



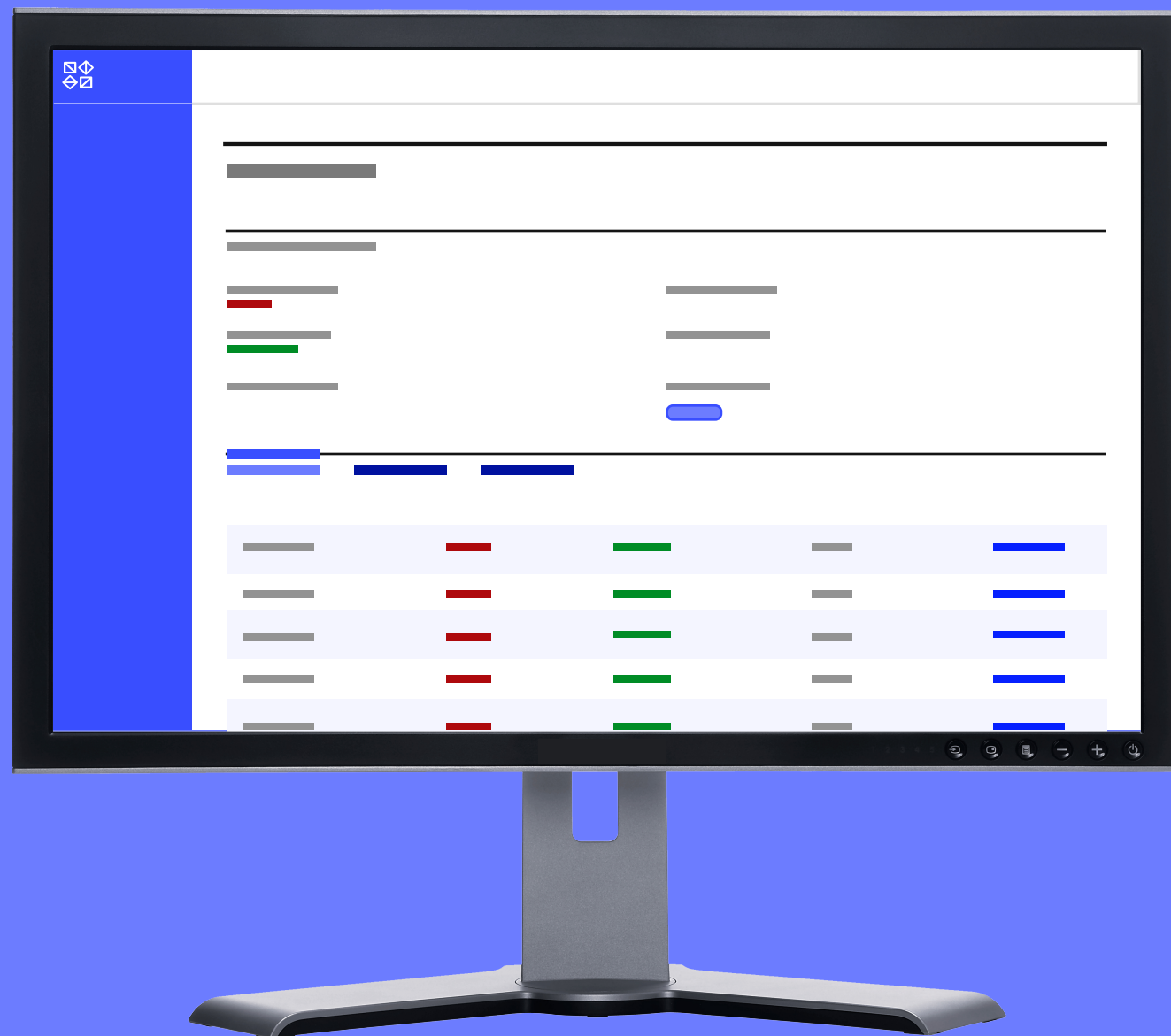
Blackbox

Inventory Management System Redesign

Platform: Web

Role: Principle Designer

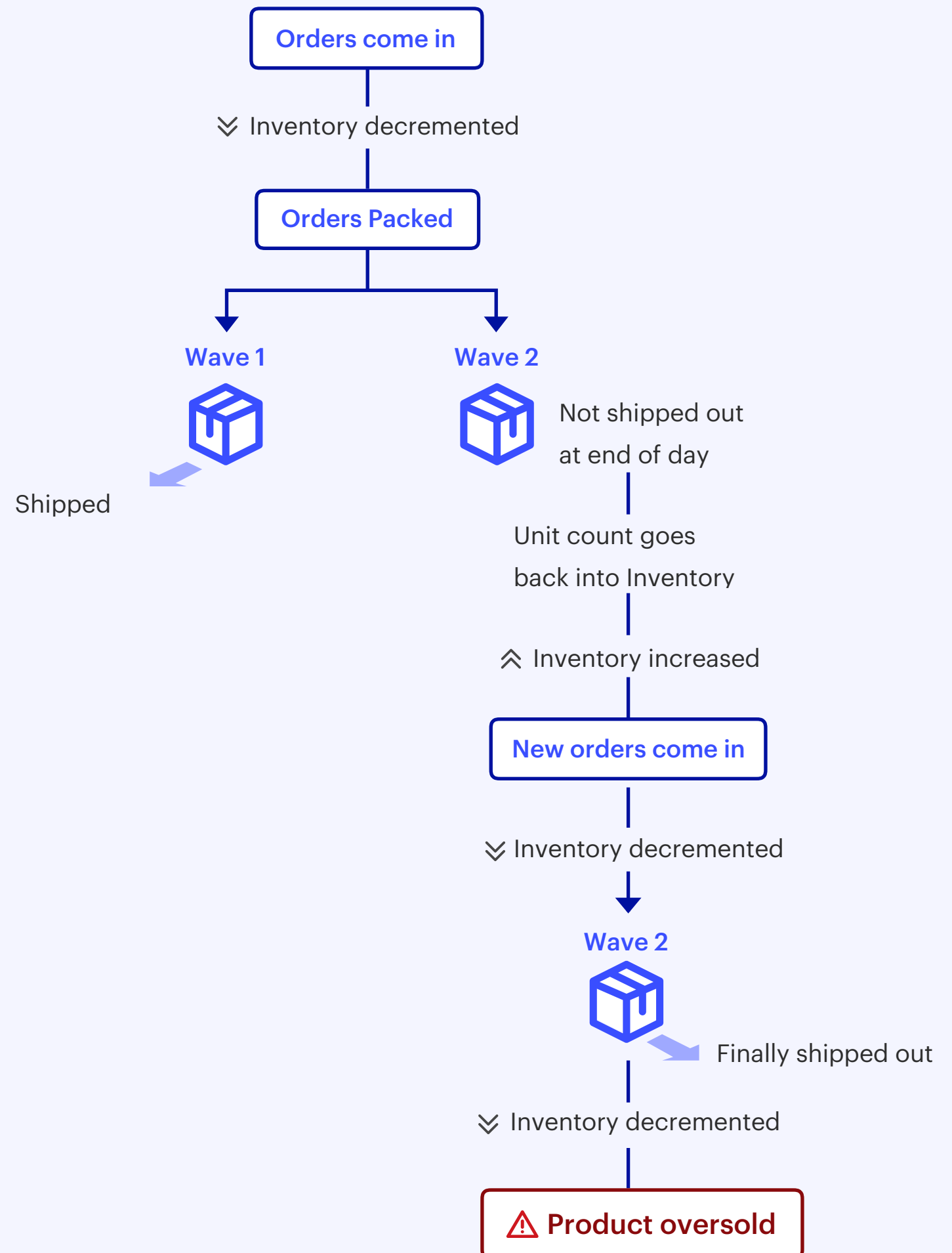
Opportunity: Redesign Blackbox's inventory management system to display accurate data, promote transparency of stock movement and processes, and lighten the manual workload of the internal Logistics team. Create the foundation to transforming the Blackbox system into the source of truth for client inventory.



Context and Existing Issues

The current inventory management system (IMS) is a ledger system that is riddled with pain points. It often displays inaccurate stock count due to timing mishaps with warehouse API calls, entails an immense amount of manual work for the internal Logistics team, and information is buried in rows and rows of tables.

A recent snafu came with the launch of a client's product. The new product over sold resulting in angry customers and client. Orders are shipped out in waves, with inventory count being decremented, and then increased again when packed, but promised inventory was not shipped. The dashboard reported more available inventory than was actually available for purchase.



The Stakeholder:

Susie, the Logistics Manager

Stage: Discovery

Method: Shadowing, interviewing

To get a contextual lay of the land, the top priority was getting to know who manages the inventory, and how they do it. I spent a multiple shadow sessions with Susie, the Blackbox Logistics Manager, watching her perform her tedious tasks and enacting her workarounds for the holes in the existing Inventory Management System.

