

# ERPsim

## Manufacturing Sustainability R3-4 Student Friendly Challenge

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ERPsim Manufacturing Sustainability Student Challenge 2025  
Hybrid | Feb 21, 2025

ERPsimLab  
HEC MONTRÉAL



Serious games to learn enterprise  
systems and business analytics

# Teams

- A - Centria UAS
- B - Tecnológico de Monterrey
- C - Missouri University of Science & Technology
- D - Université Laval
- E - Durham College
- F - Oulu Business School
- G - UEH-ISB
- H - SIIT, Thammasat University
- I - Nha Trang university
- J - Montana Technological University
- K - Seneca Polytechnic
- L - Leeds Beckett University
- M - Azerbaijan Technical University
- N - Duy Tan University
- O - West Chester University
- P - Universidad Peruana de Ciencias Aplicadas
- Q - International Management Institute, New Delhi
- R - Niagara College
- S - Universidade Presbiteriana Mackenzie
- T - Central Michigan University
- U - Georgia College & State University
- V - International University of Rabat

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Week 2 of the ERPsim Sustainability Challenge is HERE! 🌍

🗺️ Your main warehouse was forced to relocate, which will impact carbon emissions from goods movement. One regional location is now closer, while two are further away.

This presents a unique opportunity to rethink your strategy. How to leverage this change to maintain profitability and service levels, but also reduce carbon footprint?  
❓

🎲 Let's play two more rounds this Friday!

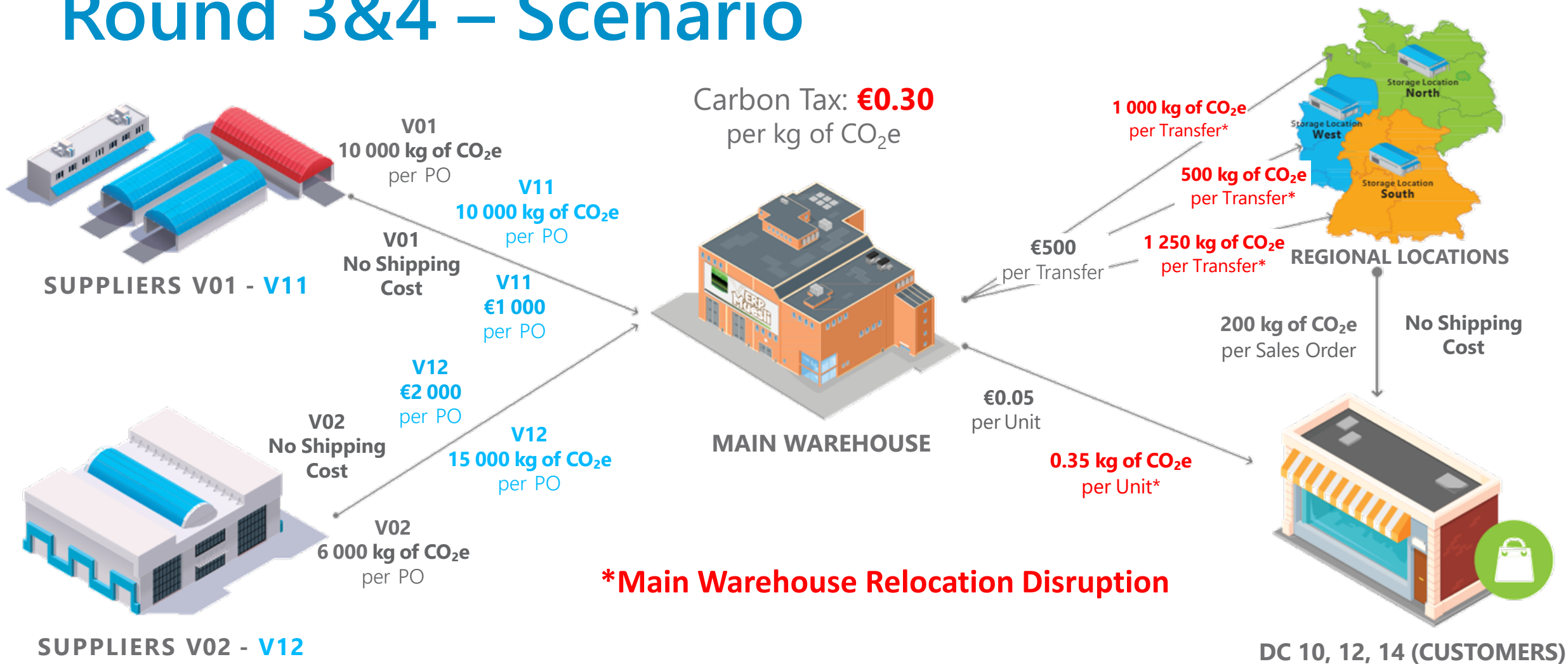
Results are published here: <https://lnkd.in/ersE8sqU>

