ERPsim

Logistics Sustainability w/Disruptors

Student Friendly Challenge

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ERPsim Challenge Logistics Sustainability with Disruptors 2025
HyFlex | Sep 9 – Oct 10, 2025

ERPsimLab | HEC MONTRÉAL | 20TH ANNIVERSARY
Serious games to learn enterprise systems and business analytics

Teams

A - Yonam Institute of Technology, South Korea

B - Georgia College & State University, United States

C - Centria UAS, Finland

D - ITESM, México

E - Universidad del Rosario, Colombia

F - Seneca Polytechnic, Canada

G - Universidad ICESI, Colombia

H - Missouri University of S&T, United States

I - Doon Business School, India

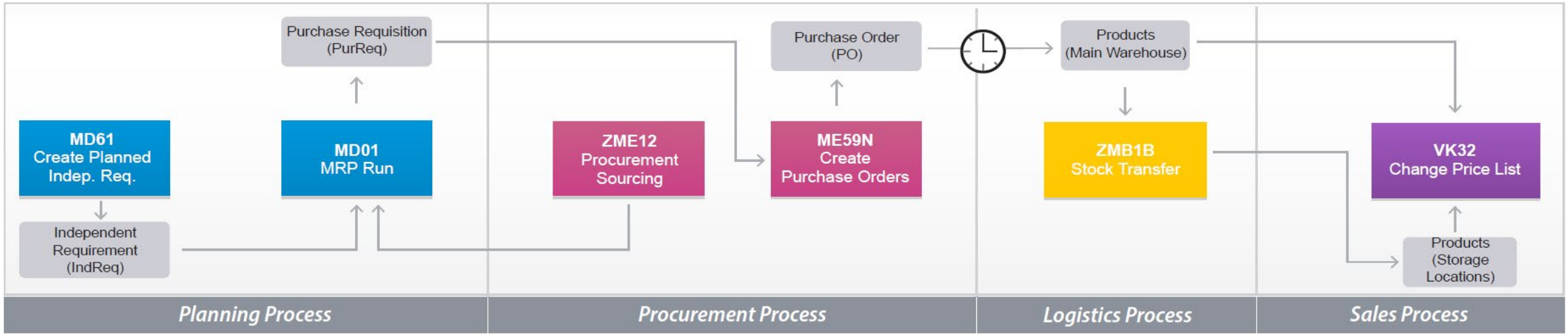
J - Central Michigan University, United States