Susie’s workflow was painfully manual, involved multiple back and forths with warehouse managers, and entailed a lot of neurotic tracking through homegrown means.

Susie Harvey

Logistics Manager



Bio

Susie came to the team with years of inventory and production experience from large corporations. With her wealth of knowledge, Susie is involved in myriad aspects of the business and can often be found multitasking. All of Susie’s activities are on a schedule and she gets frustrated when she is blocked from doing her job. Susie is capable of crafting (sometimes sneaky) workarounds to some issues throughout the shipping and fulfillment process, but is tired of Blackbox/CAH being “cute” about it.

Goals

- Ensure inventory moves seamlessly from start (creation) to end (shipped and sent to customer)
 - The right number of items are shipped
 - Inventory leaves and arrives in good condition
 - Inventory is sent to the right location
 - Inventory arrives at the expected date

Needs

- Alignment with clients, Accounts team, and warehouses re: inventory and expectations
- Set and communicated deadlines, synced expectations vs. actuals
- Up-to-date and accurate information for dates, IDs, and quantities

Frustrations

- Incredibly manual workload
- Only person with expertise and ingrained knowledge in domain
- Unreliable or incomplete data from clients
- Lack of guidelines/compliance agreement with clients; results in a bumpy fulfillment process as team works to accommodate
- Unmatched sense of urgency between Ops and Tech

Role and Responsibilities

- Keep track of unshipped orders, be in the know regarding stuck or stagnant orders
- Work with Accounts to set up Shipments and head off any issues/discrepancies that may occur
- Book Shipments and communicate with warehouses in a timely fashion
- Act as a liaison with warehouses throughout the shipment process
- Manage inventory of products and shipping materials

Routines and Habits

- Start off the week catching up with emails and warehouse activity from the weekend
- To stay organized -
 - Takes a snapshot of the start of her work week to compare movement of inventory and closed out commitments over time
 - Sorts and tags all emails
- To keep parties on the same page -
 - Creates and sends separate emails to warehouse and Accounts re: Shipments
 - Keeps a log of actions, issues, and communication between parties on each Order or Shipment
- To accomplish a task for any particular Order or Shipment -
 - Keeps many tabs open per Order/ Shipment to have simultaneous view into inventory, status, notes, relevant emails, etc.

Relationships

- Accounts
 - Handoffs and data alignment for client Shipments
- Warehouse Coordinators
 - Send and receive notices re: Shipments, dates, quantities, quality check
- Blackbox Product Team
 - Communicate needs for updates/ improvements to increase efficiency and functionality
 - Stay informed on/involved in what’s being worked on and changes that impact workflow

Tools Used

- Google Forms to collect product information
- Blackbox Dashboard
- James & James Dashboard

Data Experiment: Understanding the Existing Discrepancies

Stage: Discovery

Method: Data comparison test

- Worked with inventory data for 5 high-traffic products
- Simulated separation from warehouse API calls
- Tallied deviations in unit counts between the Blackbox system and warehouse reports

I ran a database simulation to quantify the typical gaps in inventory counts between what our partner warehouses reports and what our existing system was able to track. This showed the team that there were sometimes discrepancies as large as entire casepacks. This would be a significant loss for our independent creator clients.

Created At	Source	Description	Order ID	Product ID	Warehouse	Quantity Chg	Total Quantity
2018-08-14 19:0	wholesale order	Order #1278087	1278087	3	CAC	-48	28379
2018-08-14 18:0	consumer order	Order #1278073	1278073	3	CA	-6	3062
2018-08-14 16:3	wholesale order	Order #1278056	1278056	3	GB	-1000	20814
2018-08-14 00:0	wholesale order	Order #1278084	1278084	3	CAS	-6	3448
2018-08-13 23:4	consumer order	Order #1278087	1278087	3	CAS	-5	3454
2018-08-13 17:1	wholesale order	Order #1278174	1278174	3	CAC	-6	28422
2018-08-13 1:1	consumer order	Order #1277987	1277987	3	GB	-1	49014
2018-08-12 02:4	consumer order	Order #1277828	1277828	3	CAU	-1	3304
2018-08-11 15:4	consumer order	Order #1277868	1277868	3	GB	-1	49015
2018-08-11 05:4	consumer order	Order #1277814	1277814	3	GB	-1	49016
2018-08-11 05:3	consumer cancel	Order #1277813	1277813	3	GB	1	49017
2018-08-10 22:0	consumer order	Order #1277860	1277860	3	CAC	-1	28420
2018-08-10 21:5	consumer order	Order #1277832	1277832	3	GB	-1	49017
2018-08-10 20:0	wholesale order	Order #1277488	1277488	3	CAU	-24	3505
2018-08-10 18:5	consumer order	Order #1277493	1277493	3	CAS	-1	3457
2018-08-10 14:4	consumer order	Order #1277448	1277448	3	GB	-1	49018
2018-08-10 14:3	consumer cancel	Order #1277448	1277448	3	GB	2	49019
2018-08-10 14:3	consumer order	Order #1277448	1277448	3	GB	-2	49017
2018-08-09 21:1	wholesale order	Order #1277517	1277517	3	CA	-6	3067
2018-08-09 10:3	wholesale order	Order #1277198	1277198	3	CAC	-6	28428
2018-08-08 21:1	wholesale order	Order #1278622	1278622	3	CAU	-6	3329
2018-08-08 18:4	consumer order	Order #1278020	1278020	3	GB	-1	49019
2018-08-08 16:0	wholesale order	Order #1278080	1278080	3	GB	-240	49020
2018-08-08 16:0	wholesale cancel	Order #1278075	1278075	3	GB	240	49020
2018-08-08 16:0	wholesale order	Order #1278075	1278075	3	GB	-240	49020
2018-08-07 21:0	wholesale order	Order #1278379	1278379	3	CAU	-18	3335
2018-08-07 18:0	wholesale order	Order #1278017	1278017	3	CAU	-12	3323
2018-08-07 17:1	consumer order	Order #1278315	1278315	3	GB	-1	49020
2018-08-07 15:4	consumer order	Order #1278296	1278296	3	CAS	-288	3458

Created At	Source	Description	Order ID	Product ID	Warehouse	Quantity Chg	Total Quantity
2018-08-14 07:08:41	UT warehouse	Warehouse updated from CAC		3	CAC	5	28427
2018-08-13 07:08:38	UT warehouse	Warehouse updated from CAC		3	CAC	-5	28428
2018-08-10 07:12:33	UT warehouse	Warehouse updated from CAC		3	CAU	8	28434
2018-08-09 08:00:06	UT warehouse	Warehouse updated from AU		3	AU	-1	1465
2018-08-08 08:00:10	UT warehouse	Warehouse updated from AU		3	AU	1	1466
2018-08-08 07:12:35	UT warehouse	Warehouse updated from CAC		3	CAC	-1	28434
2018-08-07 08:00:05	UT warehouse	Warehouse updated from AU		3	AU	-1	1468
2018-08-07 07:12:25	UT warehouse	Warehouse updated from CAC		3	CAC	1	28435
2018-08-06 08:00:06	UT warehouse	Warehouse updated from AU		3	AU	1	1467
2018-08-03 07:11:51	UT warehouse	Warehouse updated from CAC		3	CAC	-1	28435
2018-08-02 07:11:46	UT warehouse	Warehouse updated from CAU		3	CAU	-6	3889
2018-08-02 07:11:46	UT warehouse	Warehouse updated from CAC		3	CAC	-1	28436
2018-08-01 07:11:43	UT warehouse	Warehouse updated from CAC		3	CAC	2	28438
2018-08-01 07:11:43	UT warehouse	Warehouse updated from CAU		3	CAU	-6	3895
2018-07-31 07:13:48	UT warehouse	Warehouse updated from CAS		3	CAS	-1	4029
2018-07-31 07:13:48	UT warehouse	Warehouse updated from CAC		3	CAU	8	3887
2018-07-31 07:11:39	UT warehouse	Warehouse updated from CAC		3	CAC	-1	28438
2018-07-30 07:13:36	UT warehouse	Warehouse updated from CAU		3	CAU	1	3820
2018-07-30 07:13:36	UT warehouse	Warehouse updated from CAS		3	CAS	1	4031
2018-07-30 07:11:34	UT warehouse	Warehouse updated from CAC		3	CAC	-5	28439
2018-07-27 07:11:35	UT warehouse	Warehouse updated from CAC		3	CAC	8	28445
2018-07-26 08:00:09	UT warehouse	Warehouse updated from AU		3	AU	-1	1467
2018-07-26 08:00:12	UT warehouse	Warehouse updated from AU		3	AU	1	1468



Inventory: Data Comparison Test

Goal(s):

- Observe real comparisons between Blackbox captured inventory logs and Warehouse APIs' inventory entries and inventory totals with real and live client data
 - See how well data lines up and where/when it might deviate
- Observe the frequency of deviations at various scales and whether or not there is a pattern for self-resolution or need for manual intervention
- Use findings to inform future of inventory checks and (hopefully) low-lift discrepancy resolution process

Orders:

- Last 2-3 weeks of orders
- Inventory totals with time stamps for chosen products through BBX log and warehouse pings
 - Columns: Product ID - Count (Total units) - Created At - Object Type - Object ID - Description - Status
- Entries?

