "Did they give you money for nix?" The bank visitor replies, "Me nix money, you nix money" (source: Südwestdeutscher Rundfunk). The German „nix" is to be translated by « nothing ». But, « for nix » can have a different sense : no evidence, without reason.

A teacher meets a former student. The teacher is riding an old bicycle, the young man is driving a fancy sports car. The teacher says, "Well, you always had problems with percentages at school." The former slow thinker replies, "I managed to figure out percentages too. Today, I buy socks for 1 euro and sell them again for 3 euros. And I live off the 2 percent difference."

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9. Double-entry bookkeeping

Most people find it overwhelming to add up the same column of numbers with **changing** signs in their heads. This was the reason for the creation of **debit and credit**, as described by Luca Pacioli in 1494. According to this system, only **one mathematical sign** appears in each entry column, namely plus. Because of **mental arithmetic**, debit and credit became the norm!

Electronic calculators were introduced about **50 years** ago. Since then, **any number of sign changes** can occur in each column of numbers! **Digital arithmetic** allows us to move away from debit and credit. Future entrepreneurs and experts should therefore also be made aware of the advantages of digitisation when learning accounting.

In schools, including universities, there is a problem when “duplication in double-entry bookkeeping” takes up **more time than necessary**. Practical training in annual financial statement analysis and business calculation or economic thinking then falls short. Or there is not enough time for other essential topics.

The difficulties of accounting today are not due to duplication. The difficulties are caused by a lot of tax and commercial law regulations.

9.1 Double-entry bookkeeping with plus and minus

Double-entry bookkeeping is to be demonstrated using only « plus and minus »—without « debits and credits ». This is proven by the following “**double-entry tables**”, shown in fig. 910-1 to 910-3. On of table is translated in English. All exambles are related to agriculture, where these tables have been developped and applied since about 1983. That means, no « filed studies is necessary anymore.

The corresponding file “**i Double-entry tables according to digital logic.xlsx**” can be downloaded from the Author’s Cloud. This file is originally MS Excel, without any makros. That means, everybody can use it, if will talk on accountance theory. For realizing all advantages, the user can also enter his own accounting entries in this Excel application. You are recommended to printing in color and in A3 format.

The double-entry tables have originally 19 columns for numbers, grouped into **four categories.**

Left:	**Financial accounts**	and	**Tangible asset accounts**
Right:	**Profit and Loss accounts**	and	**Private accounts**

Most important in this double-entry tables are the **cross totals** (in German : Quersummen).

After every accounting entry, each changes on the left must be identical to that on the right.

The cross totals in the fourth-last line show directly the **change in equity.**

Double-entry table

				Financial accounts									Tangible asset accounts	Profit and Loss accounts								Private accounts	
			Selection of transactions according to methodical ideas VAT not separated	Cash desk		Current account		Receivables from goods and services	Loans from banks	Liabilites from goods and services	Special items for tax purposes	VAT account		Income accounts (+)			Expense accounts (-)					Private deposits	Private withdrawals
R	Doc		Fiscal year: 1. July to 30. June	Deposit (+)	Payout (-)	Deposit (+)	Payout (-)	Participations					Addition(+) Disposal(-)	Plant and livestock products	Other regular income	Non-period income, Spec. items	Plant and livestock expenses	Machines Buildings	Other operating expenses	Wages, Leases, Interest	Non-period expenses, Spec. items	(+)	(-)
		1.7.	**Opening balance**	889.26		44,637.18		80,089.66	-224,707.59	-51,257.77	-187,673.66		2,973,901.88										
			Checksum = Equity beginn of period	**2,625,878.96**																			
1	17	8.7.	Accounting costs				-462.00												-462.00				
2	21	15.7.	Retirement fund for the farmer				-506.00																-506.00
4	59	16.7.	Office supplies		-14.50														-14.50				
5	25.5	18.7.	Milk June 2019			49,771.78		-49,771.78															
8	30	22.7.	Veterinary June 2019				-1,951.58			1,951.58													
9	34	24.7.	Wage for Mister Schreiber July 2019				-1,644.12													-1,644.12			
13	46	27.7.	Money from current account to cash	500.00			-500.00																
14	50	30.7.	6 old dairy cows			2,112.08								2,112.08									
15	63	31.7.	Farmer's household		-700.00																		-700.00
18	55	31.7.	Loan hall - repayment				-373.57		373.57														
19	58	31.7.	Loan hall - interest				-126.43													-126.43			
21	77	31.7.	Concentrat for dairy cows 22,085 t							-7,546.77							-7,546.77						
24	103	4.8.	New steering system for tractor				-17,240.00						14,487.39								-2,752.61		
28	131	16.8.	Milk July 2019			49,492.13								49,492.13									
29			Milk testing assoc., costs milk collect				-131.81										-131.81						
Others examples	664	16.1.	Land sale			150,000.00										150,000.00							
	672	21.1.	Private savings book				-150,000.00																-150,000.00
	750	7.2	New short disc harrow				-8,500.00						7,142.86								-1,357.14		
	751	7.2.	Trade-in old disc harrow			3,000.00										3,000.00							
	1206	30.6.	Milk June 2020					49,557.22						49,557.22									
		30.6.	Milk testing assoc., costs milk collect					-131.18									-131.18						
	1236	30.6.	Repairing tractor June 2020							-1,762.82								-1,762.82					
	1245	30.6.	Sale of fattened pigs June 2020					33,222.16						33,222.16									
			Checksum 413388.65											**Gross cash surplus from operating activities, per year ->**			1,184,127.57	79,488.01	153,100.00	-737,984.64	-58,040.38	-47,137.21	-154,169.05	-5,995.65		
Year-end bookings		30.6.	Natural withdrawals, private shares											310.00				7,200.00	4,009.17				-11,519.17
			Board and lodging - Wage costs																	-3,608.25		3,608.25	
			Book value disposal										-2,735.10					-159.00			-2,576.10		
			Depreciaton machinery and buildings										-93,005.38					-93,005.38					
			Changes in livestock										-38,455.00				-38,455.00						
			Changes in product inventory																				
			Changes in material inventory										-1,616.86				-1,616.86						
			Allocation to special items								-154,823.90										-154,823.90		
			Reversal of special items								18,164.01					18,164.01							
			VAT settlement with tax office																				
			Account changes		-270.74	27,546.35		28,935.64	54,538.31	18,977.95	-136,659.89	0.00	-106,229.96	1,184,437.57	79,488.01	171,264.01	-778,056.50	-144,004.76	-43,128.04	-157,777.30	-163,395.65	3,608.25	-265,597.93
			Checksums = Change in equity					***-113,162.34***										***-113,162.34***					
														Checksum = Profit ->			**148,827.34**						
F		30.6.	**Final balance**	618.52		72,183.53		109,025.30	-170,169.28	-42,279.82	-324,333.55	0.00	2,867,671.92										
			Checksum = Equity end of period	**2,512,716.62**																			

