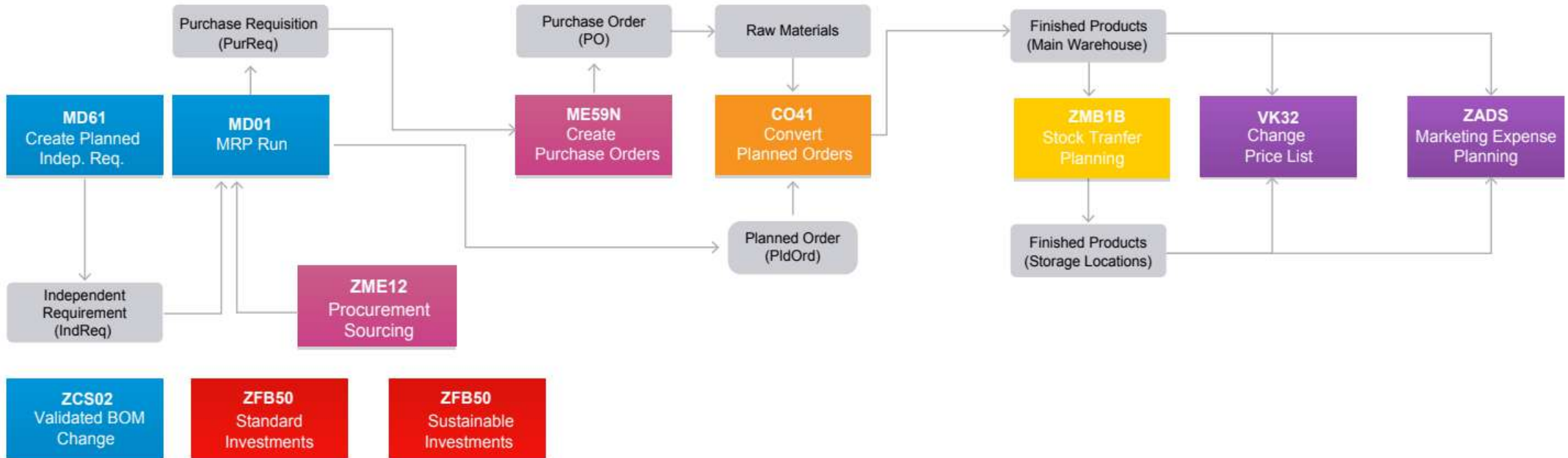



Game Scenario

Game Layout



Job Aid (Manufacturing Sustainability Preset 2)



Manufacturing Sustainability Game (Preset 2)

powered by ERPsim

User: **\$_1 to \$_9**
Initial password: **ERPSIM**

Adapted for Fiori and for SAP GUI with Fiori Visual Theme Activated
© ERPsim Lab, HEC Montréal
Last Update: July 31, 2023

CHANGE PRODUCT DESIGN

Validated BOM Change (ZCSO2)

Select the material to change by clicking

- 1
- 2

If received error messages, click on to modify the entries

FORECAST SALES

Create Planned Indep. Req. (MD61)

Select Product group and enter the following information

- 1
- 2
- 3 Enter your forecast quantities in the 2nd date column
- 4

CALCULATE REQUIREMENTS

MRP Run (MD01)

1

2 Ignore orange warnings
Press two more times on

3 In the pop-up window, click

SELECT VENDOR

Procurement Sourcing (ZME12)

1 Click on

2 For each Material, assign a vendor

3

ORDER MATERIALS

Create Purchase Orders (ME59H)

1

Purchase orders are created

If no open requisitions:
No suitable requisitions found

RELEASE PRODUCTION

Convert Planned Orders (CO41)

1

If no planned order: *Planned order could not be selected*

2 Select orders

3

If conversion fails, click on to see log

PLAN STOCK TRANSFER

Stock Transfer (ZMB1B)

1 In Planning Mode, select a Plant or Plant transfer strategy

2 In Scheduling, enter your delivery frequency

3

4 Enter the amount of each product you wish to send/maintain in each region

5

MAINTAIN PRICES

Change Price List (VK32)

1 Open the *Prices* folder and double click on *Price List*

2 In *Distribution channel*, enter 10, 12 or 14

3

4 Modify your prices

5

PLAN MARKETING BUDGET

Marketing Expense Planning (ZADS)