- Cards Against Humanity -
 - CAH Saves America Pack (product_id=780)
 - Cards Against Humanity (product_id=9)
 - Pride Pack Without Glitter (product_id=778)
- Exploding Kittens -
 - Exploding Kittens Original Edition (product_id=3)
- Goat, Wolf, & Cabbage -
 - Secret Hitler (product_id=66)

📦 Deliveries (need to build delivery approval with discrepancy resolution):

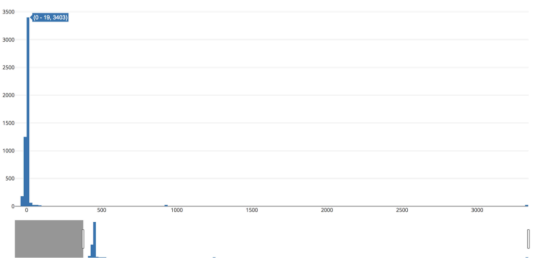
- Last 2 months of deliveries
- Inventory totals with time stamps for chosen products through BBX log and warehouse pings
 - Columns: Product ID - Count (Total units) - Created At - Object Type - Object ID - Description - Status
- Cut.com, Inc -
 - Fear Pong Game (product_id=821)
- Exploding Kittens -
 - Exploding Kittens Party Pack (product_id=378)
- Twogether Studios -
 - Knight of Summer Totebag (product_id=396)

Method

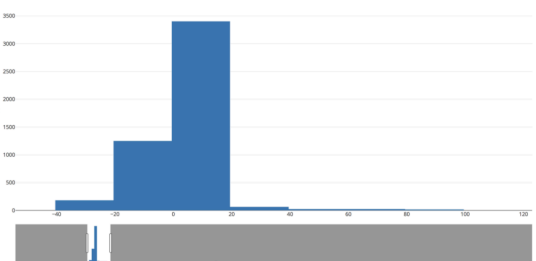
- Jon pulled data for orders from the last 2 weeks for 5 products at all warehouses (linked below)
- Separated orders by warehouse into their own spreadsheets (linked below)
- Pulled out log entries from warehouse API override pings into a separate document (linked below)
- Created a new column for Calculated Quantity to represent standalone Blackbox ledger system without API overrides from warehouses
 - New baseline/starting point created by taking quantity change and total quantity (w/ warehouse API)
 - Used new baseline and quantity changes from orders to calculate subsequent totals (Calculated Quantity)
- Calculated the difference between Total Quantity (with Warehouse override) and Calculated Quantity (w/o checkin overrides); utilized conditional formatting to highlight the range of difference
- Generated histograms per product-warehouse spreadsheet to see range of discrepancies (x axis) against how often a discrepancy of that size occurred (y axis)
- Utilized first 5000 lines of Calculated Difference (plot.ly line limitation) to generate overall range and number of occurrences (histograms shared above in results)

Results Summary

- More often than not (113 incidents to 69) the warehouse pings created a larger discrepancy (moved the difference further from 0) than fixed it (moved the difference closer to 0)
- The largest difference between the two logged quantities was 3,323 units of Secret Hitler at Geodis Sparks, followed by a difference of 925/923 Secret Hitler units at Geodis Sparks, and 84 units of Cards Against Humanity at Geodis Chambersburg
 - Most differences were under 100 units (with varying total product inventory), with the bulk of occurrences showing discrepancies in the ~20 to 20 units range
- This only counts orders and does not include data from inbound shipments and transfers, which have a big impact on inventory
 - System would not work without inbound and transfer integration, otherwise the difference between sources will never resolve on its own



Histogram 1.1: The range of differences between quantity logged with warehouse override and quantity logged sans warehouse override (x) against the number of occurrences (y)



Susie's Reactions

- Surprised by the SHTLR discrepancy, but could pinpoint what the cause was (pulling stock for Gen Con) and knew next steps (follow up with Maya)
- Still think 40 units (absolute value of majority discrepancy range) was still a lot
 - "That's more than a case pack of most of the things we carry... That might be okay for Cards, but most of our clients are not like Cards and we would not want our clients to see that."
- 20 unit discrepancy is still pretty high and matters for our smaller clients
- Trust warehouse inventory numbers more than Blackbox... should be default for inventory
 - The only ones who see both sides of the picture
- Context share:
 - Just tracking the order portal = garbage
 - It cannot handle wholesale or inbound shipments but it's what we've got right now
 - Not the behavior we want to rely on for tracking
 - Orders can't be placed off inventory
 - Inventory gets shipped to receiver
 - Paper work filled out (cost to file); take cost of goods + amortized (lump sum _ add a bit of cost for each unit) >> Carded cost
 - Do all the steps necessary to get the goods to final location and set retail price when it gets there
 - Calculate retail margin % and store in system; average cost and decrementing units... then warehousing software interacts with inventory software
 - Warehouse + ordering system is one thing
- Listen to warehouse statuses, not their numbers
- Orders should go against BBX ledger
- Would be comfortable with a percentage-based threshold for notification PLUS a strict numbers threshold (looking back at 40 units being too large a discrepancy, regardless of comparison to total stock)

Competitive Analysis: What Makes Other IMS's Work?

Stage: Discovery

Method: Product exploration, online research

I signed up for demos of a few B2C inventory management software to compare offerings and functionality. I paid attention to how these tools manage products, data, and inventory movement.

The top findings were that automation, transparency of unit counts through stages of shipment, and alerts to discrepancies or issues were common threads throughout.

How might we center the redesign around these ideas to make life easier for our team?



Inventory: Competitor Research

Overview

While there are key differences in the Blackbox model of inventory management from the wider market, there are still things to learn from existing and established inventory management tools and systems.

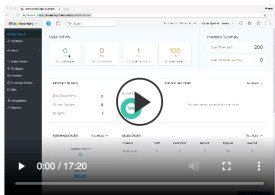
Common Characteristics and Offerings

- Automation - stock is synced across all channels (sales, warehouses, etc.) automatically
 - BBX currently has backend logging (?), but is still manually entered by Susie and team in-app*
- Tracking of stock through all stages of transit and shifts (orders, deliveries)
 - Not being able to automatically and accurately track stock and movement makes it impossible and unwieldy to manage the current workload as well as scale up the business*
- System to keep stock at the right level (calculations to avoid drastic overages or running too low on stock based on order patterns) >> alerting
 - Can't fulfill orders at all or in a timely manner if we're out of products that customers want to buy in any or the appropriate location*
- Configurable reporting
 - If don't know the status of stock, can't properly or smoothly do transfers or fulfill orders*

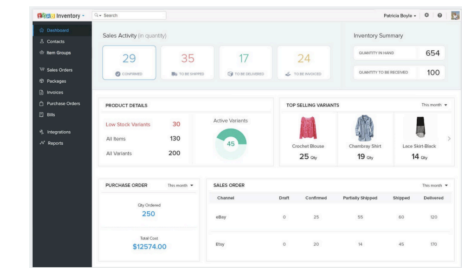
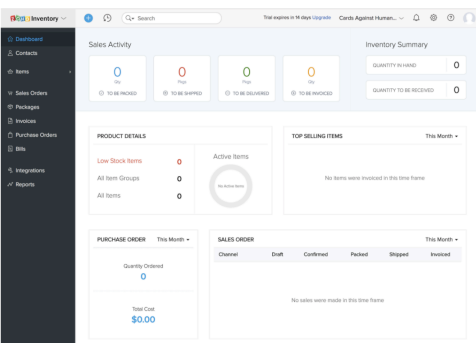
Zoho Inventory

Description from site:

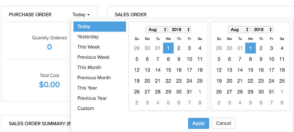
Inventory management software for growing businesses. Increase your sales and keep track of every unit with our powerful stock management, order fulfillment, and inventory control software.



