

Simulation-based learning in international companies

Best Practice Case

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Author's Background

15 years running management training for different companies:

computerbased simulation TOPSIM and

hands-on simulation Business_{live}, Success Factory

Why simulation-based learning?

- ⇒ Link between business management theory and practice
- ⇒ Acquire economic concepts in a lively way and learn how to transfer them to daily business
- ⇒ Sustainable Decision training in realistic circumstances
- ⇒ **Learning Business by Doing Business**

Hands-On Simulation Business_{live}

Business Competence

Support international roll-outs
introducing management concepts
like Value Based Management



- ⇒ Cognitive lively presentations on relevant topics
- ⇒ Cause and effect are very clear when displayed in quick motion right in front of participants' eyes

Best practice case BASF

- 1990 — Step 1: Classroom setting using „TOPSIM General Management“ **standard version**
- 1994 — Step 2: Long Distance Simulation Game using **adapted** „TOPSIM General Management“
- 2000 — Step 3: Developing **Intranet version** of „TOPSIM General Management“
- 2004 — Step 4: Buying and Adapting „TOPSIM Business Development“ to BASF world

Step 1: Classroom Setting

Topic: Finance and Accounting for Non-Financial Managers

⇒ **Instructor** leads classroom training

⇒ **4 days** in the beginning; then 3 days

⇒ **5 competitive teams** with 4 participants each

⇒ **Target Audience:** Germany, United States, Asia

⇒ use of the **standard** „TOPSIM General Management“
simulating 5 years in the business life of a company

⇒ combination with **lectures** to economic concepts and team
skills

Example for a schedule

Day 1	Day 2	Day 3	Day 4
Introduction	Team Feedback	Concepts of Cost Accounting # Results of Period 2	Concepts of Marketing # Results of Period 4
COFFEE BREAK			
Introduction to TOPSIM # Submit Decision Trial Round	Concepts of Planning	# Submit P3 Decision	# Submit P5 Decision
LUNCH			
Concepts of Teamwork Concepts of External Accounting # Results of Trial Round	Developing company goals and strategy # Results of Period 1	Team Feedback # Results of Period 3	Preparation Performance Report Team presentations Summary and Closing
COFFEE BREAK			
# Submit P1 Decision	# Submit P2 Decision Team Feedback	# Submit P4 Decision Team Feedback	

Benefits Step 1

⇒ most effective method to acquire new knowledge in a lively and practical way

⇒ see the effects of management decisions immediately

⇒ open the „black box“ and show insights

⇒ touch all senses to learn „dry“ new concepts

⇒ TOPSIM as the industry standard

⇒ TATA Interactive is a competent partner

⇒ Maintenance and support was assured

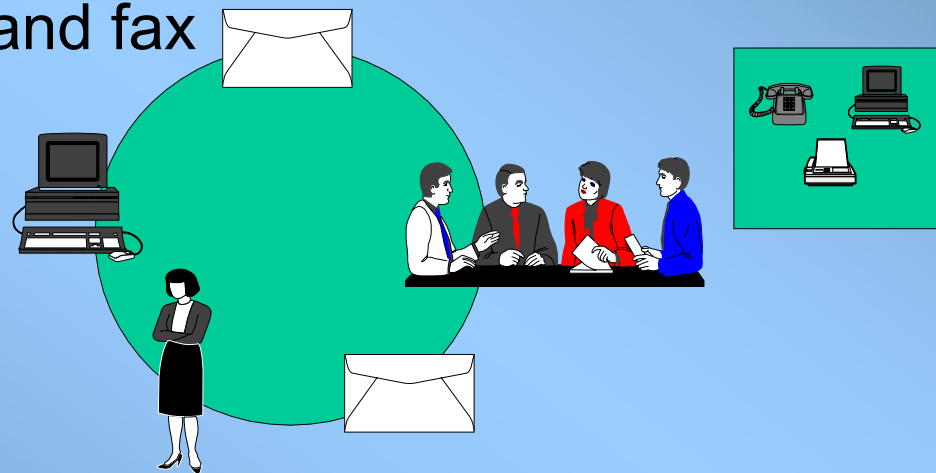
⇒ Train the Trainer was available

Step 2: Long Distance

Topic: Entrepreneurial Thinking and Acting for all Employees

Distance Simulation using TOPSIM GM with a different szenario, simplified material and preparatory essay

