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CASE STUDY

Lean Process Improvement
Home Repair Services

PROBLEM / CHALLENGE

This HVAC, Plumbing, Appliance Repair and Electrical home services company (we will call them 'HB') had grown rapidly from $8 million to over $100 million in a few years. Their Supply Chain functions did not keep up with the overwhelming success of their membership program where residential customers pay an annual fee for priority service.

Concurrently they implemented a new ERP system, ServiceTitan, that had significant limitations when coupled with how they handled purchasing supplies, parts and equipment for their Service Technicians to install new equipment and conduct repairs.

This resulted in service backlogs and Technicians going to Home Depot or Lowe's for materials, paying much higher prices than HB negotiated with wholesale distributors.

LEAN ASSESSMENT

- Lack of trust from Technicians that items would get to where they're needed when they are needed.
- Multiple decisions by the field regarding where to purchase repair parts.
- ServiceTitan design causes >100 POs, >100 Receipts, >100 Invoices, each day.
- POs not physically received in warehouse require a piece of paper from the field to receive.
- Warehouse personnel don't have the time to do value-added work for internal customers.
    - Cycle counting trucks, verifying VMI fulfillment quantity, following up on sent POs.
- Working outside of warehouse process generally works better even though it takes more field professional time and is not scalable.
    - This causes more work for the warehouse.

RESULTS

- **Eliminated the need for Technicians to buy material at Home Depot and Lowe's, reducing material expense**
- **Reduced materials management staff by 20% and 'hotshot' material deliveries**
- **Removed barrier to growth and created a standard for new territories and acquisitions**

Process Flow Mapped Customer Requirement – Purchasing – Installation

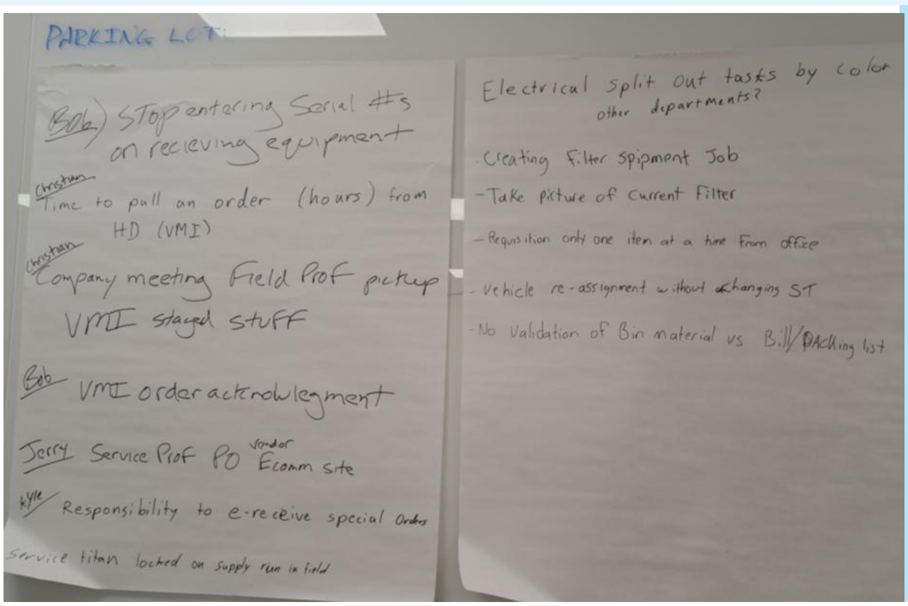
- 31 steps in the process were marked as 'Red Tag' and were eliminated from the future state
- An additional 16 steps were marked 'Yellow' and were done by the wrong department or had to be moved earlier or later in the process

SIPOC: Supplier-Input-Process-Output-Customer

- SIPOC Analysis showed large information flow gaps and extra work required in current state by Field Technicians
- This slowed the field work and delayed customer repairs

