

Existing Solution

Crafty LLC currently has a system in place to place orders to distributors.

1. The system calculates what should be placed on an order based off of current variables.
2. The procurement team looks this report over and uses the system to place an email to the distributor

Current Variables (inputs)

1. Aggregated Order History from All Client
Rationale:
2. Distributor Delivery Schedules and Lead Time
Rationale:
3. Items Not Shipped Directly to Clients
Rationale: No inventory

Missing Variables (inputs)

1. New Client Orders
Rationale: When we onboard a new client we need to order WAY more inventory for the initial delivery. The current algorithm only takes historical data into consideration which totally ignores new clients.
 - We set the amount of inventory our clients will need in their initial delivery way ahead of time and this needs to be considered into our algorithm
2. Historical Client Inventory Levels
Rationale: Just because a client hits a threshold that says they are running low does not mean that it should be reordered. If a product took a year to diminish then they want the lower amount of that product that can be ordered to be sent to the client.
3. Client Thresholds
Rationale:
4. Price from Multiple Distributors
5. Warehouse Management Reports
Rationale: The system is tied with our warehouse management system so we know how accurate distributors are and how good they are at actually sending the amounts we order
6. Seasonal Changes
Can we get the system to take into consideration seasonal changes? Do we have enough data for that?

7. Warehouse Space

Minimum allowed at site

Maximum allowed at site

This is by product

8. On-Hand Inventory

9. Expiration Dates

Rationale: Certain products expire quickly, with those we need to be extra careful about not having too much on-hand or we lose money

Features

- Clearly document and present all variables that are a part of the algorithm
 - Rationale: The procurement team should not be confused about the algorithm and they should understand what variables are consideration factors so that they are comfortable with how and why the system is making considerations
- The users should have flexibility to update inputs in the current system before orders are placed
 - Rationale: If there are seasonal or other sudden changes that cannot be input into the current system, the procurement team must go in and update orders before they are placed.
- Ability to flag when a certain SKU is being ordered at a much different rate than in the past
 - Procurement should check these out to ensure validity of the algorithm
- Keep the lowest inventory possible
 - Rationale:

Problem

- Currently the procurement team does not trust the system's automated order placement algorithm and they are manually checking over every piece of inventory being ordering daily. The reason for this is because of factors we are not taking into place.

Goal

Explanation of why the business is investing in the project + business benefit to achieve

- What is the product intended to do?
- What benefit does the product bring to the business?

Replace the current algorithm that Crafty LLC uses for ordering. The new algorithm should replace the current algorithm with the goal that the new algorithm does not require Crafty to monitor the placement of every item from distributors. The forecasting algorithm should be understandable and flexible which will allow crafty to have peace of mind.

Scope of Work

System Output

- Daily orders that should be placed with each distributor
 - How much of each SKU should be ordered from the distributor
 - SKU 1234 - Order 4
 - SKU 1235 - No Order
 - SKU 4567 - Order 120

Stakeholders

- Procurement team - Monitors and places orders with our distributors
- Sales Team - Inputs the thresholds and start dates for new clients
- Client Services Team - Updates current clients thresholds and places their orders

Actors

Any person, organization, or outside system that interacts with the system-to-be. Must be eternal objects that produce or consume data.

1. Customer
 - a. Requests product on special case basis
 - b. Has contract for recurring basis
 - c. Provides current inventory on-hand
2. Distributor
 - a. Provides list of products available for order
 - b. Provides schedule of when they are available to order from
 - c. Provides number of days of how long it will take to deliver
3. Procurement Team
 - a. Add future orders for special events
 - b. Add future orders for new client onboarding
4. Warehouse
 - a. Provides current amount of space available
 - b. Provides current inventory on-hand (product & count)
5. Customer Order History
 - a. Historical ordering data
 - b. Future product orders

Constraints - Restrictions on the scope or style of the product. Predetermined design solutions that must be used, constraints on changing the way that business processes are currently implemented, and the time and money that are available for the project

Relevant Facts and Assumptions - Are there any special facts people need to know? Or are there assumptions being made that may affect the outcome of the project?