Communication via phone and fax



Target Audience: all European BASF employees

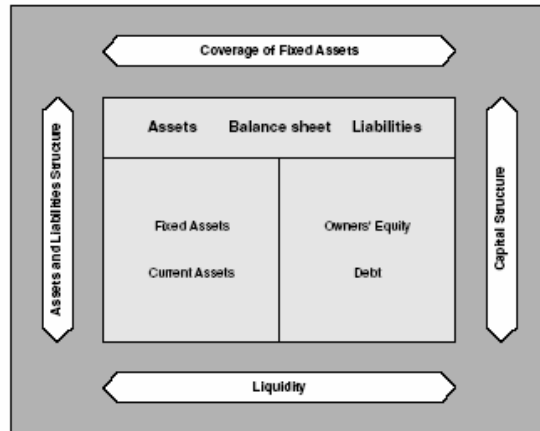
Course Material

BASF Aktiengesellschaft
DFB Weiterbildung

BASF

International Long Distance Simulation Game

GRIPS



Correspondence Lesson:
Balance Sheet and Profit and Loss Statement

BASF Aktiengesellschaft
DFB Weiterbildung

BASF

Long Distance Simulation Game GRIPS

Information Leaflet about the game / New parameters Period 4

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period 4 of the main round you have to take some additional decisions:

Product 2
The economic forecast for period 3 the product 2 has already been announced. Now you receive the new information for the production:
For the production of one unit of product 2 you need one unit of raw material product 2. The price is at 100,- EUR per unit.
For each produced unit you have to pay 80 EUR for factory materials.
For one unit of product 2 you need 10 units of capacity.
The production area has got a production capacity of 40 units of product 2.
Transport costs per unit are at 70 EUR.

The number of employees in the purchasing and administration area also depends on revenue. In case of product 2 a different relationship exists:
10 employees in purchasing
a revenue up to 25 mEUR
40 employees in administration
6 employees in purchasing
a revenue up to 40 mEUR
60 employees in administration
9 employees in purchasing
a revenue up to 75 mEUR
90 employees in administration
13 employees in purchasing
a revenue up to 100 mEUR
105 employees in administration
15 employees in purchasing
a revenue up to 125 mEUR
115 employees in administration
17 employees in purchasing
a revenue up to 175 mEUR
125 employees in administration
21 employees in purchasing
required staff of turnover of product 2 is added to the required staff of

turnover of product 2'. The result makes the total demand for staff in the administration and purchasing area

2. Recruitments/Dismissals
The costs for recruitment increase up to 27000 EUR, those for dismissals increase up to 18000 EUR.

3. Cost Accounting
From period 4 on you can produce and sell product 1 as well as product 2. Herewith the cost accounting of GRIPS finds its sense.

You find the specific reference values, in which the total indirect costs are related in the correspondence lesson "Cost and Results Accounting":
* IMC (Indirect material costs) → reference value: direct material cost (EUR)
* IPC (Indirect production costs) → reference value: direct production costs (DPC)
* IACISC (Indirect administration/sales cost) → reference value: cost of goods manufactured (CGM)

The costs for staff in administration for product 2 are defined as direct costs.

4. Environmental Index
The supplier for production lines was able to improve the environmental index of new lines bought from now on and fulfill the standard of the environmental authority. The indices have again the starting values mentioned in the manual.

5. Planning Tools

BASF Aktiengesellschaft
DFB Weiterbildung

BASF

Long Distance Simulation Game GRIPS

Decision form: Period 2 (Main Round)