SIPOC - Warehouse Operations

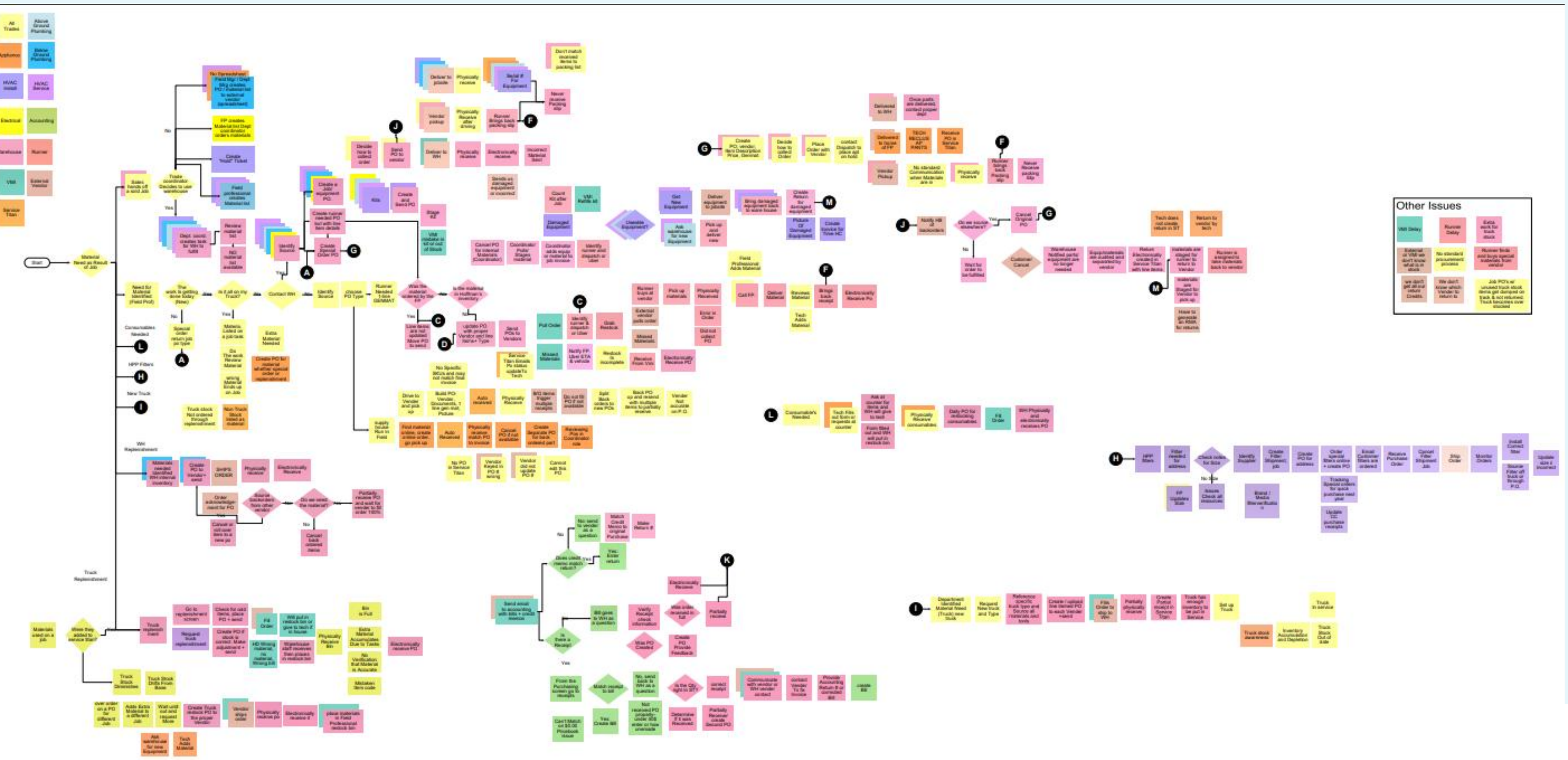
Suppliers	Inputs	Processes	Outputs	Customers
Field Professional, Accounting is populating the pricebook, but nothing else for replenishment.	Service titan replenishment screen. Pricebook in service titan. Field Professional	Replenishment / Truck Restock - Running the replenishment in service titan - on a weekly cadence. Validate that we don't have the wrong items because of the "task" setup.	Purchase order created and sent to vendors.	Field Professional
Field Professional returns materials to WH with job number.	Job number, material description, vendor	Creating Returns - for anything. Return created and then reverse pick list printed, and then materials returned to vendor.	Service titan accurate materials on job. Return credits.	Accounting?
UPS / Fedex, any vendor (except VMI) delivering materials to the warehouse.	Packing slip to the contents of the delivery.	Physical receiving (Kyle and one of the other 5 counter warehouse folks). When material (not from a VMI) crosses the threshold, whoever signs for it opens the box and checks what's inside.	Materials handed to the warehouse coordinator for that business unit or on a cart. Packing slip is handed to Daniel.	Daniel, warehouse coordinator for the order's business unit, field professional
VMI	Paperwork from the VMI. Service Titan PO.	Electronic receiving from the vendor receipt - Kyle oversees home depot	Service titan POs moved to received.	Accounting
Accounting, VMI, Service titan	Data on what we planned to buy, bought, and received.	Identify issues with AP from accounting (e.g., two receipts on one PO, did we get double billed, etc)	Diagnosed issues.	Accounting
Crescent	There is a website with open orders at Crescent or they will call to ask.	Backorders - receive as partially received until the order is complete and then it will be fully received.	Know if we will get the item from crescent or choose to get it elsewhere	Field Professional
HD Supply	Packing slip to the PO	Backorders - Update the PO to match what the packing slip said was included. Place a PO with somewhere else for the missing items.	New PO for missing items	Field Professional
Field professional	Email or a PO with a description and a generic vendor and genmat	Update POs for future in service titan - Return Job. Figure out where to get the parts, update the POs, place orders.	PO that is accurate and sent, an order is placed with vendors.	Field Professional



