Module 3: Forecasting and Contracts

Making the right choices about which contracts to bid on can make a huge difference on your bottom line. One way to do that is forecasting. By obtaining market research that predicts upcoming trends, you will gain a better understanding of which products customers will likely be asking for. Another important element in this module is evaluating contracts and making effective bids.

Research

You can buy market research reports that forecast trends for up to a year in advance.

NOTE:
In longer games, purchase as much market research as you can right away. There is a minimal cost to buy it, and the knowledge can really help you plan your strategy!

Make-to-Order vs. Make-to-Stock

Until now, you have been running a Lean / Just-in-Time operation and buying specific raw materials when you needed them. However, once you have a sense of what products will be popular in the near future, you can stockpile required materials in advance, and upgrade or add machines to your production floor. Of course, there is a risk involved in purchasing materials without a specific contract in place.

Bids

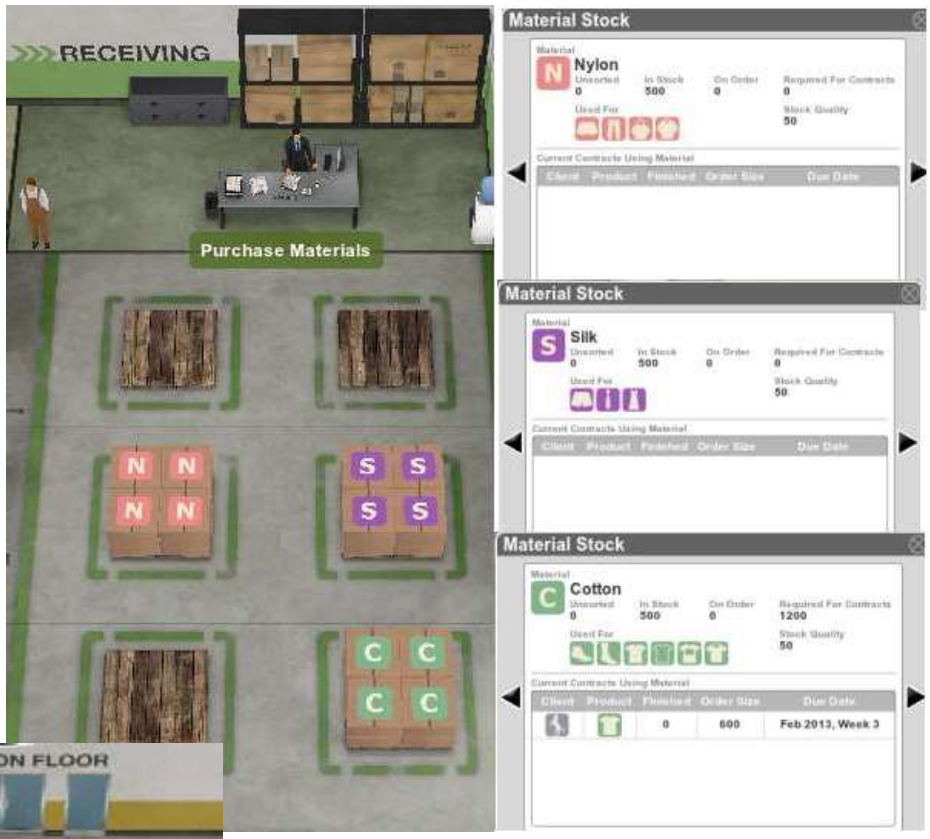
It's tempting to bid on everything; however, if too many bids are accepted, you can easily be swamped and unable to complete the work. Therefore,Module 3 limits you to 2 bids per turn. A higher concern is bidding on contracts that you are unlikely to win.In this case, you can easily find yourself with too much of your facility idle and losing money. Properly acknowledging these scenarios can help you build a positive reputation!

