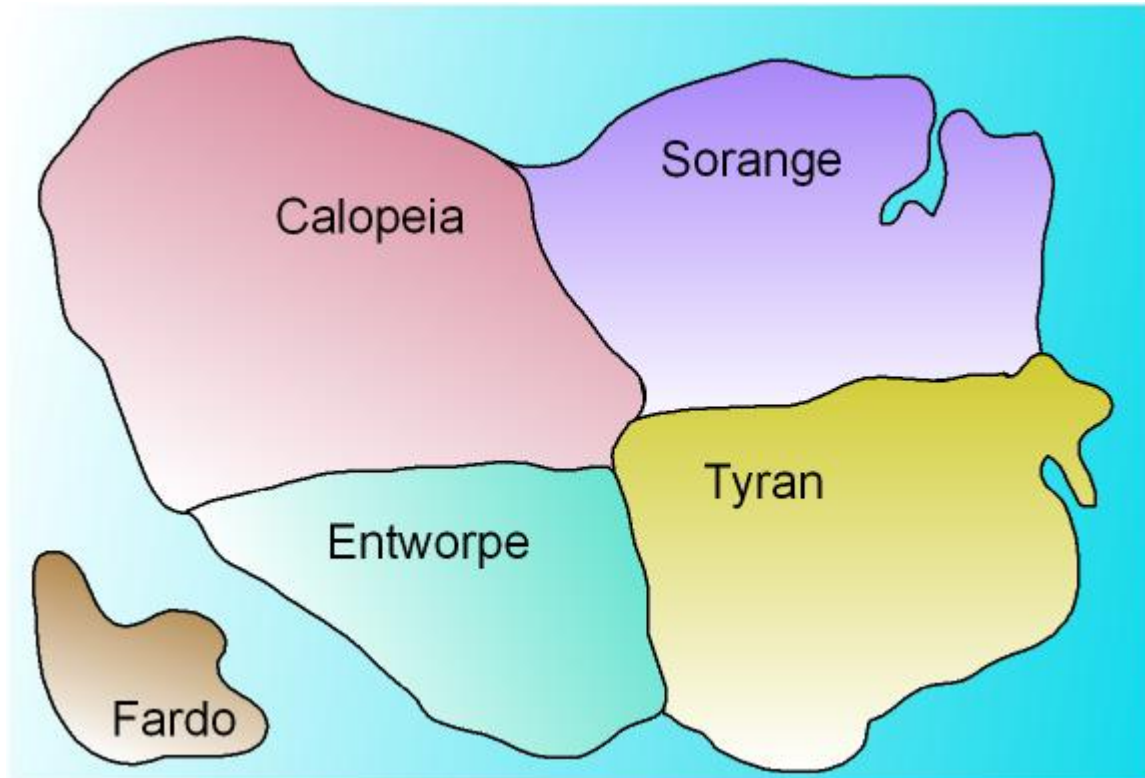# Welcome!

The Supply Chain Game is an online simulator where you can expand and manage a supply network on the fictional continent of Pangea. Please navigate through the buttons above to learn more about the assignment, including instructions for managing your network.

The Product

Jacobs Industries' only product is an industrial chemical that can be mixed with air to form a foam that is:

- Lightweight;
- Stable over a very wide range of temperatures;
- A very efficient thermal insulator;
- A very efficient acoustic insulator.

Jacobs sells its chemical to manufacturers of air conditioner retrofit kits. The manufacturers are all located in the region of Calopeia. They purchase the foam chemical as a substitute for competitors' products. If Jacobs cannot ship an order within 24 hours of receiving the order from the customer, the customer makes its purchase from a competitor without any loss of future demand.

The chemical is shipped in small plastic drums at a price of $1450 a piece. Demand for the chemical is highly seasonal but otherwise very stable. There are no long-run market trends, either upward or downward. The size of orders is very random, with an average size of 7 or 8 drums. Orders arrive randomly throughout each 24-hour day.

It is now day 730, two years after Jacobs began producing and marketing the chemical. A new foam technology is in development at Jacobs that will render all production capacity and inventory of the current foam obsolete and worthless on day 1460. All customers are aware of the pending new technology and as a result, demand will decrease to zero on day 1460.

Operations and Finance

Jacobs' distribution network consists of a single factory and a single warehouse, both in Calopeia. The warehouse only supplies air conditioner retrofit kit manufacturers, who are all in Calopeia.

Jacobs produces its chemical in batches, loads the chemical into small plastic drums, and then transports the drums from the factory to the warehouse by truck. The warehouse sends drums to customers as orders are received. The cost of fulfilling an order, including the cost of mailing the drum to the customer, is $150 per drum.