K - Leeds Beckett University, United Kingdom

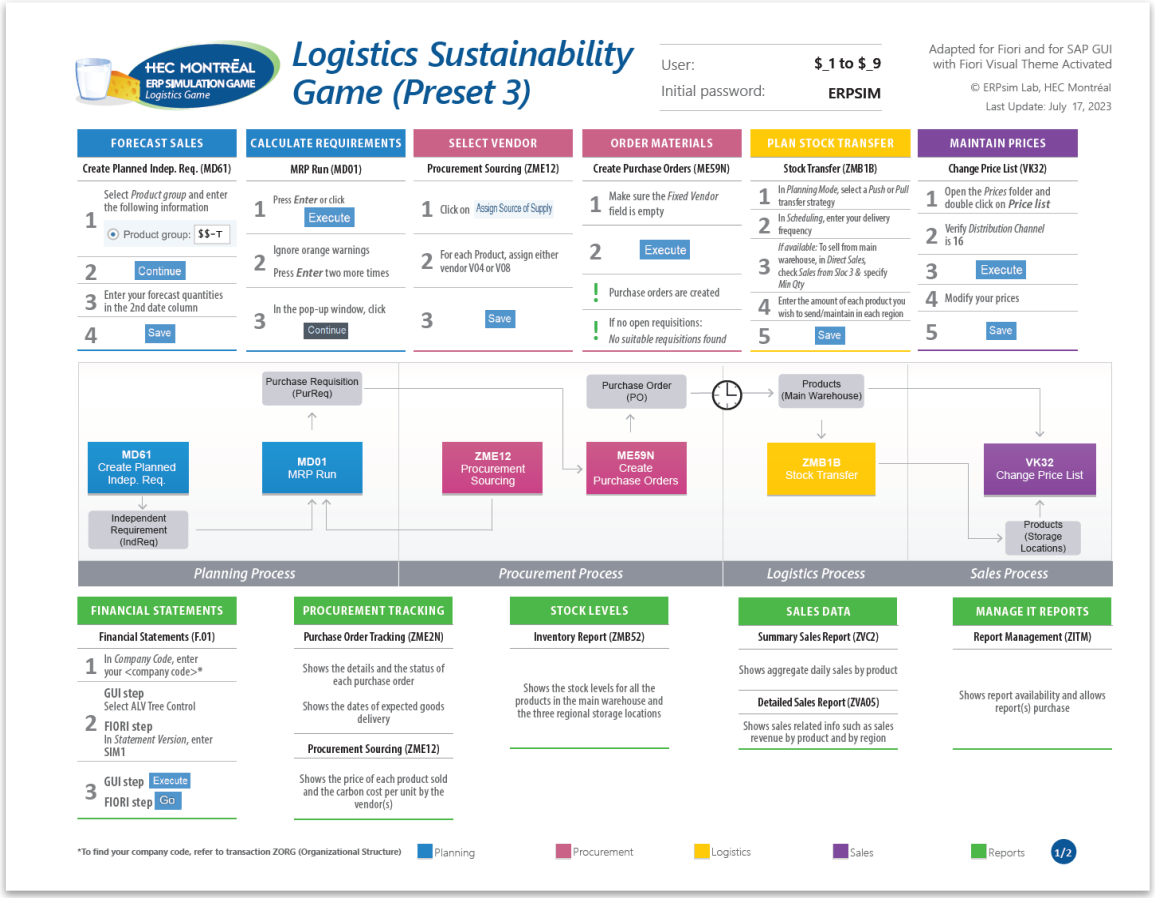
Game Scenario

ERPsim Academic Edition

Game Layout



Job Aid (Logistics Sustainability Preset 3)



Logistics Sustainability Game (Preset 3)

User: $_1 to $_9
Initial password: ERPSIM

Adapted for Fiori and for SAP GUI with Fiori Visual Theme Activated
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Last Update: July 17, 2023

FORECAST SALES — Create Planned Indep. Req. (MD61)
1. Select *Product group* and enter the following information — Product group: $$-T
2. Continue
3. Enter your forecast quantities in the 2nd date column
4. Save

CALCULATE REQUIREMENTS — MRP Run (MD01)
1. Press *Enter* or click Execute
2. Ignore orange warnings. Press *Enter* two more times
3. In the pop-up window, click Continue

SELECT VENDOR — Procurement Sourcing (ZME12)
1. Click on Assign Source of Supply
2. For each Product, assign either vendor V04 or V08
3. Save

ORDER MATERIALS — Create Purchase Orders (ME59N)
1. Make sure the *Fixed Vendor* field is empty
2. Execute
- ! Purchase orders are created
- ! If no open requisitions: *No suitable requisitions found*

PLAN STOCK TRANSFER — Stock Transfer (ZMB1B)
1. In *Planning Mode*, select a *Push* or *Pull* transfer strategy
2. In *Scheduling*, enter your delivery frequency
3. *If available:* To sell from main warehouse, in *Direct Sales*, check *Sales from Stoc 3* & specify *Min Qty*
4. Enter the amount of each product you wish to send/maintain in each region
5. Save

MAINTAIN PRICES — Change Price List (VK32)
1. Open the *Prices* folder and double click on ***Price list***
2. Verify *Distribution Channel* is 16
3. Execute
4. Modify your prices
5. Save

FINANCIAL STATEMENTS — Financial Statements (F.01)
1. In *Company Code*, enter your <company code>*
2. GUI step: Select ALV Tree Control. FIORI step: In *Statement Version*, enter SIM1
3. GUI step Execute / FIORI step Go

PROCUREMENT TRACKING
- Purchase Order Tracking (ZME2N): Shows the details and the status of each purchase order. Shows the dates of expected goods delivery
- Procurement Sourcing (ZME12): Shows the price of each product sold and the carbon cost per unit by the vendor(s)

STOCK LEVELS — Inventory Report (ZMB52)
Shows the stock levels for all the products in the main warehouse and the three regional storage locations