Fig. 910-1: 'Double-entry table' according to digital logic. Translated in Englicsh. Source H. Wittmann (excerpt).

All individual entries recorded are taken from the agricultural training example "Dieter Neubert" of the company NLB at Verden an der Aller (Germany). In 2019/20, the farmer 'Neubert' was still a "VAT flat-rate taxpayer." Therefore, the column for VAT is empty. In the meanwhile this farm also has to record the VAT.

The following figures 910-2 and 910-3 show the same content as fig. 910-1 in original German double-entry tables.

Dopplungstabelle - doppelte Bf				Finanzkonten									Sach-	Erfolgskonten										Privatkonten	
Auswahl Geschäftsvorgänge				Kasse		Giro		Forder. a.	Kredite	Verb. a.	Sonder-	USt-	vermög.-	Ertragskonten (+)			Aufwandskonten (-)							Einlagen	Ent-
nach methodischen Überlegungen				Ein-	Aus-	Ein-	Aus-	Lief+Leist	bei	Lief+Leist	posten	verrechn.	konten	Pflanzen-,	Sonst.	Zeitraumfr.	Pflanzen-,	Maschinen,	Sonst.	Löhne,	Zeitraumfr.			nahmen
MwSt nicht separat ausgewiesen				zahlung	zahlung	zahlung	zahlung	Beteilig.	Kredit-	Passive		mit	Zugang (+)	Tier-	regelmäß.	Erträge,	Tierprodukt.	Gebäude	Betriebs-	Pachten,	Aufwend.,		(+)	(-)
Z.	Be- leg	Tag	Geschäftsjahr 1.7. bis 30.6.	(+)	(-)	(+)	(-)	Ak.Re'abgr.	instituten	Re'abgr.	(steuerf.)	Fin'amt	Abgang (-)	produktion	Entr. Zulag.	Auflös.SoPo	Mater'aufw.		aufwand	Zinsen	Einst.SoPo			
			Deutscher Bayla-Code =>	1600, 1610		1700, 1810		1200, 0800	3150	3300 ... 3900	2980 ... 2998	1400, 3800	0200 ... 0700	4001 ... 4779	4780 ... 4795 4880 ... 4969	4970 ... 4999	5001 ... 5355 5360 ... 5890	6450 ... 6570 6200 ... 6290	6391 ... 6859 6600 ... 6772	6010 ... 6170 6300, 7120	6883 ... 6929		2100 ... 2250	2300 ... 2499
A		1.7.	Anfangsbilanz	889,26		44.637,18		80.089,66	-224.707,59	-51.257,77	-187.673,66		2.973.901,88											
			Quersumme = Eigenkapital Anfang GJ					2.625.878,96																
V			Übertrag von Vorblatt																					
1	17	8.7.	Buchführungskosten				-462,00												-462,00					
2	21	15.7.	Alterskasse Beitrag Ehemann				-253,00																	-253,00
3	22	15.7.	Alterskasse Beitrag Ehefrau				-253,00																	-253,00
4	59	16.7.	Büromaterial		-14,50														-14,50					
5	25,5	18.7.	Milchgeld Juni 2019			49.771,78		-49.771,78																
6	27	19.7.	Telekom				-83,17			83,17														
7	28	19.7.	Jagdgeld 2019 / 2020			250,00								250,00										
8	30	22.7.	Tierarzt Juni 2019				-1.951,58			1.951,58														
9	34	24.7.	Lohn H. Schreiber Juli				-1.644,12													-1.644,12				
10	36	26.7.	Sozialversicherung Juli				-879,77													-879,77				
11	39	26.7.	Maschinenmiete				-143,10										-143,10							
12	46	26.7.	Lohn Fam-AK mit Arbeitsvertrag				-1.993,13													-1.993,13				
13	46	27.7.	Geld vom Giro zu Kasse	500,00			-500,00																	
14	50	30.7.	Milchkühe alt 6 Stück			2.112,08								2.112,08										
15	63	31.7.	Haushalt		-700,00																			-700,00
16	51	31.7.	Lohn Aushilfe Beck				-425,00													-425,00				
17	56	31.7.	Altenteil				-766,93																	-766,93
18	55	31.7.	Darlehen Halle - Tilgung				-373,57		373,57															
19	58	31.7.	Darlehen Halle - Zinsen				-126,43													-126,43				
20	74	31.7.	WarKo Ammonsulf. 6,83 t							-2.001,87							-2.001,87							
21	77	31.7.	WarKo Milchleist.fut 22,085 t							-7.546,77							-7.546,77							
22	90	31.7.	Warenkonto-Ausgleich				-9.548,64			9.548,64														
23	97	1.8.	Elektr. Strom				-485,00												-485,00					
24	103	4.8.	Kauf Lenksystem für Traktor				-17.240,00						14.487,39								-2.752,61			
25			*bei inzahlungsn. Inv. extra Zeile!*																					
26			*bei Kredit f. invest. extra Zeile !*																					
27	116	12.8.	Gasthaus Weidmannsheil				-135,00																	-135,00
28	131,99	16.8.	Milchgeld für Juli 2019			49.492,13								49.492,13										
29			Milchprüfring				-26,41										-26,41							
30			Stoppkosten				-105,40										-105,40							
U			Su. USt-Verrechn. Finanzamt im Zeitr.																					
			Kontoänderungen	0,00	-214,50	64.230,74	0,00	-49.771,78	373,57	2.034,75	0,00	0,00	14.487,39	51.854,21	0,00	0,00	-9.823,55	0,00	-961,50	-5.068,45	-2.752,61		0,00	-2.107,93
			Quersummen = Änder. Eigenkapital					31.140,17									31.140,17							
													Quersumme = Gewinn ->				33.248,10							
E			Endbilanz	674,76		108.867,92	0,00	30.317,88	-224.334,02	-59.223,02	-187.673,66	0,00	2.988.389,27											
			Quersumme = Eigenkapital Ende					2.657.019,13																