#ERPsim #Sustainability #SupplyChainDisruption



# Round 3&4

# Round 3&4 – Scenario





# Round 3 - Results

Financial Statements - R3																		
Team	Credit ratings	Interest Rate (%)	Rank	Company valuation	Cumulative Net Income	Total sales	Gross Margin (%)	Net Margin (%)	ROE (%)	ROA (%)	D/E (%)	Mktg/S (%)	Round Net Income	Round Productivity	Round Sales per Team	CO2e (kg)	CO2e per Unit Sold (kg/unit)	CO2e per Sales (kg/€)
N	AA-	7.25	1	207,833,060.62	4,862,804.83	10,638,015.02	75.616	45.712	18.802	14.412	30.466	0.155	1,962,726.63	93.75	3,301,546.29	1,224,452.87	0.8	0.12
B	AAA+	6	2	201,385,385.60	4,614,634.64	9,356,196.32	75.938	49.322	18.016	15.287	17.852	1.556	1,382,502.19	95.833	2,747,450.29	1,336,551.64	1.01	0.14
T	A+	7.75	3	189,855,477.11	5,157,004.64	10,783,877.92	73.879	47.821	19.716	14.736	33.791	0.025	2,501,524.50	94.167	4,373,750.60	1,200,896.90	0.7	0.11
C	AA	7	4	164,469,416.00	4,384,158.94	9,210,792.11	74.604	47.598	17.271	12.9	33.883	6.605	1,604,864.30	95	3,270,500.99	1,059,401.79	0.8	0.12
K	AAA+	6	5	145,432,328.00	3,403,308.20	7,473,469.75	73.613	45.539	13.946	12.036	15.868	1.255	617,067.85	98.958	1,807,098.90	982,301.77	0.82	0.13
H	AA	7	6	130,914,453.45	3,075,147.47	7,618,285.09	72.013	40.365	12.773	10.993	16.197	0.484	1,151,268.64	91.798	2,560,287.59	1,669,728.10	1.29	0.22
A	A-	8.25	7	122,625,140.57	3,357,894.93	8,319,438.13	71.497	40.362	13.786	10.522	31.016	0.27	892,484.44	90.833	2,267,115.20	1,788,247.85	1.27	0.21
J	A-	8.25	8	111,549,384.82	1,683,699.91	8,152,660.92	72.413	20.652	7.423	5.419	36.966	0.003	1,178,194.32	92.958	2,511,018.50	1,505,976.21	1.09	0.18
O	AA+	6.5	9	109,008,622.88	2,847,106.74	7,051,515.11	67.089	40.376	11.939	8.811	35.505	0.011	982,830.17	82.499	2,315,107.02	1,367,061.07	0.99	0.19
U	AA	7	10	95,593,836.73	2,208,830.51	6,909,981.98	65.764	31.966	9.517	7.51	26.733	0	1,143,463.79	90.833	2,514,451.33	1,686,585.31	1.19	0.24
E	BBB-	9.25	11	95,219,274.87	1,477,888.48	8,011,527.69	71.722	18.447	6.575	4.257	54.458	0.146	-4,952.98	88.834	2,813,421.00	1,362,789.19	1.13	0.17
F	BB-	10.25	12	90,218,249.82	3,169,025.15	7,584,258.82	73.336	41.784	13.112	8.274	58.475	0.129	1,619,494.61	91.476	3,120,073.22	1,674,203.13	1.01	0.22
D	AA	7	13	75,324,433.45	1,838,921.92	5,251,690.50	74.006	35.016	8.052	6.197	29.934	0.018	1,575,154.57	92.708	2,806,520.50	1,014,936.84	0.99	0.19
L	AA+	6.5	14	41,596,870.70	697,915.90	4,403,552.55	66.314	15.849	3.217	2.482	29.598	0	224,247.54	48.958	1,174,731.00	583,678.04	0.73	0.13
V	A+	7.75	15	30,308,952.17	714,075.47	4,152,863.21	63.27	17.195	3.289	2.348	40.038	0.106	227,680.79	66.875	1,599,992.58	919,300.20	1.06	0.22
G	A+	7.75	16	17,027,669.79	102,687.80	3,337,203.11	69.138	3.077	0.487	0.368	32.171	0.593	12,322.57	79.583	854,832.20	765,312.75	1.08	0.23
I	A-	8.25	17	15,361,198.69	282,936.71	3,820,786.00	71.002	7.405	1.329	1.035	28.477	0	-34,771.37	33.75	887,492.00	2,061,088.10	3.09	0.54
R	A-	8.25	18	2,139,609.14	65,525.53	2,584,467.23	68.509	2.535	0.311	0.22	41.092	0.031	1,063,530.19	68.333	2,381,256.13	689,849.65	1.45	0.27
Q	C	14	19	-5,546,200.00	-6,106,328.50	5,314,690.00	67.745	-114.9	-41	-12.78	220.83	0	-367,066.25	61.224	1,974,688.50	1,152,788.45	0.99	0.22
M	A	8	20	-25,867,563.67	-776,026.91	1,412,880.00	64	-54.93	-3.837	-2.75	39.557	0	-561,748.60	0	0.00	349,556.00	1.09	0.25
P	A	8	21	-37,688,470.33	-1,130,654.11	856,080.00	64.335	-132.1	-5.69	-4.057	40.263	0	-560,897.42	0	0	199,420.00	1.04	0.23
S	A	8	22	-39,425,751.00	-1,182,772.53	3,990,146.56	65.003	-29.64	-5.968	-4.21	41.776	52.527	595,006.12	81.25	1700200.41	895,450.70	1.05	0.22