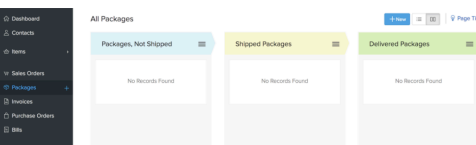
Dashboard



- Live reporting of activity across the stages of shipping and payment
- Quick snapshot of inventory - how much is in stock and how much is expected to be added
 - Is it just a sum of all products for client or can it be broken down?
- Front page alert for items that are low in stock
 - Might not actually link out to items that need attention
- Can see movement and of product from channels and filter by custom date range

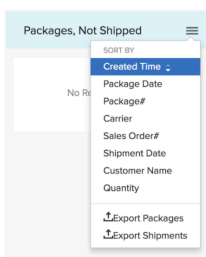


Packages (Status Tracking)



- Tracks packages as a story board based on shipping status from ordered and unshipped to delivery completion

All Packages



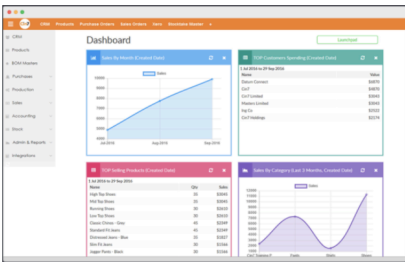
From a 5 star review: *Very complete! I like the overall feel and UI for this software. I like how it was thought about and implemented. I like that it offers many integrations and generally can do nearly everything I need it to do. I like how it is like lego's, I can select one module and then when ready set up another Zoho module and they will work together. Over all I like the product.*

Cin7

Description from site: Cin7 is the automated inventory management platform for brands growing their revenue over \$1 million. Cin7 synchronizes their stock with sales and orders across every physical and online sales channel and automates order processes for greater efficiency. Cin7 is not ideal for Rentals or Asset management type of businesses. Brands that sell or distribute products use Cin7 to keep costs down, margins and cash flow high and stock at the right level.

****Note: Can't get access to a free trial without talking to a representative, so using screenshots provided by Capterra (business software evaluation service)****

Dashboard



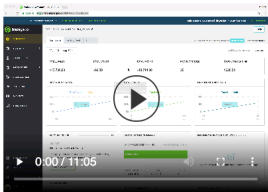
- Real-time reporting of stock over time and by category

Product List

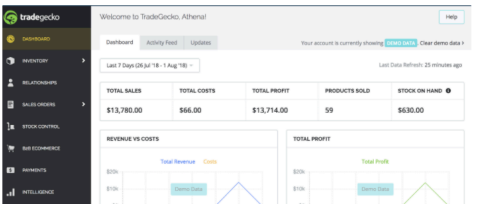
- Detailed list of information tied to each product, easy to see the stock available and incoming stock... doesn't say stock at location or what incoming means, per se

TradeGecko

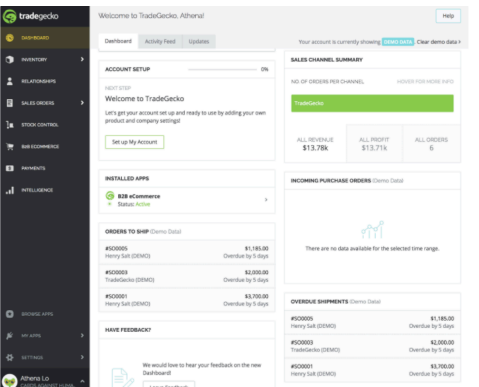
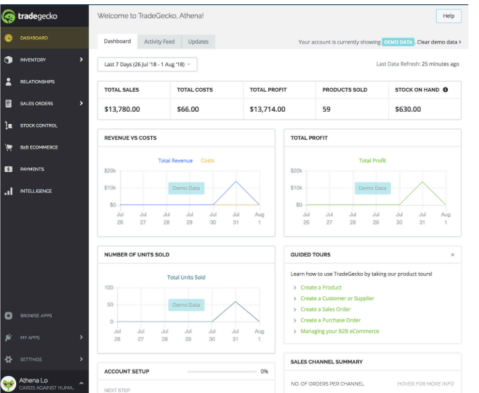
Description from site: TradeGecko is an inventory management platform, built for multichannel brands, specially high growth eCommerce and wholesalers. It enables automation for omnichannel operations, improving efficiency and increasing profitability.



Dashboard



Dashboard



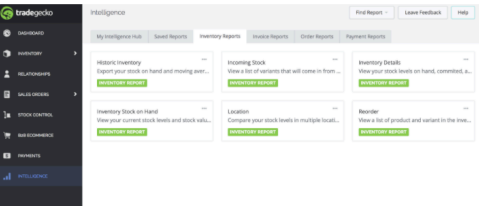
- Bucketing between dashboard for snapshot, activity feed for running updates on internal actions, and software updates
- Data filter that impacts entire dash
- Bucketing between dashboard for snapshot, activity feed for running updates on internal actions, and software updates
- Data filter that impacts entire dash
- Ribbon of top level metrics
- Modules that link out to detailed information in the software
- Tracking relevant metrics over time
- Compare information re: sales between channels
- Incoming purchase orders elevated to front page
- Alert to upcoming and overdue shipments

Orders

- Clear status tracking through order fulfillment process
- Dates for creation and last updated (transparency re: updates and action on orders)

- List

Intelligence



- Customizable reports can be created
- List of ways to cut inventory data for reporting (historic, on hand, by location, incoming, etc.)

Feature Document: Maintaining a Central Source of Truth

Stage: Ongoing documentation

To make sure the small team stayed aligned throughout the process, I put together a structured feature document. The focus was on ensuring the central goals were agreed upon, noting what risks to watch out for, and making sure the scope was clear.

As a living document, it was updated as changes were made. This included details for the functional spec, tech implementation, and any new team decisions.

Throughout design and development, communication and transparency were key with stakeholders and all teammates.

Feature Implementation

Note (again): A lot of work has to be done on the shipments (inbounds and transfers) [end to end](#) to create a truly accurate [the Inbounds and Transfers](#).

Inventory System

[Prototype found here](#)

Warehouse and Blackbox

In the interest of real-time keeping track of on-hand inventory, the waving out of stock is transferred out.

Experience Update

- Physical On-hand
 - Warehouse separate
 - Product Inventory

Requirements

- There needs to be a conflict/discrepancy resolution flow including...
 - Rules/logic for notifying Susie for meaningful issues or at reasonable intervals of time
 - This may be iterated upon as Susie adds it to her workflow and as tweaks are needed

Updates

Update 1/16/2019

Project team regrouped to discuss next steps on Shipments and IMS. Agreed that creation of Transfer will decrement inventory at origin warehouse, but not increment at completion of the shipment until IMS is calculation step to be provided documents warehouse pings. Q often. Team to look i

Objectives

- Increase accuracy
 - Create source
 - Use v
 - i.
 - Allow
 - i.
- Help create
 - Inven
 - Susie
 - Prom
 - issue

KPIs

- Can we reduce inventory (ov
- Can we reduce products/shi

Out of Scope

- Dedicated
 - Si
 - di
 - If
 - st
 - ne

Risks, Assumptions

- New Inventory
 - W
 - th

Inventory System

July-August

INITIAL IMS

- Setup +/- be

- Ledger

- tracks orders

NOT delivered

Blackbox Inventory Management

Prepared by: Athena Lo on 08/14/18

Revised: 10/05/18, 10/25/18

Team

- Principal Stakeholder: Susie Harvey
- Principal Designer: Athena Lo
- Principal Engineer: Andrew Soep
- Key Teammates: Victoria Houed

Overview

In order to maintain and expand the business being served, Blackbox needs to ensure that strong foundations are built for the in-house inventory management system. A good inventory management system promises accuracy of data, transparency of movement and processes, and an easy lift in the many steps it takes to [get product](#) from creation through to the hands of buying customers. Focusing on these aims will increase trust and improve service with clients, customers, and the warehouses we partner with while making sure that our internal logistics and operations team are not overloaded. Currently, there are holes in the way inventory is managed and tracked that lead to the following goal-blocking issues:

- Inaccurate stock count:** The timing of Blackbox ledger updates does not line up with the timing of warehouse packing and waving out of stock, causing conflicts in inventory count. Warehouse APIs ping the Blackbox system every night and override the Blackbox-recorded inventory and we end up with incorrect numbers. This leads to selling out or overselling certain products.
- Immense manual workload for logistics team:** Susie and team have to send a lot of emails and update inventory information in the application manually. To organize all this, Susie has multiple folders in her email and many files saved locally. There are steps that can and should be automated so Susie only has to deal with issues rather than all incoming data.
- Buried information:** It is not easy to prioritize information or sift through the many rows of table data to find what products or shipments need to be tended to. The volume of buried information causes Susie to open up many tabs per task she has to do in order to keep track of where she is or what she is looking at.

Note: Details on shipments developments can be found in the [Inbounds and Transfers Feature Document](#). These changes largely impact Inventory Management.

