Finding Productivity Improvements from
Field to Table

Lean Six Sigma in Retail & Distribution

Mitch Millstein, CFPIM, C.P.M., CQM, CQE
Supply Velocity, Inc.
mitch@supplyvelocity.com
(314) 406-4962

November 2009

Background

This discount grocery retailer wanted to evaluate its cost structure from procurement through distribution, retail and accounting functions. They called this initiative "Field to Table". The CEO felt that costs had crept into their processes over the years and that the company had migrated away from its low cost structure.
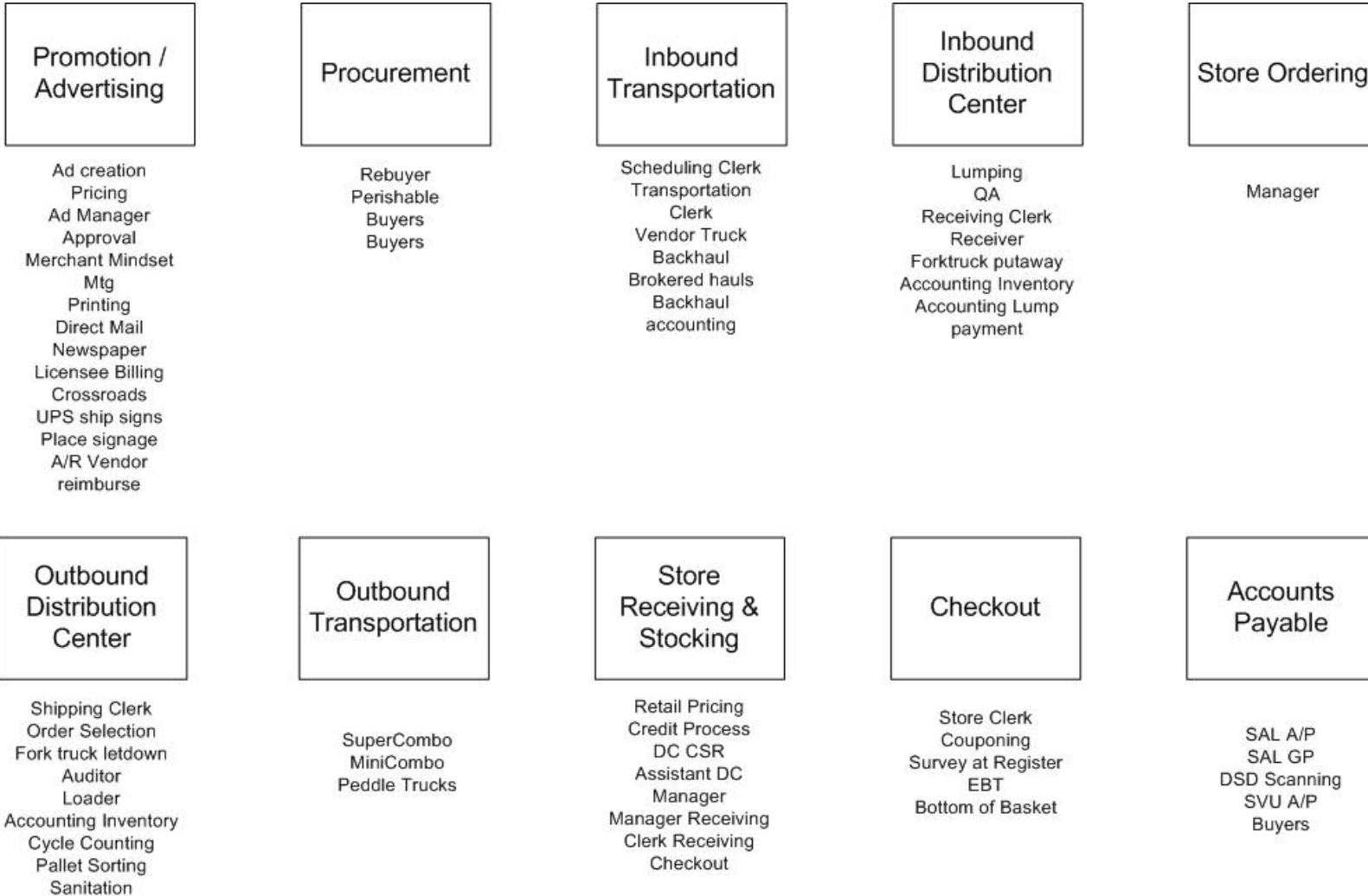
A Supply Velocity consultant led a team of ten employees through this month long project. The Supply Velocity consultant facilitated, but the employees did most of the analysis and therefore owned the decisions.

Project Outline

- Used Value Stream Mapping, a Lean Six Sigma tool, as the foundation for evaluating costs from "Field to Table"
- All processing costs were analyzed while the whole sale acquisition cost of the items were excluded.
    - Examples of included processing costs are labor and purchased services (e.g. transportation)
- A cross functional team of employees was formed to conduct this analysis including:
    - Retail accounting
    - Distribution accounting
    - Retail operations
    - Distribution centers
    - Transportation
    - Marketing
    - Procurement
    - Merchandising
- All departments that had a role in purchasing, advertising, distributing, retailing and accounting were mapped
- Labor functions were time studied
- Outside purchased service costs were gathered
- All job functions in this process were unitized to a cost per case
- Cost categories were sorted from highest to lowest
- Observations and financial analysis derived from the time studies led to 30 cost reduction opportunities in the Value Stream
- Results were presented to senior management, who in turn initiated a Lean Six Sigma program to form teams and implement the cost reductions in these 30 areas
    - Projects were prioritized from highest to lowest cost savings