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Decision form Period 2

Team number: _____
Game: 9
Company: 1

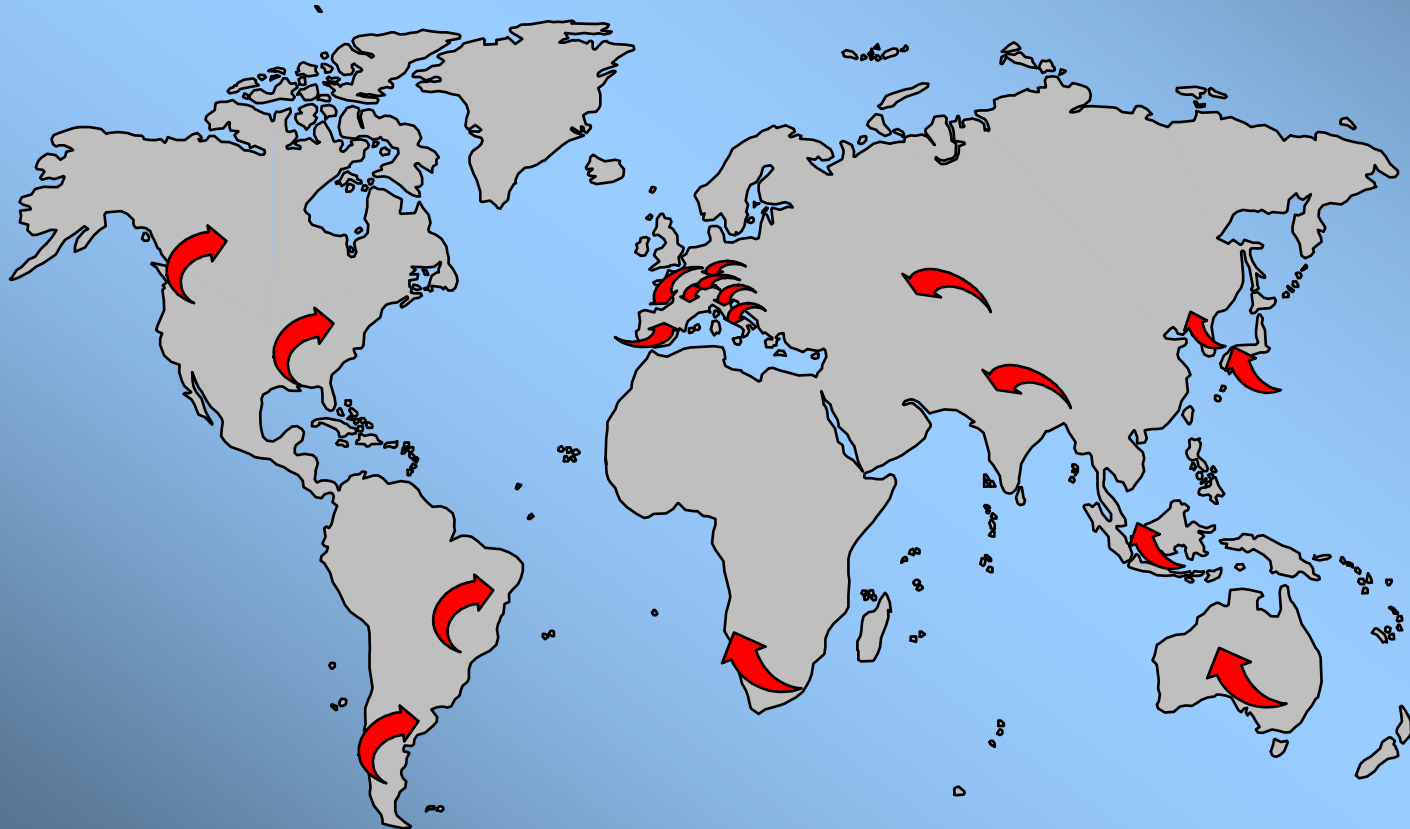
Price (EUR / Unit)	44		
Advertising (mEUR)	113		
Distribution (number of employees)	96		
Market research (yes/no)	YES		
Bulk buyers (units)	7.500		
Corporate Identity (mEUR)	5		
R & D (number of employees)	34		
Expenses for Ecology (mEUR)	15		
Purchase input materials (units)	50.000		
Finished goods (units)	60.000		
Production lines	Type A	Type B	Type C
Investment	-	-	-
Disinvestment (No.)	-	-	-
Maintenance (mEUR)	20	-	-
Investment in Environmental Technology (mEUR)	5		
Production personnel (Recruitments "+"/Dismissals "-")	60		
Additional staff costs (%)	10%		
Medium term loan (mEUR)	-		
Long term loan (mEUR) (in addition!)	-		
Dividends	4%		
Planning values			
Revenues product 1, normal market (mEUR)	240		
Return on equities (%)	20%		
Cash flow (mEUR)	10		