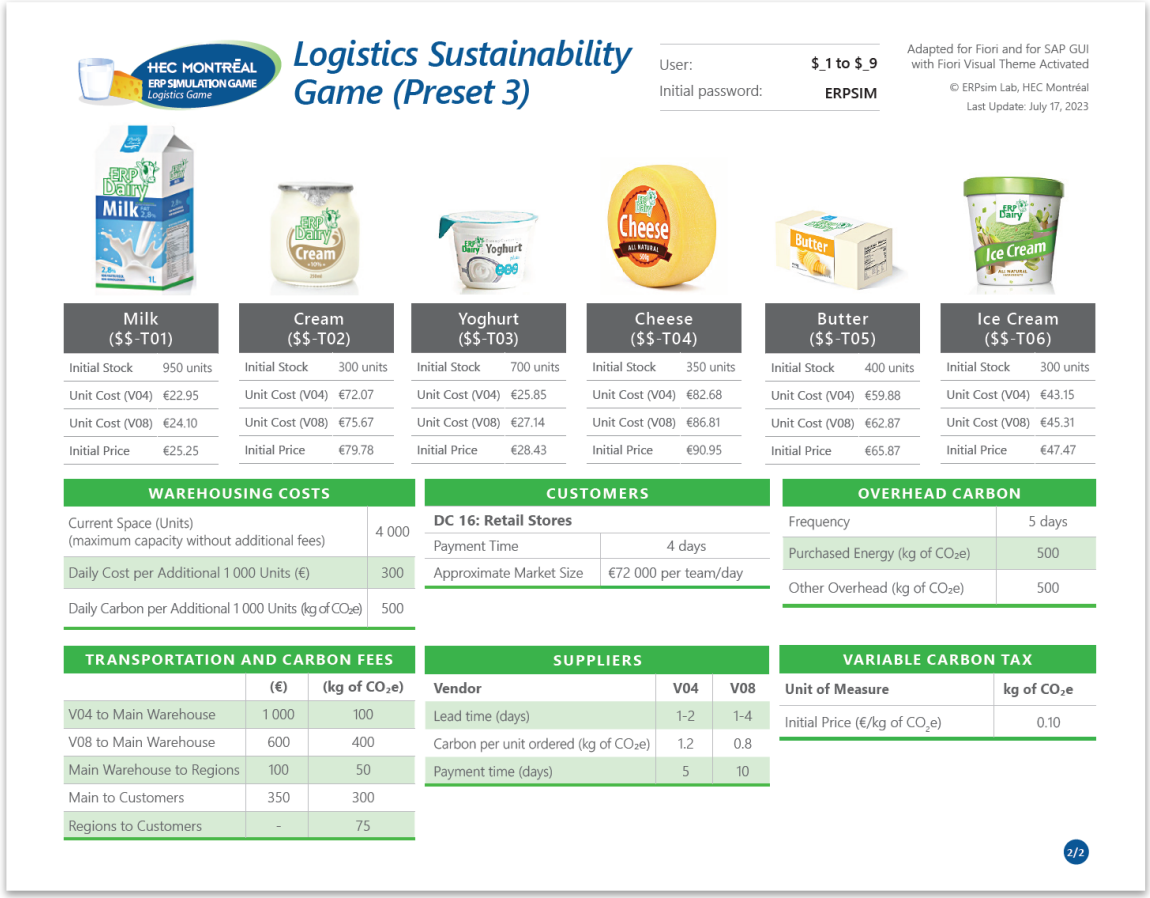
SALES DATA
- Summary Sales Report (ZVC2): Shows aggregate daily sales by product
- Detailed Sales Report (ZVA05): Shows sales related info such as sales revenue by product and by region

MANAGE IT REPORTS — Report Management (ZITM)
Shows report availability and allows report(s) purchase

*To find your company code, refer to transaction ZORG (Organizational Structure)

Planning | Procurement | Logistics | Sales | Reports

1/2



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Milk ($$-T01)		Cream ($$-T02)		Yoghurt ($$-T03)		Cheese ($$-T04)		Butter ($$-T05)		Ice Cream ($$-T06)	
Initial Stock	950 units	Initial Stock	300 units	Initial Stock	700 units	Initial Stock	350 units	Initial Stock	400 units	Initial Stock	300 units
Unit Cost (V04)	€22.95	Unit Cost (V04)	€72.07	Unit Cost (V04)	€25.85	Unit Cost (V04)	€82.68	Unit Cost (V04)	€59.88	Unit Cost (V04)	€43.15
Unit Cost (V08)	€24.10	Unit Cost (V08)	€75.67	Unit Cost (V08)	€27.14	Unit Cost (V08)	€86.81	Unit Cost (V08)	€62.87	Unit Cost (V08)	€45.31
Initial Price	€25.25	Initial Price	€79.78	Initial Price	€28.43	Initial Price	€90.95	Initial Price	€65.87	Initial Price	€47.47