Communicating the New System of Inventory Tracking and Calculations

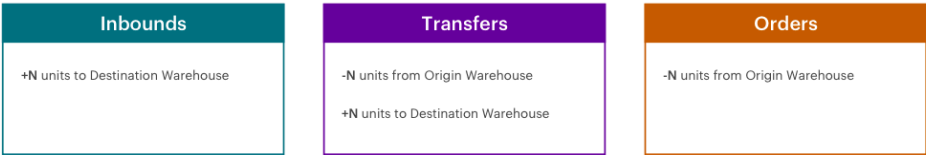
Stage: Ideation

For there to be clarity in the movement of units throughout their product lifecycle, new distinctions had to be added to how inventory was tracked.

With the addition of following pending, committed, physical on hand, and available on hand units, there will be a lot more awareness around the actual quantity, status, and location of product.

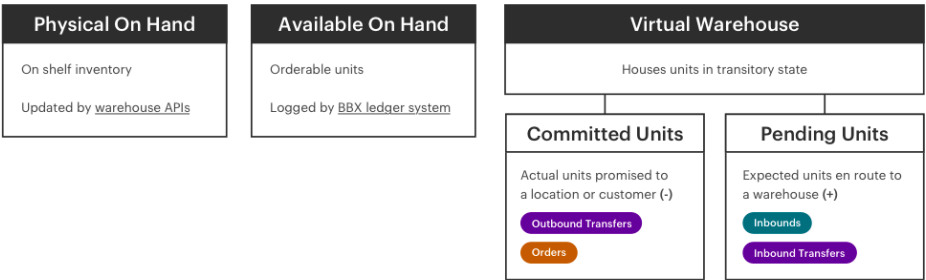
We should also be able to clearly calculate when there are unexpected discrepancies for a true count of available units.

How Inventory Moves

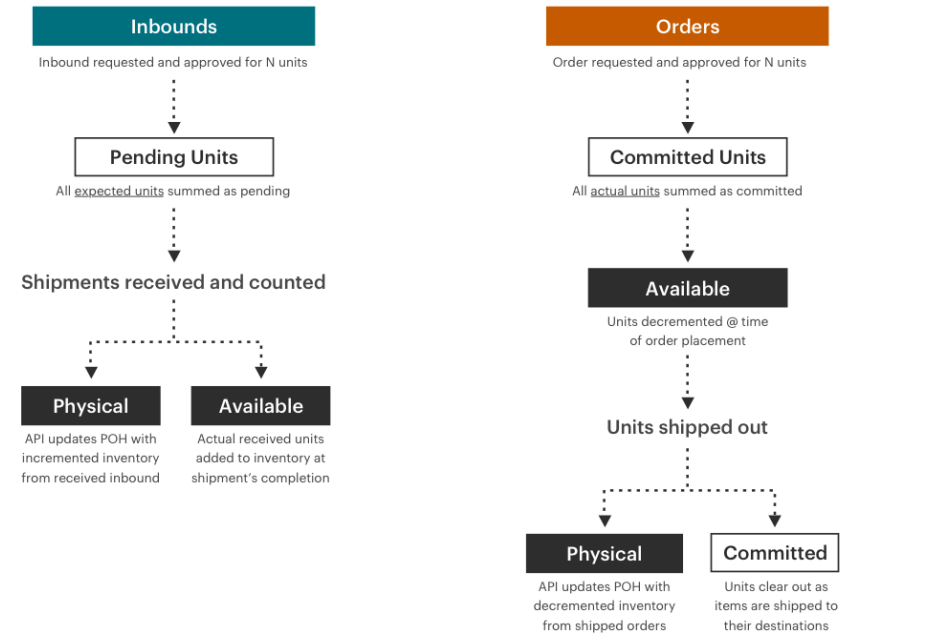


How New IMS Operates

Inventory will be tracked in three locations:



Flow for incrementation and decrementation of inventory:



Calculating Inventory Discrepancies

At each inventory update from the warehouse, calculation is run to check for discrepancies between inventory logs.

Physical On Hand - **Committed Units** = **Available On Hand**

If the above calculation is false, there is an inventory discrepancy that needs resolution.

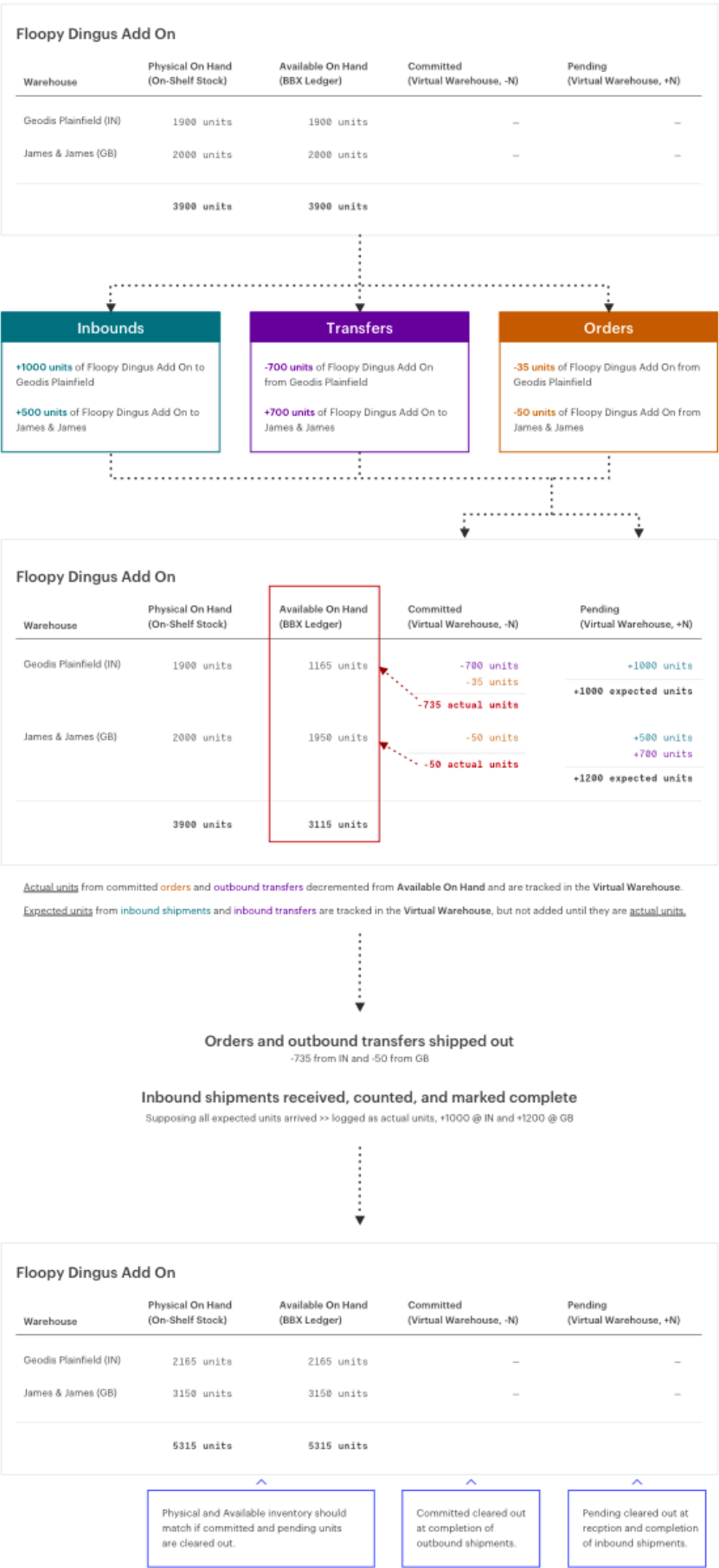
Inventory Movement Demonstration: Does It All Add Up?

Stage: Ideation

To demonstrate how the aforementioned additional inventory distinctions would ensure that the Blackbox IMS would be reporting true unit counts, I put together a visual to communicate how inventory calculations would work.

This flow helped align the team in understanding the importance of transparency, and the impact of clarifying the movement of inventory (intended vs. actual) when reporting available units.