Fig. 910-2: 'Double-entry table' according to digital logic, part 1. Source H. Wittmann (excerpt of colomes).
„i Bf Dopplungstabellen nach digitaler Logik.xlsx" (Cloud BWL-Unterlagen Wittmann)

The double-entry tables show even the (cross) total of the **Profit and loss accounts** shows the **profit** for the uncomplete first period : €33,248,10.

In order to show the annual results of this example, over 1,000 business transactions have been summarized (by the author) in a few grey lines on the second original double-entry table.

Dopplungstabelle - doppelte Bf				Finanzkonten									Sach-	Erfolgskonten								Privatkonten	
Auswahl Geschäftsvorgänge				Kasse		Giro		Forder. a.	Kredite	Verb. a.	Sonder-	USt-	vermög.-	Ertragskonten (+)			Aufwandskonten (-)					Einlagen	Ent-
nach methodischen Überlegungen				Ein-	Aus-	Ein-	Aus-	Lief+Leist	bei	Lief+Leist	posten	verrechn.	konten	Pflanzen-,	Sonst.	Zeitraumfr.	Pflanzen-,	Maschinen,	Sonst.	Löhne,	Zeitraumfr.		nahmen
MwSt nicht separat ausgewiesen				zahlung	zahlung	zahlung	zahlung	Beteilig.	Kredit-	Passive		mit	Zugang (+)	Tier-	regelmäß.	Erträge,	Tierprodukt.	Gebäude	Betriebs-	Pachten,	Aufwend.,	(+)	(-)
Z.	Be-leg	Tag	Geschäftsjahr 1.7. bis 30.6.	(+)	(-)	(+)	(-)	Ak.Re'abgr.	instituten	Re'abgr.	(steuerl.)	Fin'amt	Abgang (-)	produktion	Entr.,Zulag.	Auflös.SoPo	Mater'aufw.		Aufwand	Zinsen	Einst.SoPo		
			Deutscher Bayla-Code =>	1600, 1610		1700, 1810		1200, 0800	3150	3300 ... 3900	2980 ... 2998	1400, 3800	0200 ... 0700	4001 ... 4779	4780 ... 4795 4880 ... 4969	4970 ... 4999	5001 ...5355 5360 ... 5890	6450 ... 6570 6200 ... 6290	6391 ... 6859 6600 ... 6772	6010 ... 6170 6300, 7120	6883 ... 6929	2100 ... 2250	2300 ... 2499
A		1.7.	**Anfangsbilanz**	889,26		44.637,18	0,00	80.089,66	-224.707,59	-61.257,77	-187.673,66	0,00	2.973.901,88										
			Quersumme = Eigenkapital Anfang GJ	**2.625.878,96**																			
V			Übertrag v. Vorblatt Juli Aug	0,00	-214,50	64.230,74	0,00	-49.771,78	373,57	2.034,75	0,00	0,00	14.487,39	51.854,21	0,00	0,00	-9.823,55	0,00	-961,50	-5.068,45	-2.752,61	0,00	-2.107,93
1	664	16.1.	Grundstücksverkauf			150.000,00										150.000,00							
2	672	21.1.	Private Geldanlage				-150.000,00																-150.000,00
3	750	7.2.	Kurzscheibenegge				-8.500,00						7.142,86								-1.357,14		
4	751	7.2.	*inzahlungn. alte Scheibenegge*			3.000,00										3.000,00							
5			Rest Entnahmen / Einlagen		-12.409,90		-89.560,93																-101.970,83
6			Rest vom Giro zur Kasse	16.700,00			-16.700,00																
7			Jagdgeld 2019 / 2020			1.053.434,76		-3.940,78						1.049.493,98									
8			Rest sonst. regelmäß. Erträge	230,00		79.258,01									79.488,01								
9			Rest Aufwabd Pfl.- / Tierprod.				-738.277,41			12.012,94							-726.264,47						
10			Rest. Aufwand Masch + Geb		-90,63		-60.774,12			4.587,19								-56.277,56					
11			Rest sonst. Betriebsaufwand		-464,56		-50.007,48			3.921,33									-46.175,71		-375,00		
12			Rest Löhne, Pachten, Zinsen		-4.021,15		-145.029,45			-50,00										-149.100,60			
13			Invest. Wiesenegge, Kompr.				-9.363,03						7.952,13			100,00					-1.510,90		
14			Rest Tilgungen				-54.164,74		54.164,74														
15	1206	30.6.	Milchgeld für Juni 2020					49.557,22						49.557,22									
16		30.6.	Milchprüfung					-27,92									-27,92						
17		30.6.	Stoppkosten					-103,26									-103,26						
18	1225	30.6.	Klauenpflege Juni 2020							-1.765,44							-1.765,44						
