

Sustainable Textile Simulation Reflection

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1.1 Reflect on your strategy. What were the key criteria you considered in the decision-making?

My primary strategy was to **maximize financial profitability** while **minimizing the carbon footprint** whenever possible.

My key criteria:

- **Average yearly demand** for each product → Total number of orders
- **Net profit** earned by selling each product
- **Product's risk**. If the supply surpasses the demand, the product without holding cost per unit will be discarded in the next period.

→ Prefer to produce high-risk, high-profit products domestically to mitigate offshore risk, e.g., orders cannot be delivered.

	Fashion	Standard
Median Yearly Demand	100	200
Mean Yearly Demand	120	204
Offshore Cost/Unit ?	40 €	30 €
Local Var. Cost/Unit ?	20 €	10 €
Local Fixed Cost/Unit ?	30 €	30 €
Holding Cost/Unit ?	-	5 €
Selling Price/Unit	100 €	35 €

- **Offshore and local capacity** → Local production at total capacity (low cost, low risk, low carbon footprint). Use offshore production to fill the demand gap.

Place Your Order			
	Fashion	Standard	Capa.
Offshore	90	197	1000
Local	20	5	25

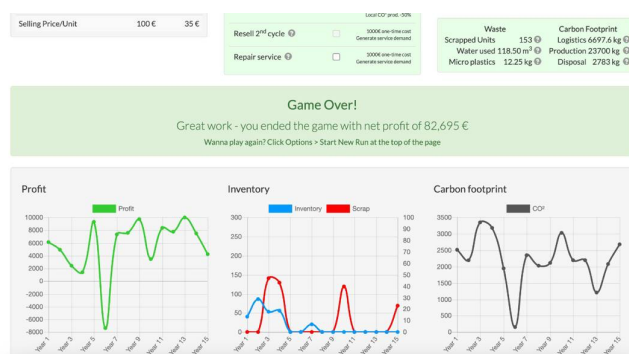
- **Stock** → Calculate the new demand based on available stock.

	Fashion	Standard
Current Year Demand ?	?	?
Stock ?	-	20
Offshore Order ?	0	0
Local Order ?	0	0
Available for Sale	0	0
Sold	0	0
Added to Storage ?	-	20

Then, repeat this strategy in every period.

1.2 How well did the strategy work?

Not bad. My production is small and steady, so I've earned a good profit almost every period. Additionally, my sustainability performance is good. Therefore, my group opted to implement my plan for our in-class assignment.



However, I did not invest in expanding local production capacity, resulting in a high dependency on offshore orders. As a result, I had substantial financial losses in the 6th period, as offshore orders could not be transported due to regulations.

Recycling/Upcycling	Impact
Recycle fabric ? <input type="checkbox"/>	3000€ one-time cost
Reuse garment parts ? <input type="checkbox"/>	+200€ yearly fixed costs Local unit costs -10% Local water use -20% Local CO ² prod. -50%
Resell 2 nd cycle ? <input type="checkbox"/>	1000€ one-time cost Generate service demand
Repair service ? <input type="checkbox"/>	1000€ one-time cost Generate service demand

2.1 What were your key learnings from the simulation?

I learned that maintaining a small and steady local production volume may not lead to long-term success in all cases. My overreliance on offshore orders resulted in financial loss when regulations hindered the transportation of said orders. Also, investing in the local supply chain would reduce my reliance on offshore sources and decrease my carbon footprint through less transportation. I might also achieve economies of scale in production. So, I should have balanced all these aspects in my long-term strategy.

2.2 What were the key insights for the design of a sustainable business model?

In designing a sustainable business model, it's crucial to **diversify production** and **invest in local capacity** to reduce reliance on offshore orders. A diversified production approach can improve the long-term viability of the business. This guarantees a more balanced and resilient supply chain.

Also, while profitability is essential, it's equally vital to **maintain a balance between financial gains and sustainability goals**. This strategy will not only improve the brand image but also decrease production costs.

Moreover, it's essential to **take a long-term perspective** when designing a sustainable business model. Consider the potential impact of decisions on future periods and adjust the strategy after each period upon need.

Lastly, **group collaboration** can enhance decision-making and foster a more comprehensive and sustainable business model by leveraging diverse expertise and collective insights.

3. Optional: Do you have suggestions about further developing the game/simulation?

The game simulation was already excellent. My suggestion is to add the assessment standard for waste and carbon footprint.

Waste		Carbon Footprint	
Scrapped Units	24 ?	Logistics	528.1 kg ?
Water used	9.36 m ³ ?	Production	1872 kg ?
Micro plastics	0.86 kg ?	Disposal	552 kg ?