The current capacity of the factory is 20 drums per day. More factory capacity can be purchased at a cost of $50,000 per drum per day. For example, expanding the capacity by 10 drums per day for a total of 30 drums per day would be (10)$50,000 = $500,000. Capacity costs are incurred as soon as the capacity expansion begins. It takes 90 days to complete a capacity expansion. Capacity cannot be retired.

Production in factories is carried out in batches, where each batch is an integer number of drums set by you. The cost to produce one batch equals $1500 plus the number of drums in the batch times $1000. For example, the cost to produce a batch of 10 drums is $1500 + (10)$1000 = $11,500.

The batch of finished drums is shipped from the factory to the warehouse as soon as production of the batch is completed. The drums can be shipped either by truck or one at a time by mail. One truck can carry 200 drums. One truck making a trip from the factory to the warehouse costs $15,000, regardless of how full the truck is. It costs $150 to mail one drum from the factory to the warehouse. Transportation times from the factory to the warehouse are 7 days for the truck or 1 day for mail. There is no practical limit to the number of drums a warehouse can hold.

Both the costs of producing the batch and then shipping it to the warehouse are incurred as soon as production of the batch starts. If there is insufficent cash to pay for the production and shipping of the batch, the factory will remain idle. Production of a batch is triggered when the finished goods inventory (both en route to the warehouse and in the warehouse) fall below the order point, which is set by you.

Jacobs pays insurance and other out-of-pocket holding costs on chemicals once production is complete. These holding costs for one drum for one year equal $100, whether the drum is en route to a warehouse or the drum is physically in the warehouse. There are no such holding costs for work-in-process inventory in the factory. Jacobs earns 10% per year on its cash, compounded daily.

Assignment

Your team has been hired to manage the supply chain for the Jacobs Industries. You can make the following changes to the supply chain:

- Capacity additions to the factory.
- The finished goods inventory threshold that triggers production of a new batch in the factory.
- The factory's production batch size.
- Whether batches are transported to the warehouse by mail or by truck.

Your objective is to maximize the cash generated by the foam technology over the remaining two years of its lifetime. On day 1460 the game will end and all inventory and capacity will be obsolete.

The simulation will run continually at the rate of 183 simulated days per real day, or 1 simulated day about every 7.8 minutes. You will have control of the game from day 730 to day 1460, or 730 days total. The game will conclude 3.99 real days after it starts. During that time you can access your supply chain any time of the day or night.

The winning team is the one with the highest cash position on day 1460.

Instructions

Registering Your Team

Before the simulation begins, you must register your team. Before you register you will need:

- The course registration code provided by your instructor.
- A team name and password that you make up.
- The names of the students on the team.

The team name and password may only consist of numbers and lower case letters with no spaces or punctuation.

After registering, if you want to make any changes to your team name, team password, or the students' names on the team, you can go back to the registration page, enter the code again, enter your team name and password you created earlier, and make your changes. To completely delete your team, delete all the student names and submit.

Click here to open a new window and register your team.

Logging In

Once the game has begun you can access your firm by logging in using your team name and password.

If you have popup blocker, you will need to allow popups from the web site. Also, if you have modified your security settings, make sure you have not disabled cookies. There are some less common problems that students sometimes have:

- Click here if you get a "connection lost" message at the top of the screen after you log in.
- Click here if you cannot view the the data plots.

Click here to open a new window and log in.

Viewing Data and Changing Parameters

After you log in, you will see three icons in the Calopeia region. Clicking on each icon will open a window presenting buttons to view historic data and make changes:

headquarters	Plot past demand, past lost demand, and your firm's past cash position.
factory	Plot past WIP inventory, add production capacity, and change order point, order quantity, and shipping method.
warehouse	Plot past finished goods inventory and shipments, and change order point, order quantity, and shipping method.

When you click on the factory or the warehouse, you will also see a field for priority level. In this assignment, the priority level does not affect your supply chain.

The menu bar below the map of Pangea provides additional functions:

- **Overall Standing** allows you to view all the teams' current cash balance in rank order.
- **History** allows you to view all your historic changes to your supply chain.
- **Cash** shows the starting cash, and uses and sources of cash that resulted in your current cash position.
- **Update** refreshes your screen, updating the cash position and day appearing above the map of Pangea
- **Quit** logs you out.

Authors and Terms of Use

The Supply Chain Game was developed under the supervision of Professors Sunil Chopra and Philipp Afeche at the Kellogg School of Management, Northwestern University.

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Note: The above contacts do not include technical support. Please see your professor for details.