# Round 4 - Results

Financial Statements - R4																		
Team	Credit ratings	Interest Rate (%)	Rank	Company valuation	Cumulative Net Income	Total sales	Gross Margin (%)	Net Margin (%)	ROE (%)	ROA (%)	D/E (%)	Mktg/S (%)	Round Net Income	Round Productivity	Round Sales per Team	CO2e (kg)	CO2e per Unit Sold (kg/unit)	CO2e per Sales (kg/€)
N	AAA+	6	1	241,372,161.70	7,172,405.39	14,595,591.85	75.093	49.141	25.459	21.885	16.328	0.142	2,309,600.56	93.125	3,957,576.83	1,647,601.73	0.76	0.11
B	AAA+	6	2	198,051,150.10	6,228,371.67	12,603,146.50	75.583	49.419	22.875	20.313	12.61	3.038	1,613,737.03	95	3,246,950.18	1,646,975.14	0.92	0.13
T	AA	7	3	186,463,795.45	6,463,672.50	13,579,850.32	73.704	47.598	23.535	18.834	24.963	0.022	1,306,667.86	94.167	2,795,972.40	1,488,312.49	0.68	0.11
C	AAA+	6	4	179,326,961.50	5,854,232.05	12,405,689.76	74.073	47.19	21.8	16.396	32.96	6.984	1,470,073.11	96.25	3,194,897.65	1,413,274.96	0.75	0.11
K	AAA+	6	5	156,476,755.10	5,009,225.17	11,025,694.55	70.232	45.432	19.259	16.804	14.61	1.182	1,605,916.97	97.917	3,552,224.80	1,476,520.22	0.85	0.13
A	AA-	7.25	6	142,585,418.76	4,993,619.87	11,788,703.93	70.344	42.359	19.211	15.67	22.6	0.257	1,635,724.94	89.999	3,469,265.80	2,153,999.17	1.04	0.18
H	AA+	6.5	7	130,426,384.65	4,206,945.45	10,092,508.75	71.267	41.684	16.69	15.302	9.071	0.492	1,131,797.98	91.798	2,474,223.66	2,312,053.95	1.32	0.23
J	A+	7.75	8	126,363,489.45	3,409,236.67	11,446,822.17	71.968	29.783	13.967	10.516	32.814	0.009	1,725,536.76	91.48	3,294,161.25	2,023,021.41	1.05	0.18
E	BBB+	8.75	9	115,686,302.12	3,426,667.84	11,797,456.59	72.075	29.046	14.028	9.28	51.172	0.133	1,948,779.36	89.633	3,785,928.90	1,981,298.53	1.11	0.17
F	BBB-	9.25	10	113,809,586.04	4,986,590.05	11,095,078.66	73.004	44.944	19.189	12.982	47.815	0.139	1,817,564.90	85.619	3,510,819.84	2,122,212.87	0.89	0.19
O	AAA+	6	11	113,710,522.30	3,717,017.41	9,215,111.60	66.956	40.336	15.038	11.142	34.969	0.008	869,910.67	81.041	2,163,596.49	1,718,612.50	0.98	0.19
U	AA+	6.5	12	103,922,934.51	3,350,571.82	9,221,172.91	67.525	36.336	13.76	11.371	21.011	0	1,141,741.31	85.833	2,311,190.93	1,984,214.22	1.1	0.22
