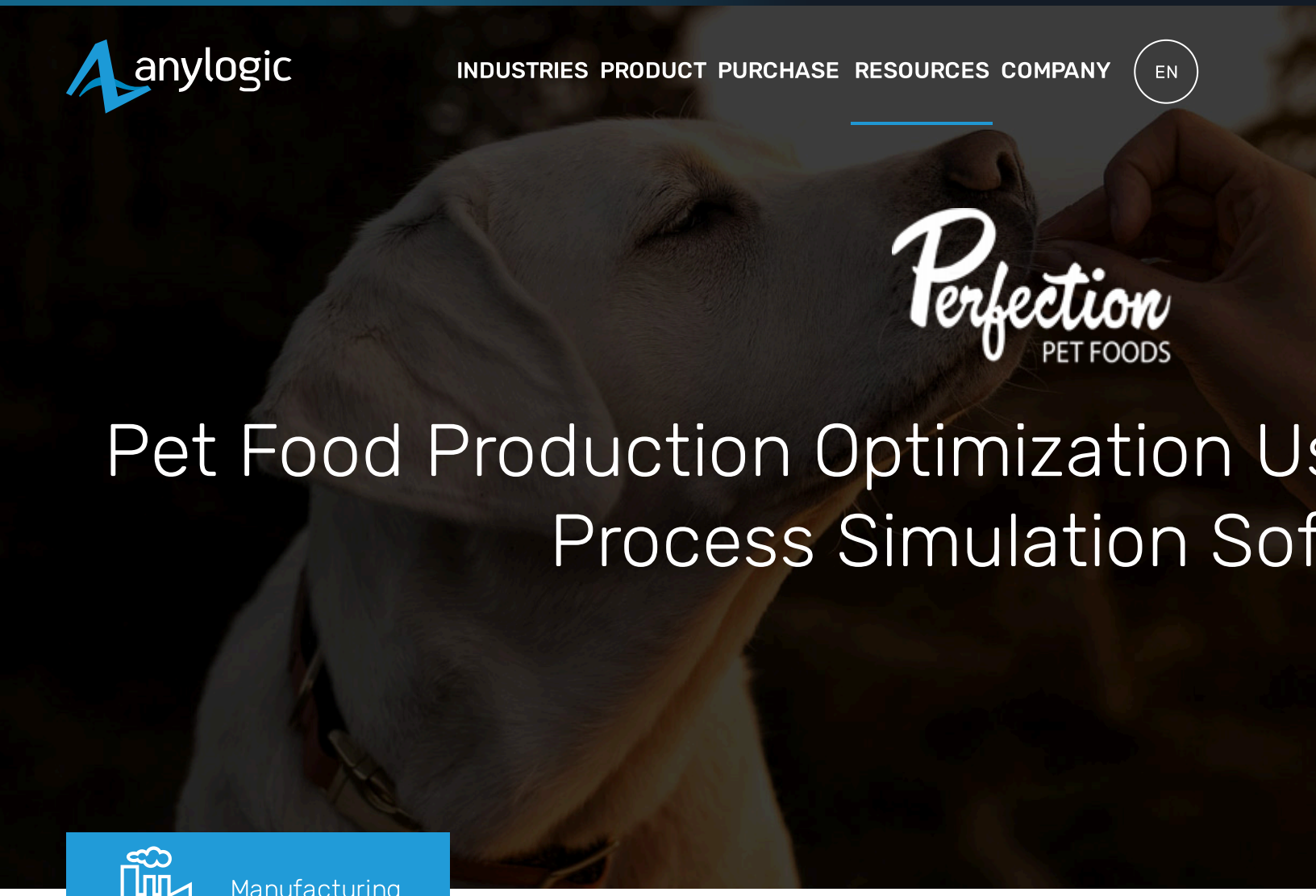


Pet Food Production Optimization Us
Process Simulation Sof

Manufacturing

Problem

Perfection Pet Foods is a US manufacturer of extruded pet food, with a focus on ultra-premium products for dogs and cats. For three consecutive years, demand for the company's products increased annually by approximately 35%, while demand profiles changed as people switched their preferences from big dogs to smaller ones. This was the reason the company

process.