Benefits Step 2

- ⇒ provide the training for an expanding target group
- ⇒ deliver the learning efficiently and effectively as and when required, at the learner's point of need
 - ⇒ save time and costs

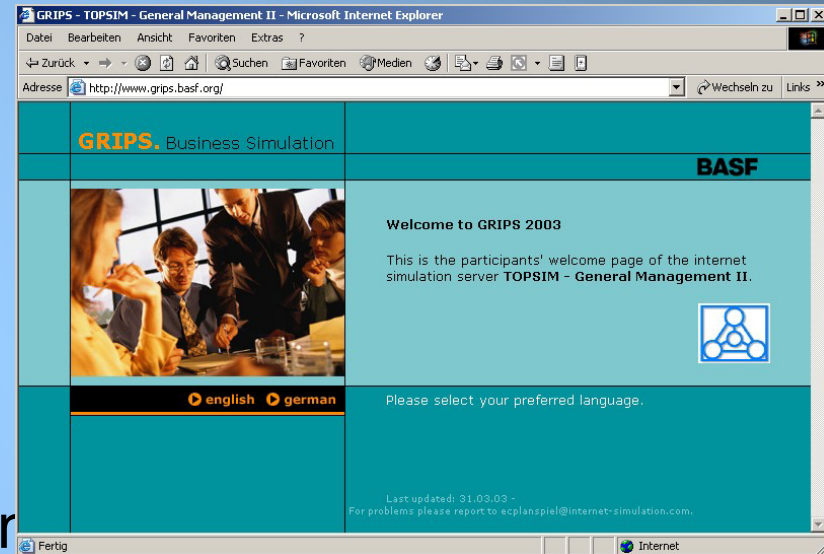
- ⇒ using TOPSIM as the established simulation
- ⇒ ease of adaption according to new framework
 - ⇒ Maintenance and support was assured

Participants 1992 - 2006



Step 3: New Platform Intranet

- ⇒ Global, concurrent simulation-based learning (in the context of globalization)
- ⇒ for all employees worldwide
- ⇒ more effective and



- ⇒ independent from region, language, profession
- ⇒ communication via Mail and Intranet using TOPSIM GM

Step 4: Specific Development

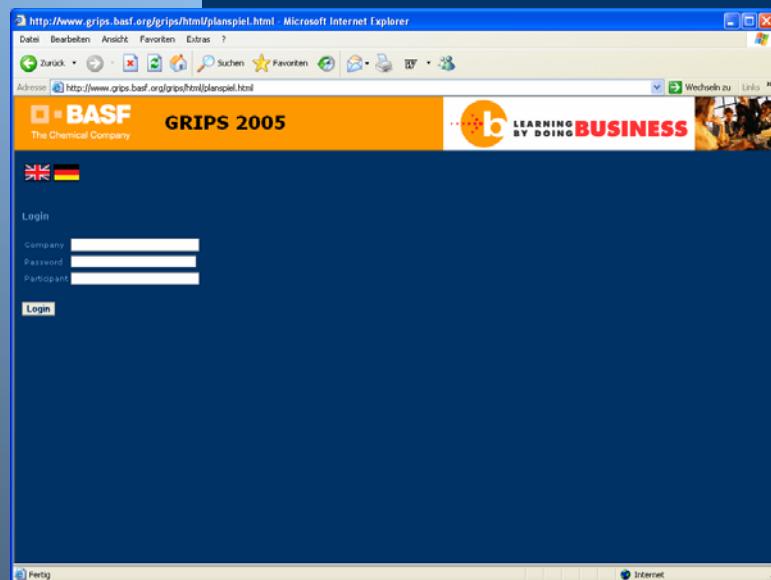


⇒ Business Development as simulation software

⇒ BASF ratios and special requirements implemented

⇒ custom-tailored

⇒ newest technology



Course Material

COST OF SPACE		Cost of space			Depreciation office Equipm. (EUR)
DEPR. OFFICE EQUIPMENT	Space (sqm)	RATE (EUR)	Operating costs (EUR)	TOTAL (EUR)	Per Sq. Value
Space (start of period)	4000	0	20000	20000	20000
Add. rented space (curr. per.)	0	0	0	0	0
Space available	4000	0	20000	20000	20000