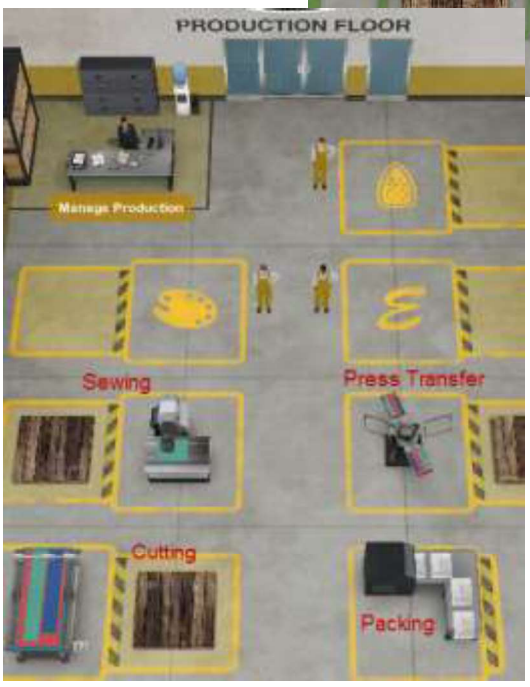
Work Request Analysis

A good match between producer and customer is important. The bidding process offers a chance to strategically analyze jobs to determine if the opportunity is a good fit. In Practice Operations, key aspects are reputation, quality, materials, processes, capacity, and profitability. The bidding process can be used to highlight each of these aspects.

At the beginning of Module 3, there are three materials already in stock – Nylon, Silk, and Cotton.

Notice that the factory is already short of cotton, so bidding on jobs that use cotton will require additional purchases. However, we have unallocated supplies of both Nylon and Silk, so jobs that use those materials will allow us to reduce our overall inventory holdings.





Looking at the production floor, we currently have four processes available – cutting, sewing, press transfer, and packaging. Jobs that require other processes will necessitate a capital investment before we can begin production.

There is only one production run currently in process, so there is sufficient capacity for additional work requests.

Looking at the work requests available for bid, most are out of our league (as far as reputation is concerned) or require materials that are already in short supply, such as cotton. However, the order for Boxer Shorts (Down Under) and one order for sports pants (Burgundy Fashion) are possibilities. We can see that both orders require only cutting, sewing, and packaging, so no new equipment is needed. Although both require more material than we currently have on hand, the lead time is sufficient to obtain more.

These appear to be good matches for our system.. Notice that the quality requirements for each are in line with the quality level of our existing materials. The final check is to ensure profitability of the orders.

Boxer Shorts use one unit of silk for each item. Silk of acceptable quality (50) can be purchased for $3.20 per unit from Owens Textiles.

Since we are already paying our employees, their salaries are a sunk cost, unless we intend to fire them. However, in this module, employee costs can be ignored (each employee's salary is $0.00 per week).

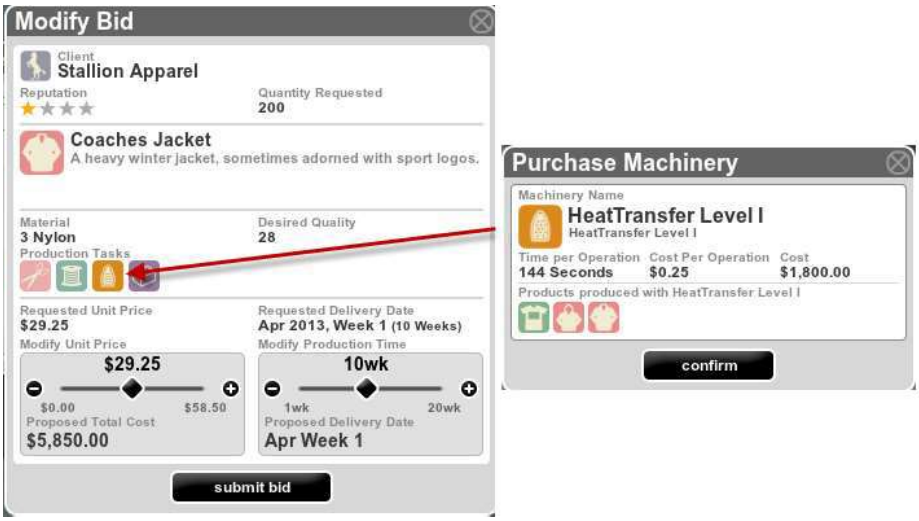
Shipping the products will cause some additional costs to be incurred, but the unit price of $15.25, with a material cost of just $3.20, leaves plenty of room for profit.

To overcome the mismatch in reputation with Down Under, we reduce the unit price to $13.50.

Sports pants use 2 units of nylon for each item. Nylon of acceptable quality (50) can be purchased for $1.76 per unit from Owens Textiles. Once again, the unit price of $14.75 leaves a large profit margin.

To overcome the mismatch in reputation with Burgundy Fashions, we reduce the unit price to $13.00.

Although both bids are rejected, additional opportunities to reduce raw material inventories will arise. In turn 3, a work request from Stallion Apparel becomes available for bidding. This request matches our reputation better, and still utilizes the existing stock of nylon. However, it requires heat transfer equipment which is not currently in the factory. This equipment must be purchased at a cost of $1,800.