19	1236	30.6.	Rep. Traktor Juni 2020							-1.762,82								-1.762,82					
20	1245	30.6.	Mastschw.-Verkauf Juni 2020					33.222,16						33.222,16									
21			**Quersumme 413388,65**										**Geldrohüberschuss aus lfd. Geschäftstätigkeit im GJ ->**	1.184.127,57	79.488,01	153.100,00	-737.984,64	-58.040,38	-47.137,21	-154.169,05	-5.995,65		
22		30.6.	Nat'ent.,Privatanteile an U'ausg.											310,00				7.200,00	4.009,17				-11.519,17
23			Verrechn. Wirtschaftshaushalt																	-3.608,25		3.608,25	
24			Buchwertabgang										-2.735,10					-159,00			-2.576,10		
25			AfA Masch Gebäude										-93.005,38					-93.005,38					
26			Bestandsveränd Vieh										-38.455,00				-38.455,00						
27			Bestandsänd. selbsterz. Vorräte																				
28			Bestandsänd. RHB										-1.616,86				-1.616,86						
29			Zun. Rückl. = Einstell. in SoPo								-154.823,90										-154.823,90		
30			Abn. Rückl.= Auflös. aus SoPo								18.164,01					18.164,01							
U			Su. USt-Verrechn. Finanzamt im Zeitr.																				
			Kontoänderungen	0,00	-270,74	27.546,35	0,00	28.935,64	54.538,31	18.977,95	-136.659,89	0,00	-106.229,96	1.184.437,57	79.488,01	171.264,01	-778.056,50	-144.004,76	-43.128,04	-157.777,30	-163.395,65	3.608,25	-265.597,93
			Quersummen = Änder. Eigenkapital	**-113.162,34**										**-113.162,34**									
													Quersumme = Gewinn ->	**148.827,34**									
E		30.6.	**Endbilanz**	618,52		72.183,53	0,00	109.025,30	-170.169,28	-42.279,82	-324.333,55	0,00	2.867.671,92										
			Quersumme = Eigenkapital Ende	**2.512.716,62**																			

Fig. 910-3: 'Double-entry table' according to digital logic, part 2. Source H. Wittmann (excerpt of colums).
„i Bf Dopplungstabellen nach digitaler Logik.xlsx" (Cloud BWL-Unterlagen Wittmann)

On the one hand, the double-entry has to be carried out with **reversal signs**.
Examples:
- Money from the current account to the cash desk: **minus** in the current account, **plus** in the cash desk.
- Repayment of a loan: **minus** in the current account, **plus** in the loan account.
- Transfer of business expenses to private expenses: **plus** in withdrawals, **minus** in company wage expenses.

Such entries are known to accountants as "asset exchange" or "liability exchange."

On the other hand, the double-entry hast o be done with **same signs**.
Examples:
- Cash receipt from grain sales: **plus** in current account, **plus** in crop production (profit and loss account).
- Cash outflow for private celebration: **minus** in cash, **minus** in withdrawals for private use.
- Outstanding milk payment from the purchasing milk at the end of the financial year: **plus** in receivables, **plus** in animal production (profit and loss account).

In practice, the mathematical sign is determined by whether or not the doubling crosses the vertical center line in the double-entry table. The correctness of this sign usage is shown by the checksums in the fourth-last row of the double-entry tables: **The same change in equity results on both sides**.

The cross total of the opening balance sheet shows the **equity at the beginning**, while the cross total of the closing balance sheet shows the **equity at the end** of the accounting year.

The double-entry tables also solves the previously existing problem with "debts not covered by assets" in the balance sheet, see chapter 3, section 3.2.4.