Inventory Tracking Example



Visualizing the Adjusted Workflow for Stakeholders

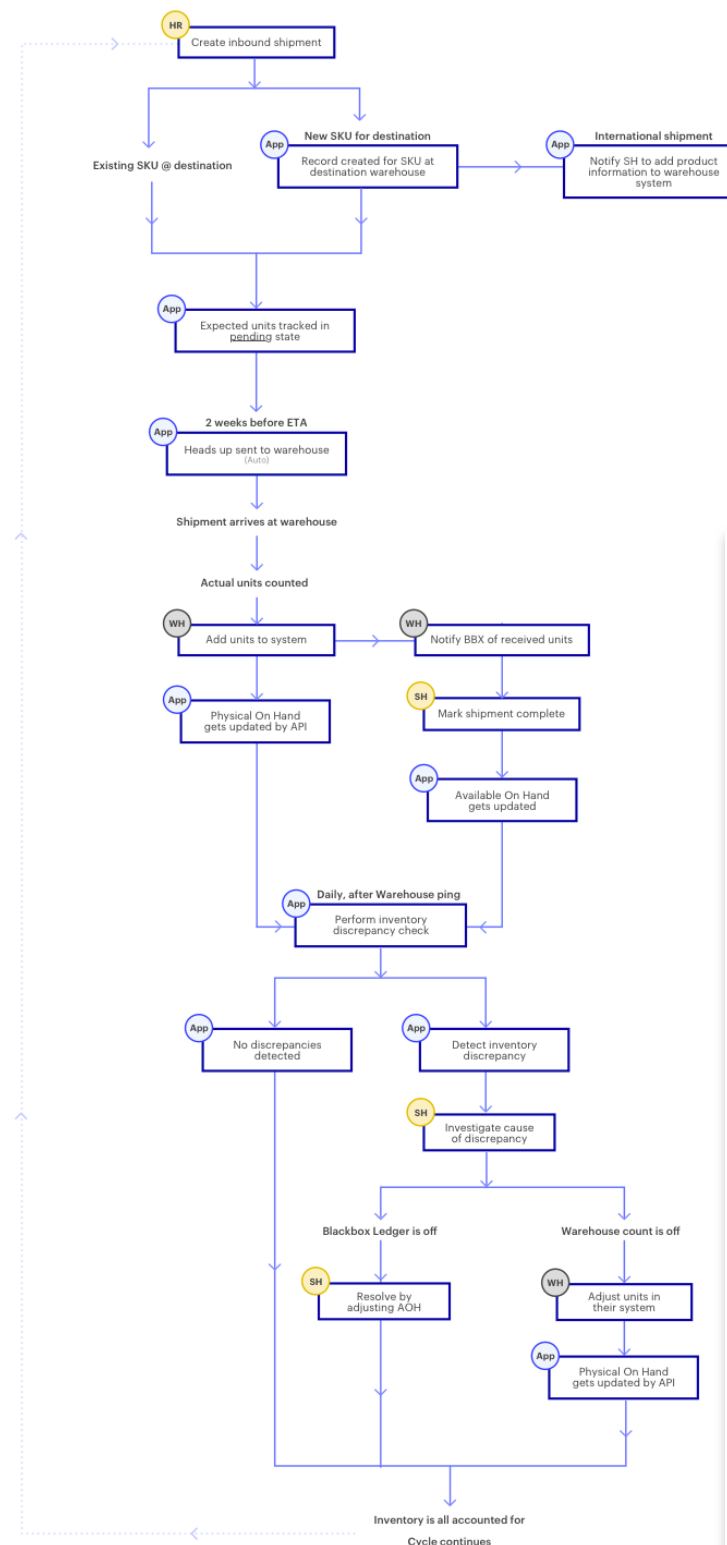
Stage: Ideation

At every stage of this process, assumptions and changes were validated with stakeholders regularly. Susie and I engaged in weekly check-ins regarding the proposed changes to the system of inventory tracking as well as her workflow.

This redesigned system, with automated inventory calculations and checkpoints, would mean fewer manual interventions to confirm unit counts and brings us one step closer to ensuring that the Blackbox IMS could be trusted as a source of truth.

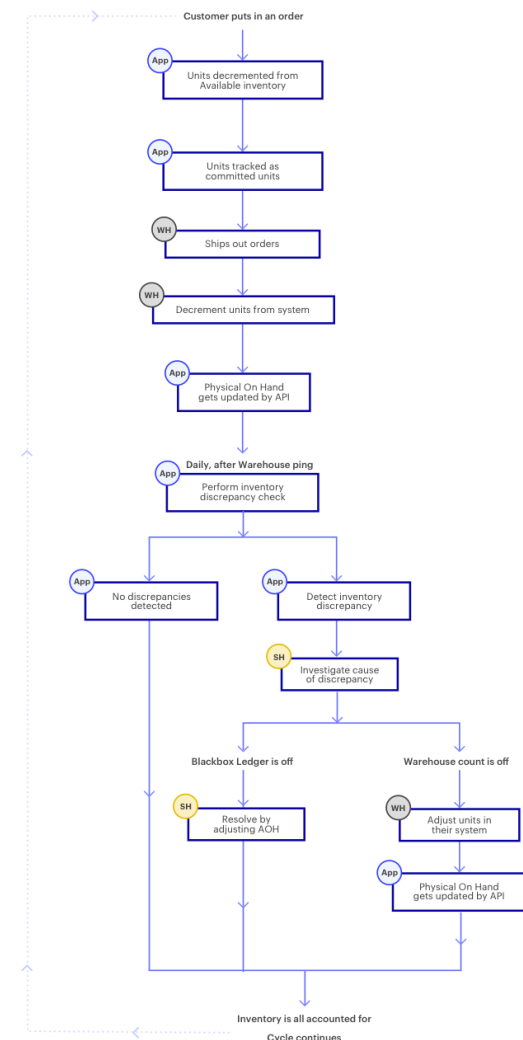
The system will also automatically notify Susie to any discrepancies.

Lifecycle of a SKU: Inbounds



- HR** - Heather, Accounts Manager
- SH** - Susie, Logistics Manager
- App** - Blackbox Dashboard (automated)
- WH** - Warehouse API (automated)

Lifecycle of a SKU: Orders

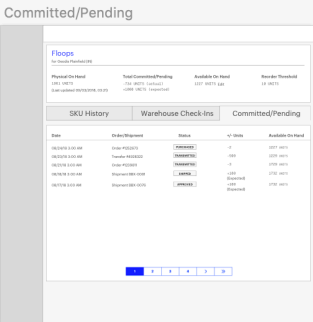
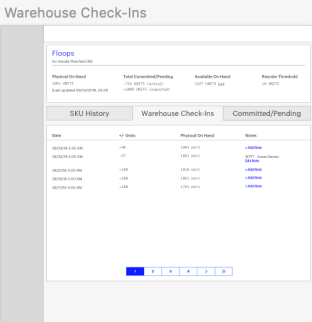
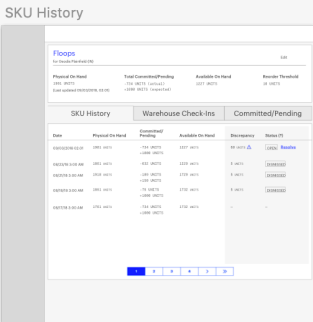
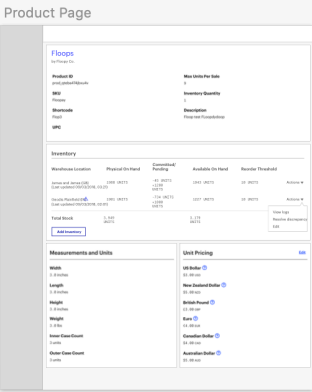
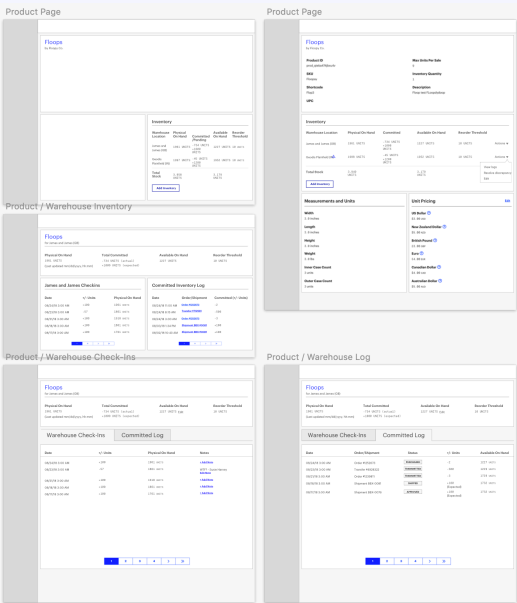


Creating Wireframes to Show Impacted or New Views

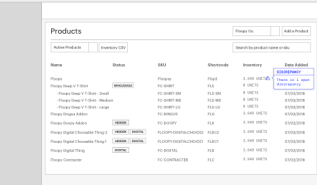
Stage: Ideation

Product information within the Blackbox system exists in a hierarchy. It was important to make sure any pertinent inventory notices were visible at high and low levels.

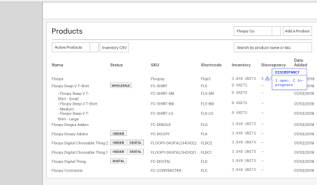
Impacted views included the client-product list, product pages, and individual product-warehouse inventory logs.