All these factors resulted in congestion in storage facilities and great financial losses.

To discover solutions for underperformance in the production process, the company's executives needed to analyze process phases, schedule them in relation to one another, and then optimize the schedule. They tasked ITE Consult, a strategic planning and simulation consulting company, with the project, which aimed to:

- Align production with demand.
- Optimize production phases.
- Minimize production waste.
- Maximize plant occupancy.

To reach these goals, the ITE Consult team decided to apply manufacturing simulation as a perfect approach for better production scheduling and bottleneck visualization. It would help the team visualize the manufacturing process, get insights into process phases, see how they affect each other, and test various scheduling and production profiles in a risk-free environment.

> Check out more case studies from ITE Consult: Ice Cream Production Capacity Planning and Strategic Sales & Operations Planning to Balance Supply and Demand.

Solution

- Storage process, with storage bins capacity limits.
- Packing, with packing rate and package size restrictions.

The company produced various types of pet food, so the consultants considered this when analyzing the production process.

To build a production simulation model, the team applied AnyLogic manufacturing simulation capabilities. Using the AnyLogic Fluid Library, the engineers created a model of the shop floor with the production line.

With the AnyLogic agent-based modeling approach, they linked all production phases so that they would exchange data, and included the current scheduling and production portfolio in the model.

Then, the engineers used the OptQuest optimizer, which is built in the AnyLogic production optimization software, and set a pool of strategies for each production phase, including parameters for food constraints, restrictions, and time frames for each production phase.

The optimizer acted as a global agent and determined strategies that could be used together in the most efficient way, and gave users the optimal decision.

End-users of the manufacturing simulation model would benefit from the easy-to-use interface when applying the model for everyday scheduling. With Excel input files, they could specify demand, production limits, and extruder characteristics. After running the model, they would get a detailed simulation-based

allowed for a deeper visualization of specific cases and a better understanding of the simulated process.

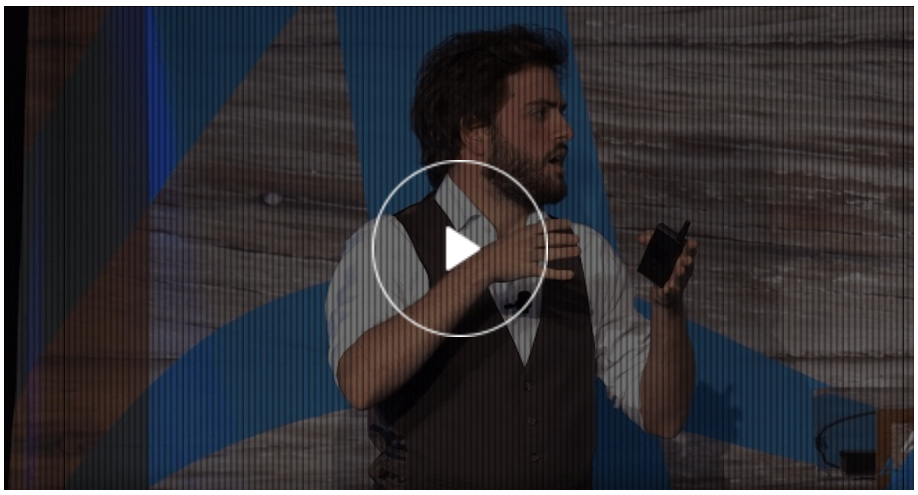
Result

With the help of the multi-objective AnyLogic manufacturing simulation model, built by ITE Consult, Perfection Pet Foods company managed to:

- Map out a detailed and optimized schedule of all the production steps.
- Reduce waste by 90%.
- Increase production rate.
- Eliminate bottlenecks across the production process.

Currently, the model is used on a regular basis for detailed weekly production scheduling to maximize production capacity in environmental uncertainty.

Watch the video of Elisa Elena, Gaston Fourcade and Javier Cortes, presenting this case study at The AnyLogic Conference, or download the presentation.



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