In computerized accounting, the daily doubling is effected by using easily comprehensible **number coding**, usually by assigning 4- to 5-digits. I assume that this is why practising accounting entries in accordance with the debit and credit convention has become completely unnecessary.

Since it certainly cannot be proven that entrepreneurs with a good knowledge of debits and credits achieve better results than their colleagues without this knowledge, the **opportunity to eliminate it** should be grasped. More than 50 years after the beginning of digitisation, debits and credits are now really only of historical interest.

Quotes on accounting theory

"I, too, was 'tormented' with debits and credits in great length during my studies. Therefore, I can understand the doubts as to whether it actually makes sense to bother technical college students with all their different backgrounds and in the limited time available. Especially since they will not or cannot apply it in their practical work anyway." (Nadine Gollmann, State Institute for Agricultural Development, Schwäbisch Gmünd, Germany, 2021, email).

"Now is the time, as Pacioli did 525 years ago with Venetian accounting, to describe today's possibilities as a stringent system and thus replace the method of 1494 in textbooks" (Prof. em. Werner Müller, formerly Mainz University of Applied Sciences).
https://mueller-consulting.jimdofree.com/forschung/geschichte/ (read on October 16, 2023).

In 2023, the author expressed to colleagues in his own field that it is unfortunate that after 50 years of digitalisation, young people are still wasting time with debit and credit. One of the group asked, "What do you have against accounting?"

Now, the autor's question: Is the term « accounting » really equal to "debit and credit"? No, it is not.

Quote on complexity

"All word-for-word transcriptions ... are incredibly complicated. ... Writing cultures were supported by castes of scribes who had no interest that anyone learned their writing system – quite the opposite!" (Johannes Lohmann: Theory and Practice in the Light of European and General Conceptual History, in: On the Theory of Practice, 1970. In German).

Quote on power

"Power is the privilege of not having to learn" (Karl W. Deutsch, sociologist and political scientist. Born in Prague in 1912. He died in Cambridge, USA, in 1992).

9.2 Double-entry bookkeeping with debits and credits

The following descriptions have been **superfluous** since the beginning of digital computing. They do not need to be taught or learned! That is why this section is **marked in grey**.

But, it should be clarified that the author is also familiar with the duplication with debits and credits. It was necessary in the past. Interestingly, it is accounting software providers who point out that computers now do the calculations and that IT systems work internally **only with plus and minus** – as is the case with all other calculations worldwide.

The so-called "T-account" (briefly described below) is merely a schematic representation that dates back to a time when digitalisation did not yet exist. See, for example, Fastbill, Frankfurt am Main:
https://www.fastbill.com/lexikon/t-konten/
(there see "Die Verwendung der T-Konten" [The use of T-accounts])
https://blog.fastbill.com/buchungssaetze/ (see "Was ist ein T-Konto?" [What is a T-account?])

The Swiss accounting software company Banana SA sums it up as follows: "Since computers did not exist during the Renaissance, it was common practice to enter debits and credits in two separate columns, which simplified the summation process. In the computer age, however, the problem is not one of calculation, because that is done by the computer..."
https://www.banana.ch/de/node/10964
Under the subheading "Posting in a single column," it states: "For calculations, the programs use ... the single-column system." When posting a business transaction, Banana SA uses only **plus and minus**. Unfortunately, Banana SA does not come to the same conclusions as the author. Instead, it posts income with minus and expenses with plus !

The doubling in double-entry bookkeeping **should** have been clarified with this quotas. Nevertheless, here is a review.

The fact is that in business management simplifications brought by digitisation since 1970 have not been consistently taken advantage of. Fifty years later, many lecturers still insist that young professionals must learn "**how to create accounting entries**" using T-accounts. As a reminder, according to the debit and credit convention, there is only **one** mathematical sign in each column – for the sake of **mental arithmetic**.

Be honest: who can calculate the following column of numbers with changing signs in their head?

+ 876,673
- 324,890
+ 129,786
+ 654,678
- 34,864
= ……

Thus, system with uniform signs was needed in the past. The income statement also had to be designed in accordance with this convention.

The accountant had to ensure that the P&L statement also balanced according to debits and credits: Total on the left = total on the right (last line). Consequence in the penultimate line of Fig. 920-1:

Profit on the **expense side** !
Loss on the **income side** !

Here is an example of P&L with debit and credit from an agricultural textbook from 1980.

A. Expenses

	Pay-ments	(+) Inventories Decrease Depriciation	(–) Inventories Increase	(–) Private shares	Expenses
Special expenses	553.316	1.546			554.862
Wages, salaries, social contributions	99.210	3.608			102.818
Contract work, machine rental	107.207				107.207
Fuels and lubricants	42.001		150		41.851
Maintenance/ depreciation machins	35.304	49.774			85.078
Maintenance/ depreciation cars	9.057	10.927		7.200	12.784
Maintenance/ depreciation buildings	19.336	32.305			51.641
General business insurances	7.037				7.037
Operating taxes and duties	10.257				10.257
Electricity, heating fuels, water	28.756	220		3.350	25.626
Other general operating expenses	22.889			659	22.230
Leases, rentals	51.950				51.950
Interest	3.250				3.250
Non-period expenses	5.996	154.882			160.878
Company expenditures	**995.566**	**253.262**	**150**	**11.209**	**1.237.469**
Profit					**148.828**
Total					1.386.297