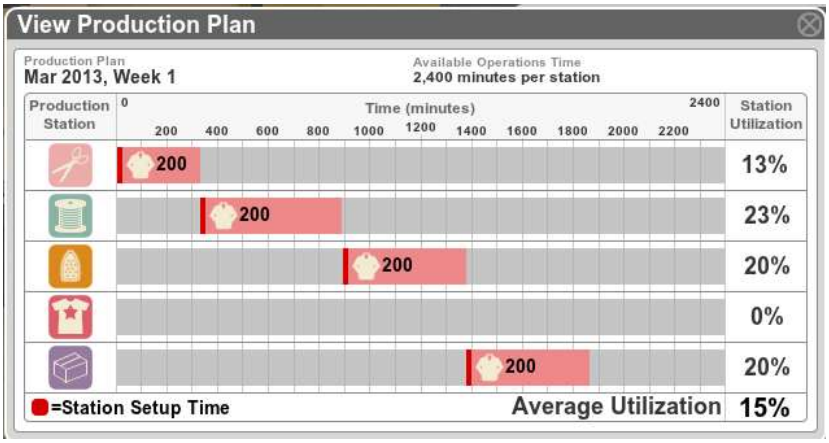


In this case, the profitability of the order ($5,850 less $1,056 in materials) can justify the purchase of the new equipment. If the bid is accepted, the new equipment can be purchased in the next turn.

Batch Manufacturing

In Practice Operations, products are produced in batches. Each batch moves through the factory together, from machine to machine, until all necessary processes have been completed. The shortcomings of batch manufacturing can be highlighted in Practice Operations.

For example, a work order for 200 coaches' jackets will first be processed at the cutting station, then proceed to sewing, heat transfer, and packaging.



Notice that each step doesn't begin until the preceding step is completed, which results in a long lead time for the products, with much of the time spent idle. In this example, each finished goods item spends 550 seconds being processed (96 seconds in cutting, 166 seconds in sewing, 144 seconds in heat transfer, and 144 seconds in packaging.) However, total production time for the batch of 200 units is 1,873 minutes. Therefore, each item spends less than 0.5% of its time in the factory actually being processed and over 99.5% of the time waiting! Batch processes can also lead to low levels of equipment usage.

Forecasting and Specialization

Rather than attempting to be all things to all customers, an effective strategy is to specialize. Focusing on a few, similar products can simplify processes and minimize investment in equipment. Selecting an area of specialization can begin with forecasting.

In the Research screen, the Top Product and Hot Products are identified. Examining the reports (here only the winter and spring reports since the Module 3 simulation lasts for 20 turns), it is clear that only a small number of materials are used to produce the majority of the Top/Hot products.

MATERIAL	"HOT" PRODUCTS
Silk	Boxer Shorts, Ties
Nylon	Sports pants, Coaches Jackets and Windbreakers
Denim	Denim Jackets
Wool	Hunting Pants
Khaki	Bermuda Shorts

Clearly silk and nylon offer more flexibility. This allows speculative purchases of these raw materials to ensure stock is available on short notice.

NOTE:
Raw material availability may allow bidding on lucrative short lead-time contracts.

In addition to raw material considerations, process commonality is another key factor. Existing processes (cutting, sewing, press transfer, and packaging) can support sports pants, ties, and boxer shorts. Addition of heat transfer equipment will allow production of coaches' jackets and windbreakers.

A specialized production system with cutting, sewing, press transfer, heat transfer, and packaging, using nylon and silk raw materials, would support at least two of the top/hot products for both the winter and spring seasons.

Follow the Tutorial for Module 3

As with previous modules, it is important to follow the in-game tutorial for this module to be sure you are introduced to all the key elements. Players will need a clear understanding of of the previous modules before starting Module 4. If you are unsure of any part of the module, replay it, and review

this section of the manual. If you feel comfortable with the concepts introduced in Module 3, try different bidding and purchasing strategies to see how it affects your profits.

Module 4: Human Resources and Capacity Planning

So far, you've been managing production, ordering, shipping, receiving, sales and predicting the market. It's time to add human resources to the mix. This module will help you identify when and how to expand your workforce to handle a growing customer base seeking more and larger orders. You will also see when it is cost effective to purchase upgraded equipment and to train existing staff to increase production capacity.

Human Resources

When more work is required in a specific area, you can either train an existing employee or hire somebody new. This area is also where you manage the organization of each department.