1 Enter your daily amount of marketing expenditures for each product per area

2

STANDARD INVESTMENTS

Financial Postings (ZFB50)

1 Select the type of standard investment you wish to make

2 Enter the *Posting Amount*

3 Click on

4 Click on

SUSTAINABLE INVESTMENTS

Financial Postings (ZFB50)

1 Select the type of sustainable investment you wish to make

2 Click on

3 Click on

PRODUCTION COST

Product Cost Planning (ZCK11)

Shows variable and fixed costs for each finished product

Recalculates costs based on production capacity and productivity level

Shows daily amounts of fixed costs (overhead, depreciation and S, G & A)

STOCK LEVELS

Inventory Report (ZMBS2)

Shows stock levels for both finished products and raw materials

Shows quantities of raw materials reserved for production

PROCUREMENT TRACKING

Purchase Order Tracking (ZME2H)

Shows the details/status of each purchase order

Shows expected goods delivery date

SALES AND MARKET DATA

Summary Sales Report (ZK2)

Shows aggregate daily sales by product

Detailed Sales Report (ZYA05)
Shows sales related info such as sales revenue by region

Price Market Report (ZMARKET)
Shows aggregate market sales data of past 5 days

FINANCIAL STATEMENTS

Financial Statements (F01)

1 In *Company Code*, enter your company code⁴

2 **Fiori step**
Select *ALV Tree Control*

3 **Fiori step**
In *Statement Release*, enter SIM1

3 **Fiori step**
Go

MANAGE IT REPORTS

Report Management (ZITM)

Shows report availability and allows reports purchase

CASH FLOW

Liquidity Planning (ZFF7B)

Displays an estimate of your cashflow for the coming weeks

PRODUCTION SCHEDULE

Production Report (ZCO0IS)


Shows released production orders

For each order, the time released, started and finished (or to start and finish if incomplete)

If Target Qty > Conf. Qty production is still pending

⁴To find your company code, refer to transaction 200G (Organizational Structure)

Planning Procurement Production Sales Reports Accounting Logistics 1/2



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Bill of Materials

Nut	Strawberry	Original	Raisin	Blueberry	Mixed
SS-F01 SS-F11	SS-F03 SS-F13	SS-F05 SS-F15	SS-F04 SS-F14	SS-F02 SS-F12	SS-F06 SS-F16
500g 1kg	500g 1kg	500g 1kg	500g 1kg	500g 1kg	500g 1kg
20% wheat* 30% oat* 20% nut* 1 box / 1 bag*	20% wheat* 30% oat* 20% strawberry* 1 box / 1 bag*	20% wheat* 30% oat* 1 box / 1 bag*	20% wheat* 30% oat* 20% raisins* 1 box / 1 bag*	20% wheat* 30% oat* 20% blueberry* 1 box / 1 bag*	20% wheat* 30% oat* 30% fruits & nuts** 1 box / 1 bag*
<small>*minimum</small>	<small>*minimum</small>	<small>*minimum</small>	<small>*minimum</small>	<small>*minimum</small>	<small>*minimum</small>

FIXED COSTS (€ paid each 5 days)*	
Labor	20 000
Manufacturing overhead	15 000
S, G & A	40 000
Depreciation (Building)	1 250
Depreciation (Equipment)	50 000

DAILY OVERHEAD CARBON	
Purchased Energy (kg of CO ₂ e)	500
Other Overhead (kg of CO ₂ e)	400

PRODUCTION CONSTRAINTS	
Capacity (units/day)	24 000
Additional Capacity Cost (€ per 1 000 units)	1 000 000**
Additional Capacity Carbon Emission (kg per 1 000 units)	1 000
Production Carbon Emission	0.30 kg per box
Setup Carbon Emission	50 kg per hour
Minimum/Maximum Lot Size	16 000/48 000

**Adding to additional capacity will increase equipment depreciation costs

STORAGE CAPACITY AND COSTS			
Product Type	Current Space	Daily Cost per additional 50 000 units*	Daily Carbon cost per additional 50 000 units*
Finished products	250 000 boxes	€500	2 500 (kg of CO ₂ e)/day
Raw materials	250 000 kg	€1 000	5 000 (kg of CO ₂ e)/day
Packaging (bags and boxes)	750 000 units	€100	1 500 (kg of CO ₂ e)/day