B. Incomes

	Receipts	(–) Inventories Decrease	(+) Inventories Increase	(+) With-drawals in kind	Incomes
Agricultural soil products	57.445				57.445
Cattle	33.307	4.995			28.312
Milk	603.895			310	604.205
Pigs	479.704	33.460			446.244
Poultry, eggs					
Other animal products					
Animal products	1.116.906	38.455		310	1.078.761
Contract work, machine rental	1.866				1.866
Other agricultural income	74.074		11.457		85.531
Forestry, hunting	1.774				1.774
Other ancillary operations					
Leases, rentals	3.548				3.548
Interest	241				241
Non-period income	153.000		4.131		157.131
Company incomes	**1.408.854**	**38.455**	**15.588**	**310**	**1.386.297**
Loss					
Total					1.386.297

Fig. 920-1: Profit and loss statement according to debit and credit convention.
Source: Lehrbuch Agrarwirtschaft, Teil B Betriebswirtschaft, 1980, pp. 207-208.
Reconstructed by H. Wittmann. Completed with data from the NLB training example “Neubert,” 2019/20 fiscal year.

Instead of this P&L statement based on debits and credits, the P&L statement in Germany today is usually a staggered statement that allows for plus and minus (see Fig. 311). However, the conclusion to completely abandon debits and credits has not yet been implemented everywhere in German laws.

Note: Farmer “Neubert” provides some of his wage laborers with meals in his private household. The value of this must be transferred to “farm household,” see Fig. 920-1, line 23. In Fig. 920-2, this wage expense is shown in the depreciation column because there is no separate column for it in this scheme – according to the debit and credit convention, there must be no minus in any column.

« Resolution » of the balance sheet

According to traditional accounting theory, the balance sheet must be « resolved » into individual accounts.

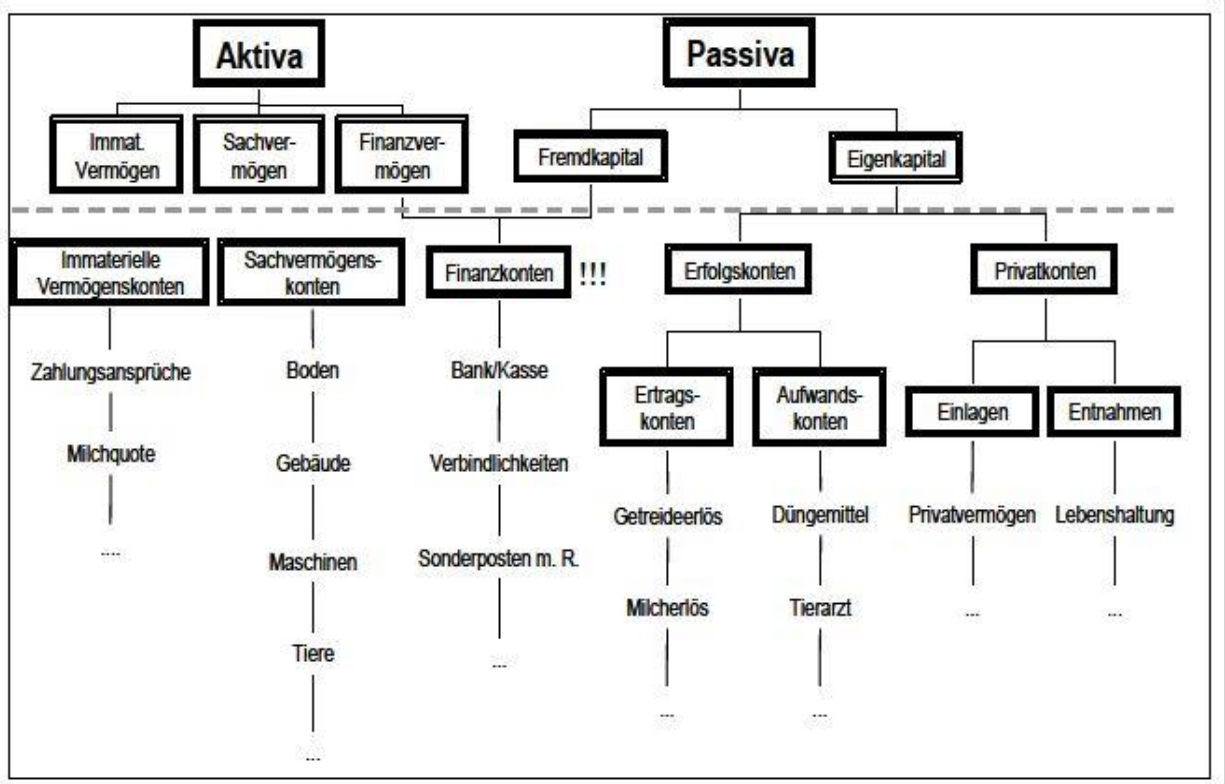

Fig. 920-2: "Balance sheet dissolution" according to debit and credit convention

In the accounting departments, however, the figures come from inventory list, list of liabilities, stock list, etc.. They are **added together** to produce a brief summary in the form of a balance sheet. The so-called «dissolution of the balance sheet» is therefore **a reversal of the real procedure !**

«T-accounts»

Generations of business management students used to spend weeks working on «T-accounts».