WAREHOUSING COSTS

Current Space (Units) (maximum capacity without additional fees)	4 000
Daily Cost per Additional 1 000 Units (€)	300
Daily Carbon per Additional 1 000 Units (kg of CO_2e)	500

CUSTOMERS

DC 16: Retail Stores	
Payment Time	4 days
Approximate Market Size	€72 000 per team/day

OVERHEAD CARBON

Frequency	5 days
Purchased Energy (kg of CO_2e)	500
Other Overhead (kg of CO_2e)	500

TRANSPORTATION AND CARBON FEES

	(€)	(kg of CO_2e)
V04 to Main Warehouse	1 000	100
V08 to Main Warehouse	600	400
Main Warehouse to Regions	100	50
Main to Customers	350	300
Regions to Customers	-	75

SUPPLIERS

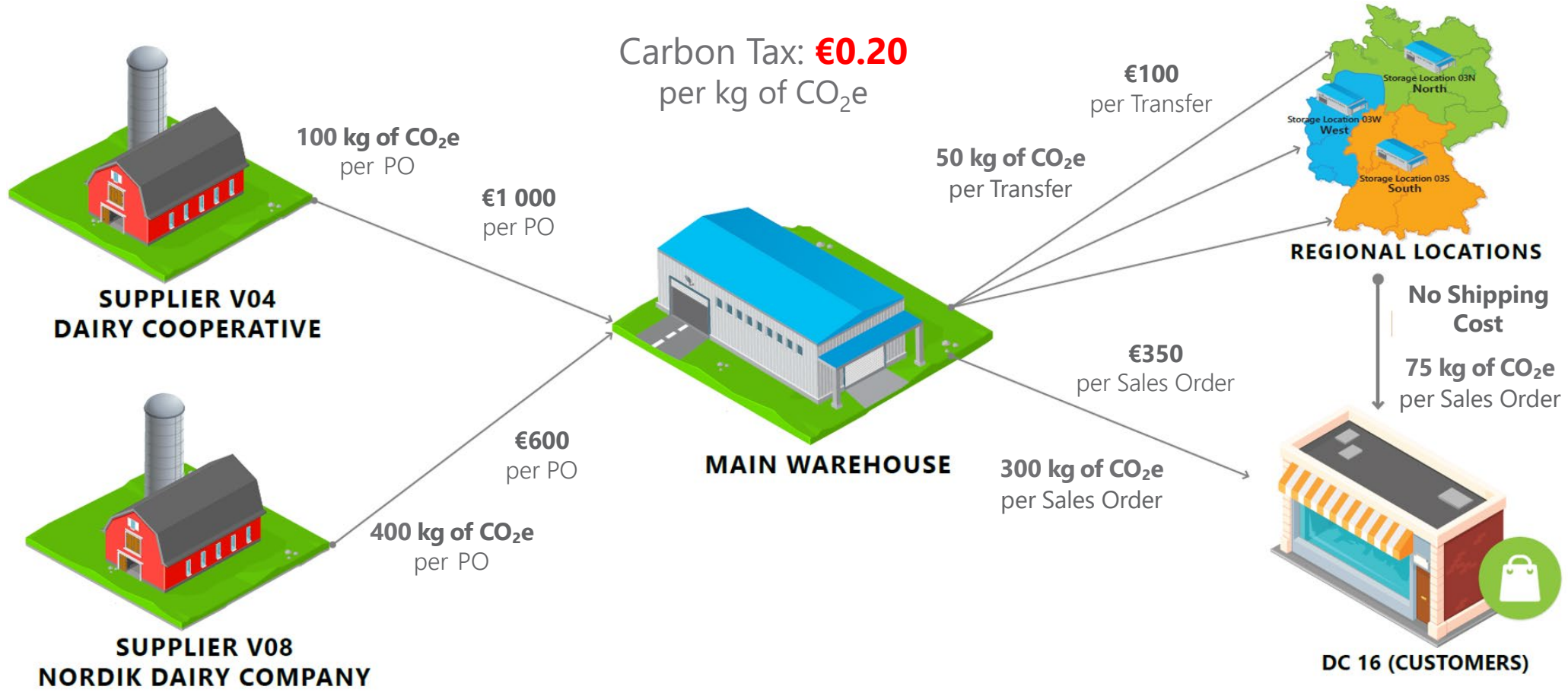
Vendor	V04	V08
Lead time (days)	1-2	1-4
Carbon per unit ordered (kg of CO_2e)	1.2	0.8
Payment time (days)	5	10