SupplyVelocity®

Field to Table Value Stream Map

Promotion / Advertising	Procurement	Inbound Transportation	Inbound Distribution Center	Store Ordering
Ad creation Pricing Ad Manager Approval Merchant Mindset Mtg Printing Direct Mail Newspaper Licensee Billing Crossroads UPS ship signs Place signage A/R Vendor reimburse	Rebuyer Perishable Buyers Buyers	Scheduling Clerk Transportation Clerk Vendor Truck Backhaul Brokered hauls Backhaul accounting	Lumping QA Receiving Clerk Receiver Forktruck putaway Accounting Inventory Accounting Lump payment	Manager

Outbound Distribution Center	Outbound Transportation	Store Receiving & Stocking	Checkout	Accounts Payable
Shipping Clerk Order Selection Fork truck letdown Auditor Loader Accounting Inventory Cycle Counting Pallet Sorting Sanitation	SuperCombo MiniCombo Peddle Trucks	Retail Pricing Credit Process DC CSR Assistant DC Manager Manager Receiving Clerk Receiving Checkout	Store Clerk Couponing Survey at Register EBT Bottom of Basket	SAL A/P SAL GP DSD Scanning SVU A/P Buyers

Project Details

The figure above is a Value Stream Map of the Field to Table process. A Value Stream Map is a high level view of an organization's "value added" flow. This Value Stream encompassed any part of the company that touched the product or added cost, as the product flowed from vendor to consumer. This includes functions that touch the product, such as distribution centers and stores, plus overhead functions involved in the promotion, ordering or procurement of each case of product.

The cross functional team began by creating the Value Stream Map. Using the map, they created a time study matrix. These team members were "subject matter experts" and knew where to go, whom to speak with and how to get the time study and financial data we needed to allocate all of the overhead expenses to a per case cost.

As an example, we time studied the time it takes to unload an inbound vendor truck at the distribution center. Based on the time it required, the hourly rate of the unloader and the number of cases unloaded, we could determine the "unitized" cost per case from unloading a truck.

Cost per Case = <u>(Time to perform function x Hourly rate of person doing this work)</u>
# of Cases Processed

Even Accounting functions were unitized to a per case cost. The time required to process a vendor invoice was multiplied by an accounting clerk's hourly rate and divided by the average case quantity on an order.

For services such as shipping, freight costs to the stores and financial data were gathered and allocated by the number of cases on the truck.

In addition to the detailed analysis, the team made observations while time studying different functions or when gathering financial data. Some of the highest priority cost reduction opportunities came from these observations and one such example was SKU (stock keeping unit, or saleable items) proliferation.

A company veteran on the team commented that the number of items carried in a store was 1500. Another team member who manages multiple retail stores told him the number was really 3000. When we looked at sales growth over the last 4 years we saw that SKU count had grown 35% while sales had zero growth.

A Minimum Case Order Quantity project was created by noticing how many items in the store were ordered at a 1 case quantity. The team member who observed this thought there was a 3 case minimum in place. After some checking, we found out that a few years prior, the 3 case minimum standard was "relaxed", which caused inefficiencies related to stores stocking 1 case of an item (or SKU) and the distribution centers having to select 1 case of an item.

Another team member analyzing the inbound freight costs noticed that vendors were responsible for a very high percentage of groceries coming into the distribution centers. It became apparent that by allowing trucks to return empty from deliveries, this company wasn't taking full advantage of its own truck fleet. A project was created to optimize inbound freight costs through backhauls (picking up product at vendors on store delivery return trips).

Results
Many companies search for cost reduction opportunities by soliciting employee feedback in an ad-hoc manner. Instead, this company used time study and financial analysis of their value stream to calculate how much overhead functions were costing the company at the unit or item-case level. The highest cost areas, plus observations made during the time study analysis, identified 30 cost reducing opportunities.

These 30 projects were prioritized by ease of implementation (easier were higher priority) and benefit (higher savings were higher priority). Management then began using Lean Six Sigma as a vehicle to address each opportunity and reap the savings. The easy to implement \ high savings projects were launched first.

The complete list of savings opportunities is shown below.

Cost Reduction Opportunities Discovered

Checkout Productivity
  UPC number and location on labels (it is our brand, we control the label!)
  Expense versus Sales for coupons
  In store couponing
  Surveying customers at checkout
  Checkout time - reduce ebt item void time due to not enough money on card

SKU proliferation
  SKU growth over the last 4 years of 35%, but zero sales growth
  New item process and discontinue item process

Inbound Transportation Process
  Backhaul process (Our trucks returning from stores and picking up vendor product)
  Procurement work with Distribution on optimizing transportation (reducing overall costs)

Min case store order policy - handling 1 case at the DC and store

Expense versus Sales and analysis of store-open hours (appropriate store hours)

Ad effectiveness with no price discount, ad cost per lift-case
  Deadlines not being met for advertising approvals

Outbound Transportation
  Cost of Peddles versus Mini-combo versus Super-combo

Ad review multiple times per person

Wholesale vendor $ on #'s provide us, we don't count (faith in vendors data)

Bottom of the basket not scanned

Direct-Store-Delivery discrepancies (are we getting the credit?)

UPS bill for sending signage to stores (use Edwardsville to DCs to Stores, been tried before, but worth it again)

Store friendly pallets layout for quick-stocking (DC to Store)

Promotion fees paid for by National Vendor (are we getting the money)

DC productivity issues
  Time to remove stabilizers at DCs at point of receiving load
  Back n' forth for crowbars and cutters when receiving inbound product, condition of tools
  Not following SOP when receiving product - (driver must be present on dock- 2 occurances driver in cab
  Pallet sorting looks like a plate of spaghetti and takes a while to figure out where to put different pallets
  Handwritten audits slow down the process
  Not following SOP when auditing produce (breaking down produce pallets)