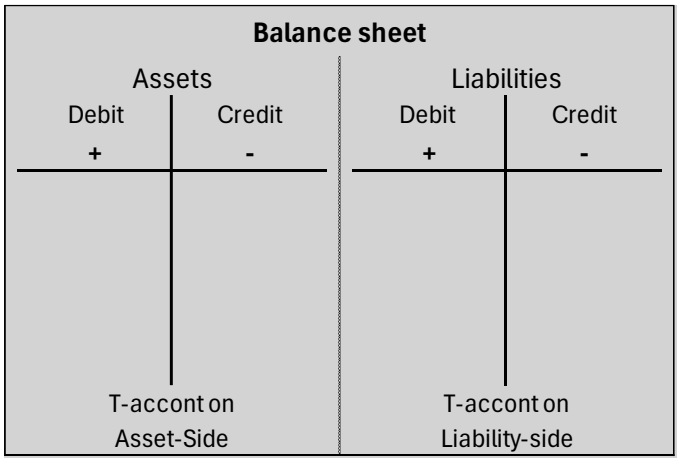

Fig 920-3: "T-accounts" according to debit and credit convention – the basic scheme

Two exemples of « T-cacconts », one with a change in equity, the other without

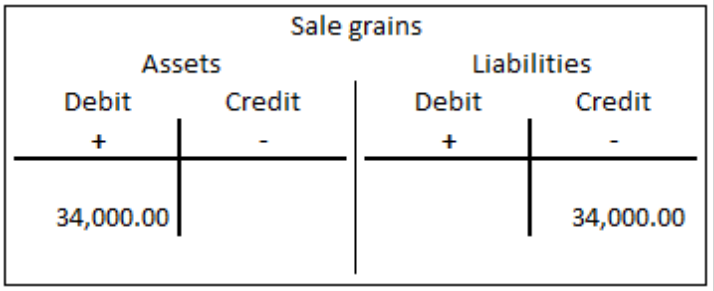

Fig. 920-4: « T-account » according to the debit-credit convention – **with** a change in equity

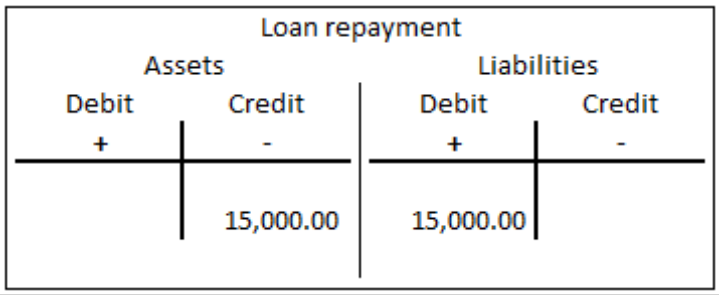

Fig. 920-5: « T-account » according to the debit-credit convention – **without** a change in equity

Negative equity in debit and credit convention: A legal procedure in Germany to avoid logic.

How negative equity becomes a 'deficit not covered by equity' on the **assets side** of the balance sheet is handled has already been described in **section 3.2.4** of this paper.

Here is a **quote from the accounting software provider Lexware (quoted from LexWiki)**: Source: Haufe-Lexware GmbH & Co. KG. A Haufe Group company. D-79111 Freiburg (Germany). https://lexwiki.de/faq/finanz-buchfuehrung/nicht-durch-eigenkapital-gedeckter-fehlbetrag

Translated in English by the author.

Start of quotation.

If, when preparing a preliminary balance sheet, it is determined that the evaluation point "A. Equity" on the liabilities side has a negative value.

1. Definition

This case is defined in § 268 (3) of the German Commercial Code (HGB) as follows:
If equity has been depleted by losses and the liabilities exceed the assets, this amount must be reported separately at the end of the balance sheet on the assets side under the heading "Deficit not covered by equity." The amount must therefore not remain there, but must be reported as the last item on the assets side, while the reported equity must be at least €0.00.

2. Setup in Lexware

DATEV has not provided for this case in its chart of accounts. Lexware has followed DATEV's lead and has not taken this into account when creating the evaluation structure. Therefore, in such a case, the following adjustment must be made (only once):

To do this, call up the function "Reports/Evaluation structure/Balance sheet Assets". Under the last evaluation point "C. Prepaid expenses" or "D. Deferred tax assets," add another evaluation point "Deficit not covered by equity" preceded by the next available letter and save the change.
In account administration, the account "Other assets" (1500 / 1300 in the special account framework SKR 03 / special account framework SKR 04) must now be copied to the new account 0899 / 2009 (SKR 03 / SKR 04) "Deficit not covered by equity." The account must be assigned to the new evaluation point under "Balance Sheet Assets."

Then call up the function "Reports/Evaluation Structure/Balance Sheet Liabilities." Under the evaluation point "A. V. Net Income/Net Loss," insert the evaluation point "A. VI. Amount Not Covered by Equity" and save the change. Finally, in account management, copy account 0800 / 2000 (SKR 03 / SKR 04) to the new account 0898 / 2008 (SKR 03 / SKR 04) "Amount not covered by equity" and assign it to the corresponding evaluation point under "Balance sheet liabilities."