VARIABLE CARBON TAX

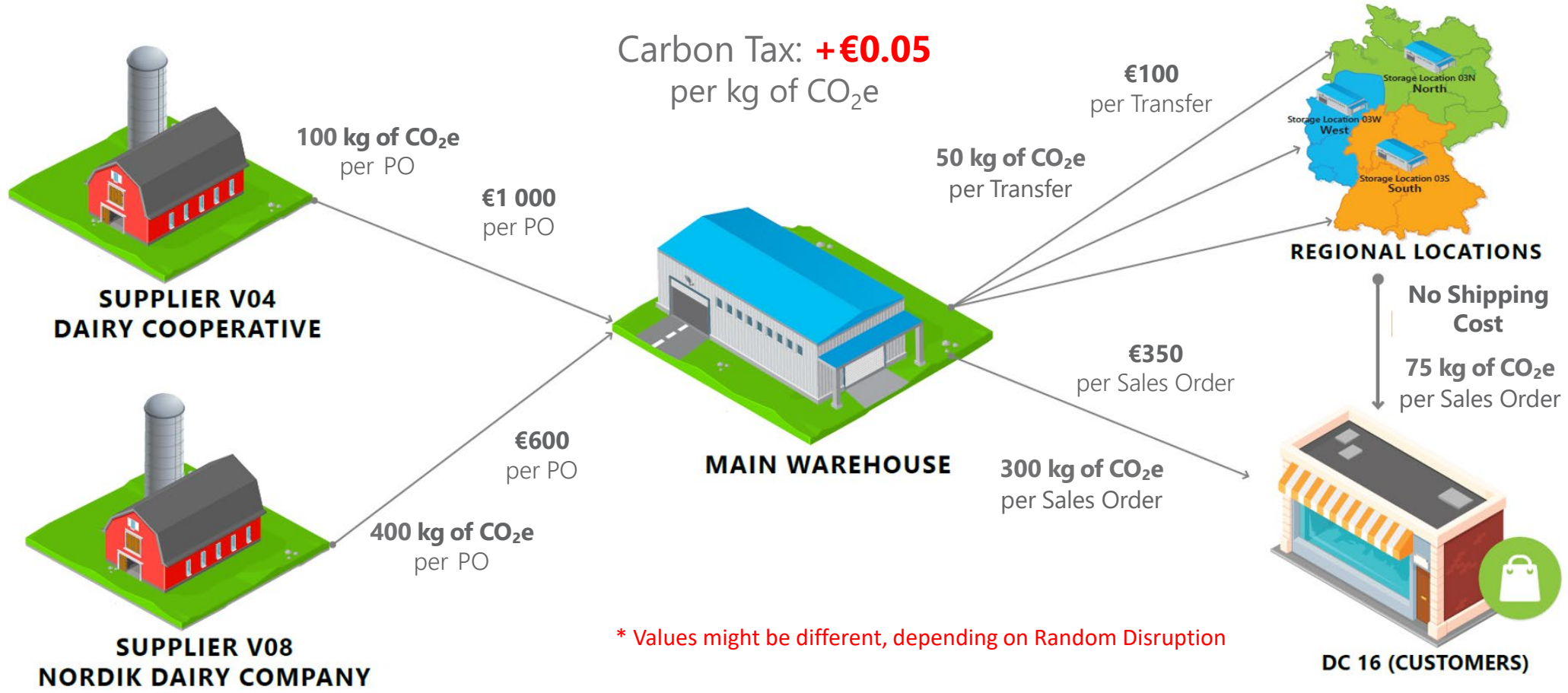
Unit of Measure	kg of CO_2e
Initial Price (€/kg of CO_2e)	0.10