D	AA	7	13	80,952,215.64	2,761,581.24	7,284,166.50	74.391	37.912	11.622	9.413	23.466	0.019	922,659.32	91.667	2,032,476.00	1,403,835.34	1.03	0.19
V	AA	7	14	44,360,714.91	1,469,892.88	6,196,207.45	63.823	23.722	6.542	4.824	35.606	0.182	755,817.41	77.5	2,043,344.24	1,238,427.33	1	0.2
G	AA	7	15	32,467,156.45	837,129.07	5,199,034.51	69.293	16.102	3.834	2.901	32.136	0.496	734,441.27	55	1,861,831.40	1,006,933.25	0.94	0.19
L	AA+	6.5	16	27,484,312.56	611,521.20	5,186,487.65	65.66	11.791	2.83	2.281	24.036	0	-86,394.70	24.375	782,935.10	668,848.86	0.71	0.13
R	AA-	7.25	17	22,208,561.07	812,821.04	4,512,431.93	68.737	18.013	3.726	2.975	25.273	0.026	747,295.51	73.333	1,927,964.70	1,036,135.96	1.19	0.23
I	A	8	18	19,205,840.42	601,566.95	5,096,778.50	70.967	11.803	2.785	2.279	22.17	0	318,630.24	29.583	1,275,992.50	2,259,736.95	2.58	0.44
S	A	8	19	-14,859,951.50	-594,398.06	5,672,556.75	66.483	-10.48	-2.913	-2.058	41.541	36.957	588,374.47	77.083	1,682,410.19	1,278,810.05	1.11	0.23
Q	C	14	20	-15,368,342.18	-6,283,711.76	6,547,698.40	66.673	-95.97	-42.7	-13.3	221.06	0	-177,383.26	52.247	1,233,008.40	1,593,038.01	1.15	0.24
M	A	8	21	-33,444,387.75	-1,337,775.51	1,412,880.00	64	-94.68	-6.804	-4.836	40.687	0	-561,748.60	0	0	367,556.00	1.15	0.26
P	A-	8.25	22	-41,456,048.82	-1,692,788.66	856,080.00	64.335	-197.7	-8.768	-6.199	41.435	0	-562,134.55	0	0	217,420.00	1.13	0.25

# Round 5&6

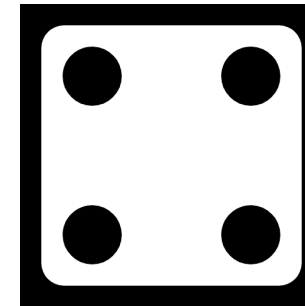


# Round 5&6 – Facts

- Carbon Tax Value: Increase by € 0.10/kg of CO<sub>2</sub>e
- Random disruption!

# Round 5&6 - Random Disruption

Event	Name
1	Cold Spell
2	Heat Wave
3	Disruption in Supply Chain (Vendors)
4	New Legislation, Renewable Energy Adoption
5	Waste Heat Recovery System
6	Main Warehouse Relocation



Reset

# Disruption 4 – New Legislation and Renewable Energy Adoption

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	0.30 €/kg CO2e	+0.25 €/kg CO2e
Carbon emission for purchased energy	500 kg/day	-250 kg/day

# Thank you!

Learn more about ERPsim

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