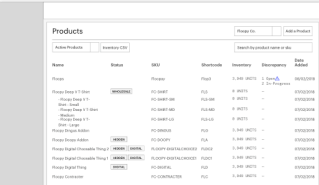
Client Products Page - 1



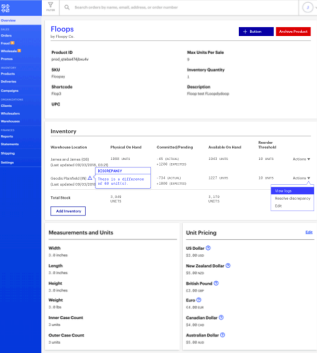
Client Products Page - 2



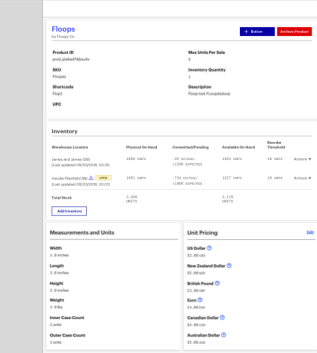
Client Products Page - 3



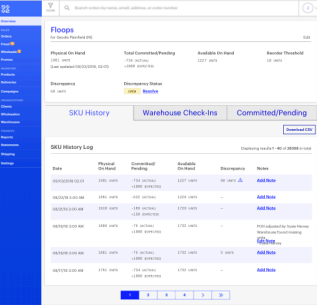
Product Page - 1



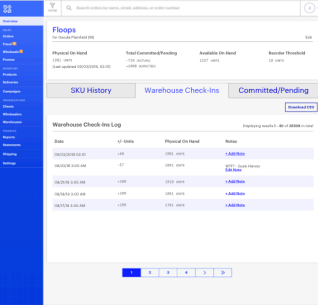
Product Page - 2



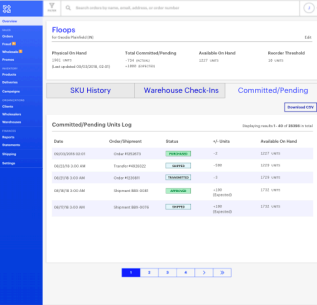
SKU History - 2



Warehouse Check-Ins



Committed/Pending



Higher Level View of Inventory and Potential Action Items

Product information is first seen at the client-product level. Here, Susie can see at a glance if there are any discrepancies that could require attention. This is noted with an alert and number of calculated discrepancies for the product.

Should Susie dig in further to the individual product page, she can see which warehouse's report deviates from what the Blackbox calculates for the inventory count. The newly separated out counts for Physical On Hand, Committed, Pending, and Available on Hand units are displayed. This makes it clear how many units can actually be decremented from for orders.

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Floppy Deep V T-Shirt

- Floppy Deep V T-Shirt - Small

- Floppy Deep V T-Shirt - Medium

- Floppy Deep V T-Shirt - Large

Floopy Dingus Addon

Floopy Doopy Addon

Floopy Digital 2

Floopy Digital

Floopy Vaporwave

Floopy Contractor

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Search by product name or sku

Name	Status	SKU	Shortcode	Inventory	Discrepancy	Date Added
Floops		Floopy	Flop3	3,949 UNITS	1	08/02/2018
Floopy Deep V T-Shirt	WHOLESALE	FC-SHIRT	FLS	0 UNITS	-	07/02/2018
- Floopy Deep V T-Shirt - Small		FC-SHIRT-SM	FLS-SM	0 UNITS	-	07/02/2018
- Floopy Deep V T-Shirt - Medium		FC-SHIRT-MD	FLS-MD	0 UNITS	-	07/02/2018
- Floopy Deep V T-Shirt - Large		FC-SHIRT-LG	FLS-LG	0 UNITS	-	07/02/2018

Products

Search orders by name, email, address, or order number

Floops

by Floopy Co.

Basic Information

SKU

prod_qteba474jbxu4v

UPC

Description

The floppiest Floop yet!

Each unit will be shrinkwrapped with chipboard, but we'd like to avoid bending them in the mail, as long as that doesn't have a negative impact on pricing.

Customs Information

Cost of Goods

\$5.00 USD

Harmonized Code

950440000

Customs Description

Playing Cards

Country of Origin

China

Inventory

Warehouse Location	Physical On Hand	Committed (Actual)	Pending (Expected)	Available On Hand	Threshold
James and James (GB)	1988 UNITS (09/03/2018, 03:21)	-45	+1200	1943 UNITS	10 UNITS
Geodis Plainfield (IN)	1901 UNITS (09/03/2018, 02:01)	-634	+1000	1227 UNITS	10 UNITS
Total Stock	3,949 UNITS			3,179 UNITS	

Add Inventory

Retail Pricing

US Dollar	British Pound	Canadian Dollar
\$3.00 USD	£3.00 GBP	\$4.00 CAD
New Zealand Dollar	Euro	Australian Dollar
\$5.00 NZD	€4.00 EUR	\$5.00 AUD

Dimensions

Width

3.0 inches

Length

3.0 inches

Height

3.0 inches

Weight

Actual Weight

3.0 lbs

Billable Weight

3.25 lbs

Case Count

Inner Case Count

12 units

Outer Case Count

12 units

Inventory Snapshot at the Product-Warehouse Level

To begin investigating any discrepancies, Susie can go into logs of a product’s inventory within any warehouse that has had that product on their shelves.

The product-warehouse view includes an up-to-date snapshot that clearly states how many actual units have been committed to orders or transfers, how many expected units are pending from inbound shipments, and whether there is an existing discrepancy.

Below, the new tab format shows SKU History, which is the log of all updates to quantity. Susie can utilize this view to get a running report of all inventory movement, and what might have triggered a discrepancy.

FILTER

Search orders by name, email, address, or order number

J

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Inventory Snapshot

Edit

Physical On Hand

1901 UNITS

(Last updated 09/03/2018, 02:01)

Committed (Actual)

-634

Pending (Expected)

+1000

Available On Hand

1227 UNITS

Threshold

10 UNITS

Discrepancy

-60 UNITS

Resolve

Discrepancy Status

Open

In Progress

DISCREPANCY

60 units are unaccounted for in Available On Hand inventory.

SKU History

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Displaying results 1 - 25 of 28398 in total

Date	Physical On Hand	Committed (Actual)	Pending (Expected)	Available On Hand	Discrepancy	Notes
09/03/18 2:01	1901 UNITS	-634	+1000	1227 UNITS	-60 UNITS	Add Note
08/23/18 3:00	1861 UNITS	-632	—	1229 UNITS	—	Add Note
08/21/18 3:00	1918 UNITS	-189	+150	1729 UNITS	—	Add Note
08/18/18 11:15	1866 UNITS	-75	+1000	1732 UNITS	5 UNITS	POH to be adjusted by IN Warehouse found missing units - Susie Harvey Edit Note
08/18/18 3:00	1861 UNITS	-75	+1000	1732 UNITS	5 UNITS	Add Note
08/17/18 3:00	1761 UNITS	-734	+1000	1732 UNITS	—	Add Note
08/18/18 3:00	1861 UNITS	-75	+1000	1732 UNITS	—	Add Note
08/17/18 3:00	1761 UNITS	-734	+1000	1732 UNITS	—	Add Note
08/18/18 3:00	1861 UNITS	-75	+1000	1732 UNITS	—	Add Note
08/17/18 3:00	1761 UNITS	-734	+1000	1732 UNITS	—	Add Note
08/18/18 3:00	1861 UNITS	-75	+1000	1732 UNITS	—	Add Note
08/17/18 3:00	1761 UNITS	-734	+1000	1732 UNITS	—	Add Note
08/18/18 3:00	1861 UNITS	-75	+1000	1732 UNITS	—	Add Note
08/17/18 3:00	1761 UNITS	-734	+1000	1732 UNITS	—	Add Note
08/18/18 3:00	1861 UNITS	-75	+1000	1732 UNITS	—	Add Note
08/17/18 3:00	1761 UNITS	-734	+1000	1732 UNITS	—	Add Note
08/18/18 3:00	1861 UNITS	-75	+1000	1732 UNITS	—	Add Note
08/17/18 3:00	1761 UNITS	-734	+1000	1732 UNITS	—	Add Note
08/18/18 3:00	1861 UNITS	-75	+1000	1732 UNITS	—	Add Note
08/17/18 3:00	1761 UNITS	-734	+1000	1732 UNITS	—	Add Note
08/18/18 3:00	1861 UNITS	-75	+1000	1732 UNITS	—	Add Note
08/17/18 3:00	1761 UNITS	-734	+1000	1732 UNITS	—	Add Note
08/18/18 11:15	1866 UNITS	-75	+1000	1732 UNITS	—	POH adjusted by Susie Harvey Warehouse found missing units - Susie Harvey Edit Note

Detailed Tabs for Viewing Moving Units

Within the product-warehouse view, Susie can dig even further to additional detailed logs.

The Orders/Shipments tab is the running list of direct causes of stock movement with specific order or shipment IDs.

The Warehouse Reports tab displays the updated Physical On Hand inventory per warehouse API calls.

With this information, Susie and the team can get insights into the changes to inventory quantity and, should there be a discrepancy, be able to deduce the exact cause.