WORKERS' PRODUCTIVITY	High-Power	
	Factor	Units/Period
Norm. productivity (end of last per.)	1.00	125.00
Gain through training	0.00	0.00
Gain through learning curve	0.00	0.00
Total productivity (worker/period)	1.00	125.00

REQUIRED CAPACITY TECHNICAL SERVICE	High-Power	
	Units	Required capacity (units)
Sales volume current period	3600	3600
Sales volume previous period	4000	400
Desired output (units ("target quantity"))		4200

DEPRECIATION INFRASTRUCTURE	Type (A/B/C)	Acq. period	Acq. cost (ThdEUR)	Resid. value (ThdEUR)	Dep. /Per. (ThdEUR)	Res. book value	Other fixed cost
LINE No. 1	A	1	500.00	0	50.00	450.00	50
TOTAL			500		50	450	50

PLANNING	Target quantity	Required capacity	Capacity available	New delivery	Required staff	Required material
High-Power	4200	4259	5000	3600	30.99	3600

UTILIZATION OF TECHNICAL EQUIPMENT		UTILIZATION OF STAFF	
Target quantity	4200	Required staff	
Capacity requirements	4259	Required staff previous pe	
Capacity used	4259	Utilization of staff (%)	
Utilization of technical equipment (%)	85.17		

EXECUTIVE SUMMARY for Period 1 / Company 5 C 5



1. Sales

Your High-Power sales in the market 1 were 3600 units. This corresponds to a market share of 15 %. Your price deviated from the average industry price by 51.68 EUR. Your High-Power has a technology index of 1.08. The industry's index fluctuates between 1.08 and 1.09.

You can find further information on sales in the market research report.

2. Internal processes

Your costs of goods manufactured for the High-Power were 1277.29 EUR per unit. This differs from the industry average price by 43.14 EUR.

In this period you have produced 3600 High-Power. One worker can produce 126 High-Power per period.

The utilization of your 40 technical service workers was 85.21 %. Until fulfillment of service delivery the customer had to wait 2.52 days. You needed 0.00 subcontractors.

Your production costs per unit for the High-Power were 234.40 EUR. This is a difference of 13.38 EUR compared to the industry average.

The direct material costs for the High-Power were 895.15 EUR. This is a difference of 26.37 EUR compared to the industry average.

You have had to take individual orders to the value of 329200 EUR.

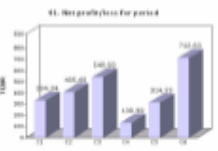
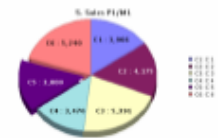
3. Results

Your operating result is 605 ThdEUR. Your interest charges were 102 ThdEUR. Taking an average into account you had a period net profit of 104 ThdEUR. In the previous period you achieved a net profit of 400 ThdEUR. Your sales increase was 4.05 %, which differs from the industry average by -0.57 %.

4. Finance

You took loans to the sum of 1701 ThdEUR, including 1701 ThdEUR overdraft provisions. You have a cash balance of 20 ThdEUR. You have material and finished products in storage to the value of 0 ThdEUR. For more detailed information see the storage report. You have been awarded 0.94 playing points for the quality of your plan. Your actual rating is below target.

Your accumulated measure of success is 583.59 ThdEUR.



1971
relocation to a larger production site, production shed. The first custom-tailored "Focus" Personal-Bike the small company.



1973
After the foundation of TRAVELLER the company announces proudly the production of the 1,000th unit. The young company decides on a major change in strategy: instead of selling bikes at their own stores they decide to sell them via other bike-shops.



1975
20 employees of TRAVELLER Cycle Inc. celebrate 65th anniversary of Dr. Leopold, the person responsible for the success of TRAVELLER. In 1992 TRAVELLER produced 2,500 Personal-Bikes per year which were sold by a total of 200 dealers. Dr. Leopold decides to sell TRAVELLER to a larger producer of ring equipment who serves as a service-organization for small and independent retailers. Being a part of the BIKES010-group has become a promise-sign for the future growth of traveller.



1976
The trade fair "Eurobike" Dr. Leopold introduces the Personal-Bike "Cruiser" to an interested audience. "Cruiser" is a combining product with an excellent performance ratio. That is why TRAVELLER is proud the "Baroque Price for Exceptional Performance".



1977
The new product line TRAVELLER once again as proof of it's innovation in a market which is being fought harder and harder.



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