3. Entries
If a trial printout of the balance sheet shows that the amount reported under "A. Equity" is negative, this exact amount 0899 / 2009 must be posted to 0898 / 2008 (SKR 03 / SKR 04) immediately before the year-end balance as of December 31. The reported equity must now be 0.00.
In the new year, this entry must be reversed as of January 1 by means of a general reversal entry (0898 / 2008 to 0899 / 2009 (SKR 03 / SKR 04). The entry is only relevant for the closing and opening balance sheet and must not be carried over to the next year.
In the case of a corporation, this also requires a positive going concern forecast.

End of quotation.

A complicated instruction to circumvent logic - in order to avoid the logical negative sign …

On this subject, here is an excerpt from the German Commercial Code (HGB), § 268
In paragraph (3) of § 268, the HGB stipulates that, as a result of debits and credits in the case of negative equity (**still)**, the list on the assets side of the balance sheet **must** be "extended" if necessary. As if digitisation had never existed. Simply unbelievable!

Handelsgesetzbuch
§ 268 Vorschriften zu einzelnen Posten der Bilanz
Bilanzvermerke

(1) Die Bilanz darf auch unter Berücksichtigung der vollständigen oder teilweisen Verwendung des Jahresergebnisses aufgestellt werden. Wird die Bilanz unter Berücksichtigung der teilweisen Verwendung des Jahresergebnisses aufgestellt, so tritt an die Stelle der Posten "Jahresüberschuss/

Jahresfehlbetrag" und "Gewinnvortrag/Verlustvortrag" der Posten "Bilanzgewinn/Bilanzverlust"; ein vorhandener Gewinn- oder Verlustvortrag ist in den Posten "Bilanzgewinn/Bilanzverlust" einzubeziehen und in der Bilanz gesondert anzugeben. Die Angabe kann auch im Anhang gemacht werden.

(2) (weggefallen)

(3) Ist das Eigenkapital durch Verluste aufgebraucht und ergibt sich ein Überschuss der Passivposten über die Aktivposten, so ist dieser Betrag am Schluss der Bilanz auf der Aktivseite gesondert unter der Bezeichnung "Nicht durch Eigenkapital gedeckter Fehlbetrag" auszuweisen.

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i Betriebswirtschaft - Basics für Unternehmer Analysten Planer 2026 02 28.pdf

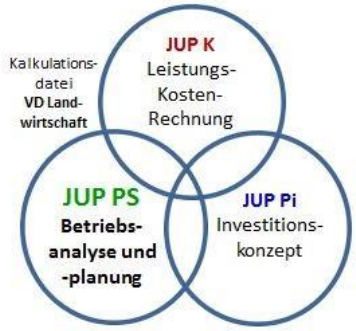
i Der Kern der BWL für Unternehmer Schema 2025 09 05.xlsx
i Die Liquidität im rechten Licht inkl. Kern der BWL 2025 09 05.ppt (**Powerpoint**)
i Cashflow 1 2 3 Innenfinanzierungskraft 2023 05 19.xlsx
i AfA linear vs AfA vorgez 2022 03 02.xlsx

i **Bf Dopplungstabellen** nach digitaler Logik DE EN 2024 05 17.xlsx (Tables for double-entry)
i Finally digital - Double entry 2024 04 30.pdf (in Englisch)
i Stop the 'three activities' in IFRS 18 EN DE 2024 12 02 (PDF)
i Buchführungs-Bürokratie durch IFRS 18 - Unternehmensbewertung geht anders 2025 10 22

Cloud materials for agricultural teachers and advisors (examples):
https://c.web.de/@337550405334472114/Mz72GFXU-z7ox4Zji4y9Tg

i Econ-A 2025 09 04.pdf (a Script)
i Masch1 Kauf Miet Leas 2020 07 27.xlsb (calculation sxheme)
i Masch2 Gespanne MindEinsatz LU 2020 07 27.xlsb (calculation scheme)
i VD Landwirtschaft 2022 01 22.xlsb (calculations scheme of partial and full costs)

The script “**i Econ-A.pdf**” is also useful for non-farmers. It presents e.g. **financial mathematics, machinery calculations,** effects of **speculation** on the markets and the so-called **pig cycle**.



News

„i Business Management – Basics for Entrepreneurs Analysts Planners 2026 02 28.pdf »

This approximately 80-page treatise was begun in 2022. The latest revision primarily affected the section on **liquidity**. An attempt was made to further open up the language for supervisory boards and large corporations. An insert was added under 4.4 on how to deal with the IFRS 18 standard, which was enacted in the EU in February 2026.

In the area of cost-benefits accounting, an attempt was made to further clarify **a reverse approach to partial and full cost determination**.

There also exists the German original:
„i Betriebswirtschaft – Basics für Unternehmer Analyten Planer 2026 02 28.pdf »

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A fictional conversation

When an entrepreneur talks to his employees about the success of the business over coffee time, it might sound something like this:
"Last year went well. We met all our banking obligations. We were able to live well (or grant good distributions). We were also able to easily pay for ongoing replacement investments from newly generated funds. In the previous year, we were just able to service our loans, but we lived (or distributed) by overdrawing our current account. Investments from generated own funds were out of question at that time.“
A conversation of this kind reveals a ***way of thinking in terms of "cash flow for self-financing"****. Such talkings understand co-workers as well as members of the supervisory board.*