Risks / Challenges - Possibly a short risk / challenge analysis to reveal the main risks / challenges faced by the project.

Questions

Definitions

1. WoFS - Work of Forecasting System

- Work Scope Diagram
- User Stories
- List of Stakeholders

- What is the work to change and improve?
- What methods are already being used, and what needs to be improved based on the current model?

Context Diagram (Work Scope Diagram)

Understanding the context and create a context diagram

- Read pp. 38-43, pp. 70-72, and pp. 420-422 of the textbook.
- There is an example of a context diagram on p. 71.
- The context diagram should show responsibilities of the work (system) and responsibilities of the adjacent systems
- Responsibilities are defined in the flow of data into and out of the system

Events, Inputs, and Output Flows (Event Table)

Identifying the events, and the input and output flows.

- Read pp. 73-80 and pp. 422-425.
- Use the example of the Event Table on p. 423 (with 3 columns) rather than using the example on p. 80 (which only has 2 columns).

Business Use Case Table

	Business Event Name	Input and Output	Summary of Business Use Case
1	Retrieve product order history	Database/Order history	Getting database information on the previous orders in the database
2	Retrieve future product orders	Database/Product order	Getting current/future orders placed but not fulfilled
3	Determine space constraints	?/Space constraints	Getting the available space for

			products incoming to the warehouse
4	Get current warehouse inventory	?/Current inventory	Getting the current utilized warehouse inventory
5	Retrieve reorder schedule	Distributor/Reorder schedule	Getting the frequency in which the distributors ship orders
6	Retrieve product catalog	Distributor/Product catalog	Getting the available products that the distributor offers
7	Retrieve daily inventory	?/Product count in warehouse	Getting the daily inventory available for sale in the warehouse
8	Create order analysis	-/Order analysis	Creating a report that outlines the predictions of optimal ordering of products for the warehouse

Product Use Case Scenarios

1	<p>Business Use Case Name: Retrieve product order history</p> <p>Trigger: Time Trigger (TBD)</p> <p>Preconditions: Product order history is updated</p> <p>Actors: Crafty database, Work of forecasting system</p> <p>Normal Case Steps:</p> <ol style="list-style-type: none"> 1. WoFS system queries adjacent database system 2. Database responds with product order history <p>Alternative Cases:</p> <ol style="list-style-type: none"> 1. - <p>Exception Case:</p> <ol style="list-style-type: none"> 1. Step 2 fails <ol style="list-style-type: none"> a. WoFS exits with failure report 2. Malicious Users <ol style="list-style-type: none"> a. - 3. Misuse/Abuse <ol style="list-style-type: none"> a. - <p>Outcome: Work of forecasting system has updated product order history</p>
2	<p>Business Use Case Name: Retrieve product order history</p> <p>Trigger:</p> <p>Preconditions:</p> <p>Actors:</p> <p>Normal Case Steps:</p> <p>Alternative Cases:</p> <ol style="list-style-type: none"> 2. - <p>Exception Case:</p>

	<ul style="list-style-type: none"> 4. Step 2 fails <ul style="list-style-type: none"> a. WoFS exits with failure report 5. Malicious Users <ul style="list-style-type: none"> a. - 6. Misuse/Abuse <ul style="list-style-type: none"> a. - <p>Outcome: Work of forecasting system has updated product order history</p>
3	<p>Business Use Case Name: Create Order Analysis</p> <p>Trigger: Forecasting Algorithm completes(Event Trigger)</p> <p>Preconditions: Order analysis has not been created for that day</p> <p>Actors: -</p> <p>Steps:</p> <ul style="list-style-type: none"> 3. <p>Outcome: Order analysis report</p>

Domain Knowledge

Any questions the team feels the need to answer about context, environment, use, customer needs, etc. to “get the software requirements right”