2/2

Round 1 Scenario



Round 2+Scenario



Random Disruptions

1)	**Cold Spell**	▪ Higher carbon emissions per unit purchased ▪ Reduced energy footprint and less energy-intensive additional storage
2)	**Carbon Decree**	▪ Higher carbon tax ▪ Lower energy footprint
3)	**Supplier Disruption**	▪ Increased emissions from less-optimal routing ▪ Higher carbon emissions for all products purchased
4)	**Hub Gridlock**	▪ Higher carbon emissions from direct sales ▪ Increased emissions from procurement and internal transfers
5)	**System Glitch**	▪ Certain reports unavailable ▪ Requires consultant support or alternative data sources for decision-making
6)	**Data Breach**	▪ Team data exposed to competitors ▪ Can access competitors' data and compare strategies
7)	**Flash Flood**	▪ Entire warehouse inventory lost ▪ Recovery efforts needed to reduce financial impact
8)	**AI Innovation**	▪ New AI tool developed by IT ▪ Use it to enhance planning decisions

Cold Spell

A prolonged cold spell affects your suppliers' operations. To protect their dairy cattle and facilities, suppliers use additional energy-intensive measures, increasing the carbon emissions associated with the products you purchase.

However, the lower ambient temperatures reduce the energy required to cool your plant and additional storage areas.

Carbon Decree

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.

Supplier Disruption

Disruptions in your supplier's supply chain require them to use less-optimal sourcing and routing.

Therefore, all products purchased from this supplier will be generating more carbon emissions.

Hub Gridlock

Due to ongoing local construction, access to your central warehouse (03) is temporarily impaired. Direct sales from the central warehouse remain possible but now generate significantly higher carbon emissions due to difficulty accessing the warehouse.

Meanwhile, procurement and internal transfers experience increased carbon emissions as trucks follow longer, less efficient routes.

System Glitch

An issue with your ERP system has caused certain reports to become unavailable.

To restore access, you will need to engage consultants to resolve the problem. Alternatively, rely on other information sources to support your decision-making and monitor your operations.

Data Breach

Due to a data breach, data from all teams has been exposed to the competition. You can now compare your strategies with those of your competitors, who likewise have access to your information.

Flash Flood

A flash flood at one of your warehouses has forced the disposal of its entire inventory. You will need to optimize your recovery efforts to minimize the financial impact on your business.

AI Innovation

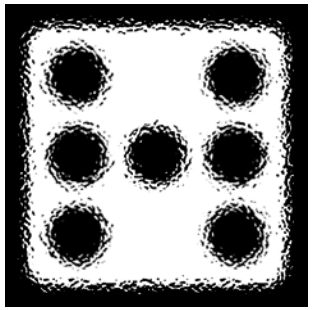
Your internal IT department has developed an AI tool to support the planning process. You can now leverage this tool to optimize your planning decisions.

Disruption 1 – Cold Spell

Main Impact	Impact 2	Impact 3	Impact on students' strategies
Increase carbon per unit purchased	Decrease carbon for overstocking products	Decrease slightly carbon for purchased energy	Students must evaluate whether to continue ordering the affected products. In either cases, they may need to revise their procurement, pricing, and logistics strategies accordingly.

Impact	Default values	New values
Carbon emission per unit purchased for the impacted products	Supplier-dependent	+5 kg/unit
Carbon emission for overstocking products	500 kg/container	-300 kg/container
Carbon emission for purchased energy	100 kg/day	-25 kg/day

Event	Products Impacted
1	Milk and Cream
2	Milk and Yoghurt
3	Milk and Butter
4	Cream and Yoghurt
5	Cream and Butter
6	Yoghurt and Butter



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Disruption 2 – Carbon Decree

Main Impact	Impact 2	Impact 3	Impact on students' strategies
Increase significantly carbon tax	Decrease carbon for purchased energy		The significant rise in the carbon tax will compel students to reassess how their carbon emissions affect their profitability and reevaluate their operations.