Ongoing Brainstorm

- During the current state mapping, numerous improvements were brainstormed.
- We captured these on a 'Parking Lot' to keep momentum while respecting the input from the Lean Team.
- Quick-wins were assigned to team members to implement.

Future State Map with Non-Value-Added Steps Removed



The Team created 101 action item improvements broken into priority status

Dot #	Color	Description (Process on post-it)	Issue (why is this red / unhappy yellow)	Role (who)	Which Waste?	How often, how long, how much?	Brainstorm (How could we have avoided this issue?)
1	Red	Dept coordinator creates task for warehouse to fulfill	If a job is sold after the field professional leaves, we have to figure out what materials we need to do the job. There is variability in what information is available (the task may not have enough information)	Warehouse	Extra Processing	We don't know because we don't have a detailed process.	Understand win rate so we can devise a tradeoff of doing this live versus after the fact. Standard process of jobs with only truck stock can be solved live. Jobs with non-truck-stock may need a second visit? Could we create a simple checklist for big jobs that get sold after the fact? Clear "material list on site" handoff. Pictures of the needed things. (estimate, notes, etc) - don't always like to tell customers exactly what they could buy without us. Can we improve the materials on a "service" so we understand better which things we need.
2	Unhappy Yellow	Create a PO and material list for a job	Field manager is creating a material list, is that the right person?	Field Manager	Unused Talent	50% of underground plumbing, appliance is every job, HVAC service is 5%	Maybe for simple jobs the FP could create the material list, if that would help with scaling. Training for the field professional so they would be qualified to do more complex jobs without oversight. Understand the complexity of this work and make sure we are working towards more people learning these skills over time. We could also consider this is a centralized function allowing our field to be more efficient.
3	Unhappy Yellow	Electrical FP creates the material list and department coordinator orders materials.	Warehouse coordinator for electrical is not currently ordering known material lists.	Department	Extra Processing	All panel estimates and service entrances and generators. Might be all electrical jobs, but we don't know	Standard process of who orders what. Make sure the FP documents exactly what they need so the warehouse orders the right things. And then the Warehouse should order exactly the right things.
4	Unhappy Yellow	Identify source	How do we know who we should order from? How do we decide if we use the VMI or not? Pricing, timing, checking more vendors to save a buck. Need product knowledge.	Warehouse	Variability	All jobs scheduled in the future.	Fix permissions so the warehouse coordinator can look at historical prices or change a code not in the system anymore.
5	Red	Kits	Not receiving kits for POs we've placed.	VMI	Extra Processing	Usually (50% of the kits for HVAC install this week)	Work with HD so they actually get our POs within a couple minutes and require a manual acknowledgement. We could print POs to a printer we control if they'd take it seriously. All vendors we could get on this process of sending manual order acknowledgment (many do) Check with Julio about if he gets OA and how long a PO takes to get to HD VMI.
6	Red	VMI Mistake in Kit or out of stock	We sometimes don't get everything we're supposed to in a kit. There is no receiver for kits. This is also applicable to other POs	Warehouse	Defects	Often	HD could have accurate inventory in their online portal. Then we could use the portal. This would allow us to know ahead of time what we need to order elsewhere. HD could pull orders more consistently. Including kits. HD could print off the pick list and put it in the bin. HD is not creating a packing list. For kits specifically, we could have the missing items for a kit left in the kit so we don't get charged for missing things we didn't use. We could do more audits and hold them accountable for failures.