*Rifled automatically

SUPPLIERS				
Vendor	V01	V11	V02	V12
Lead time (days)	2-3	1-4	2-3	1-4
Delivery Cost (euros)	-	€ 1 000	-	€ 2 000
Delivery Carbon (kg of CO ₂ e)	10 000	10 000	6 000	15 000

CUSTOMERS				
DC 10: Hypermarkets Payment Time: 23 days Approximate Market Size: €50 000 per team per week	DC 11: Grocery Chains Payment Time: 10-20 days Approximate Market Size: €50 000 per team per week	DC 12: Independent Grocers Payment Time: 1-21 days Approximate Market Size: €35 000 per team per week		

TRANSPORTATION AND CARBON FEES		
Movement type	Cost (€)	Carbon (kg)
Main Warehouse to Regions	500	750
Regions to Customers	-	200
Main WH to Customers (per unit)	0.05	0.25

FIXED CARBON TAX			
Price (€/kg of CO ₂ e)	0.20		

SUSTAINABLE INVESTMENTS				
Type	Cost (€)	Carbon (kg of CO ₂ e)	Reduction (%)	Max. Reduction (%)
Freight Fleet Improvement	10 000	2 000	15	45
Sustainable Manufacturing	10 000	2 000	15	45

SETUP TIME REDUCTION		
Setup time (hrs)	Cost (€)	Carbon (kg)
8	-	-
7	50 000	100
6	125 000	250
5	250 000	500
4	500 000	1 000
3	1 250 000	2 500

2/2

Competition Rules

- Teams will play 4 Rounds of the ERPsim **Manufacturing Sustainability** (Preset 2+) scenario.
- Teams are **only allowed** to perform **transactions** described on the **Job Aid**.
- Teams must **finish with a debt less than the initial one** (8 Million EUR).
- Investing in **capacity increase** and **setup time reduction** is **irreversible**.
- **Coaches** can join their team's breakout rooms, but they will be asked to come back to the main room when the simulation is running. **Coaches** can login, but they are not allowed to input transactions.
- Teams have **access** to the **OData** service.
- Teams must always **behave ethically** and responsibly.
- Teams will be ranked based on their **company valuation**.

Rounds Evolution

Round 1

- No carbon tax
- Sales from the main warehouse only
- Standard investments allowed

Round 2

- Carbon tax now implemented
- Suppliers V11 and V12 now available
- Sustainable investments allowed
- ZITM enabled

Round 3

- Increased carbon tax
- Sales from regional warehouses now available
- Random disruption

Round 4

- Increased carbon tax
- Random disruption

Random Disruptions

Event	Name	Context	Scope
1	Cold Spell	The cold spell increases the carbon emission per unit of raw material purchased, as suppliers must use energy-intensive protection measures to protect the fruits/nuts/cereals from the cold. However, your company requires less energy to stock them in a cool environment.	All suppliers, 2 random raw materials
2	Heat Wave	The heat wave decreases the carbon per unit of raw material purchased, as suppliers must use less energy-intensive protection measures to protect the fruits/nuts/cereals from the cold. However, your company requires more energy to stock them in a cool environment.	All suppliers, 2 random raw materials
3	Disruption in Supply Chain (Vendors)	Disruptions in your supplier's supply chain required them to use less-optimal sourcing and routing. Therefore, all products purchased from this supplier will be generating more carbon emissions.	Random suppliers, All products
4	New Legislation, Renewable Energy Adoption	New legislations in Germany increases drastically the carbon tax while reducing the carbon footprint of purchasing energy as more energy is now generated by renewable sources.	-
5	Waste Heat Recovery System	Newly installed waste heat recovery system on your machineries allow your company to reuse heat from your production process, thus reducing the amount of energy purchased. However, the more complex machineries require more care when cleaning up between production batches.	-
6	Main Warehouse Relocation	A recent relocation of your main warehouse increases the distance between your main hub and two regions and Germany while reducing the distance with the third region. The distance difference will be impacting the carbon emissions generated by deliveries from the main warehouse to the regions and by sales delivered directly from the main warehouse.	Random regions