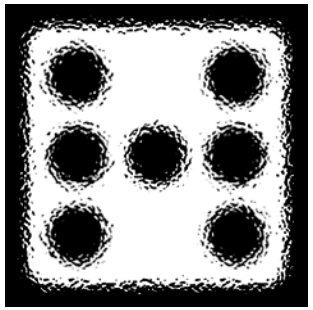
Impact	Default values	New values
Carbon tax	0.20 €/kg CO2e	+0.20€/kg CO2e
Carbon emission for purchased energy	100 kg/day	-50 kg/day

Disruption 3 – Supplier Disruption

Main Impact	Impact 2	Impact 3	Impact on students' strategies
Increase carbon for procurement goods movements	Increase carbon per unit purchased		Students must determine whether to continue ordering from the affected suppliers. If they choose not to, they may need to adjust their procurement strategies.

Impact	Default values	New values
Carbon emission for procurement goods movements from the impacted supplier	Supplier-dependant	+200 kg/order
Carbon emission per unit purchased from the impacted supplier	Supplier-dependant	+2.50 kg/unit

Event	Supplier Impacted
1	V04
2	V08



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Disruption 4 – Hub Gridlock

Main Impact	Impact 2	Impact 3	Impact on students' strategies
Increase the carbon for sales from the central warehouse	Increase the carbon for internal transfers	Increase the carbon for procurement goods movements	Penalizing sales from the main warehouse and increasing carbon emissions for procurement and internal transfers force students to rethink their logistics strategy, aiming to minimize goods movements while still maintaining enough inventory in each region to meet demand.

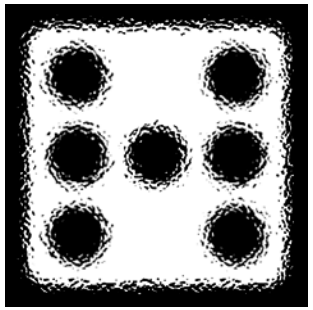
Impact	Default values	New values
Carbon emission for selling from the central warehouse	300 kg/order	+300 kg/order
Carbon emission for internal transfers	50 kg/transfer	+100 kg/transfer
Carbon emission for procurement goods movements	Supplier-dependent	+100 kg/order

Disruption 5 – System Glitch

Main Impact	Impact 2	Impact 3	Impact on students' strategies
Some reports are broken and require an investment to restore functionality.			Students must decide whether to hire a consultant to fix the reports or manage their business using alternative sources of information.

Impact	Default values	New values
Cost to unlock each report	Available for free	5 000 €/report

Event	Reports Impacted
1	Inventory ZMB52 and SSB Stock Transfers
2	Sales ZVA05, ZVC2, and SSB Sales Orders
3	Procurement ZME2N and SSB Purchase Orders
4	Inventory and Sales
5	Inventory and Procurement
6	Sales and Procurement



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Disruption 6 – Data Breach

Main Impact	Impact 2	Impact 3	Impact on students' strategies
All teams now have access to each other's OData information			Students can now compare their strategies with those of their competitors to identify potential improvement areas or gaps in the market.

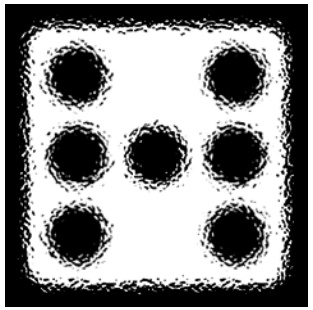
Impact	Default values	New values
OData views	Own team's data	All teams' data

Disruption 7 – Flash Flood

Main Impact	Impact 2	Impact 3	Impact on students' strategies
Scrap all existing inventory in a random warehouse			Students must optimize their recovery while minimizing the additional costs and carbon emissions caused by a new procurement cycle and the required internal transfers.

Impact	Default values	New values
Inventory of the impacted regional warehouse	Current inventory	All inventory has been lost

Event	Warehouse Impacted
1	Central (03)
2	North (03N)
3	South (03S)
4	West (03W)



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Disruption 8 – AI Innovation

Main Impact	Impact 2	Impact 3	Impact on students' strategies
All teams now have access to the transaction ZRPA			Students now have access to an AI-based forecasting tool to help optimize their planning and procurement strategy.

Impact	Default values	New values
Planning and procurement decisions	Manual input in MD61	Optional use of ZRPA, an AI-based forecasting tool

Thank you!

Learn more about ERPsim

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