FILTER

Search orders by name, email, address, or order number

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1901 UNITS

(Last updated 09/03/2018, 02:01)

Threshold

10 UNITS

Committed (Actual)

-634

Discrepancy

-60 UNITS

Resolve

Pending (Expected)

+1000

Discrepancy Status

Open

In Progress

Available On Hand

1227 UNITS

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Date	Description	Status	+/- Units	Available On Hand
09/03/2018 02:01	Order #1252673	PURCHASED	-2	1227 UNITS
08/23/18 3:00 AM	Transfer #4928322	SHIPPED	-500	1229 UNITS
08/21/18 3:00 AM	User - Susie Harvey + Add Note	---	-3	1729 UNITS
08/18/18 3:00 AM	Shipment BBX-0081 + Add Note	COMPLETED	+100	1432 UNITS
08/17/18 3:00 AM	Shipment BBX-0076 + Add Note	COMPLETED	+100	1332 UNITS
08/23/18 3:00 AM	Transfer #4928322 + Add Note	SHIPPED	-500	1229 UNITS
08/21/18 3:00 AM	Order #1239811	TRANSMITTED	-3	1729 UNITS
08/18/18 3:00 AM	Shipment BBX-0081 Additional 50 units received - Susie Harvey Edit Note	COMPLETED	+1000	1732 UNITS
08/17/18 3:00 AM	Shipment BBX-0076 + Add Note	COMPLETED	+90	1732 UNITS
08/23/18 3:00 AM	Transfer #4928322 + Add Note	SHIPPED	-500	1229 UNITS
08/21/18 3:00 AM	Order #1239811	TRANSMITTED	-3	1729 UNITS
08/18/18 3:00 AM	Shipment BBX-0081 + Add Note	COMPLETED	+100	1732 UNITS
08/17/18 3:00 AM	Shipment BBX-0076 + Add Note	COMPLETED	+100	1732 UNITS
08/23/18 3:00 AM	Transfer #4928322 + Add Note	SHIPPED	-500	1229 UNITS
08/21/18 3:00 AM	Order #1239811	TRANSMITTED	-3	1729 UNITS
08/18/18 3:00 AM	Shipment BBX-0081 + Add Note	COMPLETED	+100	1732 UNITS

[Show All Available Inventory](#)

FILTER

Search orders by name, email, address, or order number

J

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1901 UNITS

(Last updated 09/03/2018, 02:01)

Threshold

10 UNITS

Committed (Actual)

-634

Discrepancy

-60 UNITS

Resolve

Pending (Expected)

+1000

Discrepancy Status

Open

In Progress

Available On Hand

1227 UNITS

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Date	+/- Units	Physical On Hand	Notes
09/03/2018 02:01	+40	1901 UNITS	+ Add Note
08/23/18 3:00 AM	-57	1861 UNITS	Stolen units? - Susie Harvey Edit Note
08/21/18 3:00 AM	+100	1918 UNITS	+ Add Note
08/18/18 3:00 AM	+126	1818 UNITS	+ Add Note
08/17/18 3:00 AM	+100	1692 UNITS	+ Add Note
08/18/18 3:00 AM	-1200	1592 UNITS	+ Add Note
08/17/18 3:00 AM	+90	2792 UNITS	+ Add Note
08/18/18 3:00 AM	+375	2702 UNITS	+ Add Note
08/17/18 3:00 AM	-52	2327 UNITS	+ Add Note
08/18/18 3:00 AM	-308	2379 UNITS	+ Add Note
08/17/18 3:00 AM	+1052	2687 UNITS	+ Add Note
08/18/18 3:00 AM	+29	1635 UNITS	+ Add Note
08/17/18 3:00 AM	+45	1606 UNITS	+ Add Note
08/18/18 3:00 AM	+30	1576 UNITS	+ Add Note
08/17/18 3:00 AM	-76	1546 UNITS	+ Add Note
08/18/18 3:00 AM	+2	1622 UNITS	+ Add Note
08/17/18 3:00 AM	-7	1620 UNITS	+ Add Note
08/18/18 3:00 AM	+3	1627 UNITS	+ Add Note
08/17/18 3:00 AM	-54	1624 UNITS	+ Add Note
08/18/18 3:00 AM	+24	1678 UNITS	+ Add Note
08/17/18 3:00 AM	+5	1654 UNITS	+ Add Note
08/18/18 3:00 AM	+33	1649 UNITS	+ Add Note
08/17/18 3:00 AM	-3	1616 UNITS	+ Add Note
08/18/18 3:00 AM	+45	1619 UNITS	+ Add Note
08/17/18 3:00 AM	+69	1574 UNITS	+ Add Note

[Show All Warehouse Inventory](#)

Resolving Inventory Discrepancies

The internal Logistics team will be notified about discrepancies with a daily digest email per partner warehouse.

Discrepancies can be resolved easily within a modal. If the discrepancy is calculated (Physical On Hand - Committed units = Available On Hand) to be +N number of units, it means there are excess units counted in Available on Hand. If there is a discrepancy of -N units, then there are excess units.

With any manual adjustment, a record of the resolution will be created in SKU history. For V1, resolutions will be used for learning where discrepancies tend to originate.

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Physical On Hand

1901 UNITS

(Last updated 09/03/2018, 02:01)

Committed (Actual)

-634

Pending (Expected)

+1000

Available On Hand

1227 UNITS

SKU History

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Displaying results 1 - 25 of 28398 in total

Date	Physical On Hand	Committed (Actual)	Pending (Expected)	Available On Hand	Discrepancy	Notes
09/03/18 2:01	1901 UNITS	-634	+1000	1227 UNITS	-60 UNITS	Add Note
08/23/18 3:00	1861 UNITS	-632	—	1229 UNITS	—	Add Note
08/21/18 3:00	1918 UNITS	-189				
08/18/18 11:15	1866 UNITS	-75				
08/18/18 3:00	1861 UNITS	-75				
08/17/18 3:00	1761 UNITS	-734				

Resolve a Discrepancy

IN PROGRESS

Adjust Available On Hand inventory by

+ -

60

Units

Available on Hand will be adjusted to 1287 units

Geodis Plainfield (IN) will update Physical On Hand inventory.

Available on Hand will not be adjusted. Physical On Hand inventory will display the update at next warehouse ping.

Add a note...

Save and Resolve

Cancel

Floops

for Geodis Plainfield (IN)

Inventory Snapshot

Physical On Hand

1901 UNITS

(Last updated 09/03/2018, 02:01)

Committed (Actual)

-634

Pending (Expected)

+1000

Available On Hand

1227 UNITS

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Date	Physical On Hand	Committed (Actual)	Pending (Expected)	Available On Hand	Discrepancy	Notes
09/04/18 11:15	1901 UNITS	-634	+1000	1287 UNITS	—	AOH adjusted by Susie Harvey Untracked returns - Susie Harvey Edit Note
09/03/18 2:01	1901 UNITS	-634	+1000	1227 UNITS	-60 UNITS	Add Note
08/23/18 3:00	1861 UNITS	-632	—	1229 UNITS	—	Add Note
08/21/18 3:00	1918 UNITS	-189	+150	1729 UNITS	—	Add Note
08/18/18 11:15	1866 UNITS	-75	+1000	1732 UNITS	5 UNITS	POH to be adjusted by IN Warehouse found missing units - Susie Harvey Edit Note
08/18/18 3:00	1861 UNITS	-75	+1000	1732 UNITS	5 UNITS	Add Note
08/17/18 3:00	1761 UNITS	-734	+1000	1732 UNITS	—	Add Note
08/18/18 3:00	1861 UNITS	-75	+1000	1732 UNITS	—	Add Note

Revamped Component for the Design System

For the product-warehouse view, tabs were redesigned for the design system. Previously, they were large, divider-style tabs. There was no mobile-friendly version.

The new tabs are more space conscious and flexible. They make it easy to group and present different views within a shared context.

Full-width



Mobile



Results and Aftermath

This initiative was a really good exploration into the complexities regarding all the (literal) moving pieces of inventory. While this redesign is not yet pushed to production, it did highlight:

- The need to look into working with a warehouse that has more trustworthy tech and frequent API calls for more up-to-date data.
- That there needed to be a more streamlined and automated processes for inbound and transfer shipments to ensure lower lifts for the Logistics team. Managing new alerts to discrepancies would be difficult to add to the workload when ongoing shipments still needed manual intervention.

The follow-up roadmap items for the Blackbox team entailed:

- Hunting for a new partner warehouse with a focus on how their system would interact with ours. How might we use more detailed warehouse systems' data to automate inventory calculations where the Logistics team typically has to manually intervene?
- Cleaning up how inbound and transfer shipments increment and decrement inventory within our system.

This became a valuable look into what truly foundational features and business-impacting decisions were needed to ensure we could build competitive inventory tools.

