SupplyVelocity®

314.406.4962 | www.supplyvelocity.com
mitch@supplyvelocity.com

CASE STUDY

Value Stream Analysis
Dial Henkel

PROBLEM / CHALLENGE

This fast-moving consumer products manufacturing operation had sub-par financial results but did not have easily identifiable improvements to improve performance. This plant produced liquid detergent and Renuzit air fresheners. Operations included formulating/mixing product, on-site blow molding and high-speed packaging.

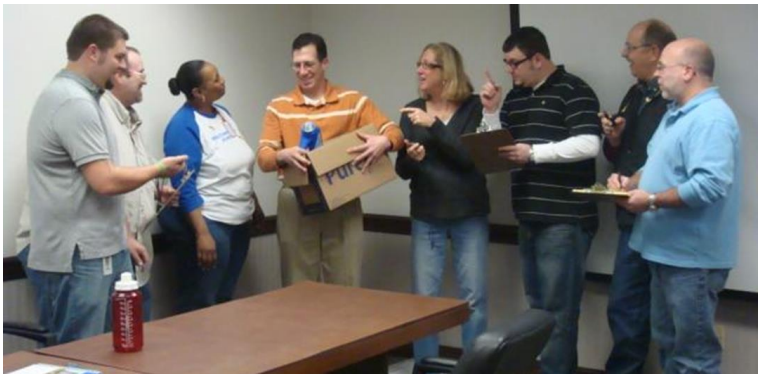
Value Stream Analysis

The first step of identifying waste is to analyze the value stream.

We used value stream mapping but altered this Lean tool to focus more on analysis of all cost drivers in Dial-Henkel's St. Louis plant operation.

IMPLEMENTATION DETAILS

- **Created a team from all functions in Plant Operations.**
  - Procurement Material Handling, Quality, Production Supervision, HR
- **Mapped the Value Stream and created detailed list of sub-processes in in each major function**
  - See top of page 2 for Value Stream Map
- **Divided the team to quantify all costs in each function and sub-process**
  - Labor, OEE, Changeover, 1st Pass Yield, Maintenance costs, Inventory
- **Normalized all costs to "cost-per-case" to rank improvement areas by greatest costs.**



PRODUCTION VALUE STREAM WITH DETAILED PROCESSES

Receiving	Processing	Packaging	Palletizing	Shipping
Railcar unload Tank truck unload Freight truck unload OSBB Material QA	Pre-Batch Batching Batch QA Batch Transfer	Corrugate Move Case Erector Bottle Inserter Shell Unload Flap Opener Vision System Filler Cap Tote Move Cap Delivery Capper Check Weigh & Vision Reject Ops QA Checks Case Sealer Case Date Code Print & Apply Labeler Reject Ops	Stage Pallet Palletize Stretch Wrap Reject Ops	Report Production Truck Load

TEAM PURPOSE: To identify obvious and non-obvious areas of lost time, money, and product so we can address them and become a stronger, more profitable business

High Level Value Stream – Data Requirements

- Labor Time
- OEE
- Yields
- Changeover Time
- Rework Quantities
- Maintenance Costs
- Inventory
- Equipment Rate

RANKED IMPROVEMENTS AREAS

Item #	Description	Other $/case	Other total $/yr	% of total	Cum
1	Batch WIP Yield	$0.09466	$1,183,250	16.1325%	
2	Chemical Yield	$0.03410	$426,250	5.8115%	
3	L1A OSBB bottle conveyor OEE	$0.11900	$371,880	5.0702%	
4	L1B OSBB bottle conveyor OEE	$0.11635	$363,600	4.9574%	
5	Palletizer operations	$0.01909	$238,600	3.2531%	
6	Case erector operations	$0.03549	$221,843	3.0246%	
7	Processed case Q/A checks	$0.01775	$221,822	3.0243%	
8	Shell unloading operations	$0.03423	$213,938	2.9168%	
9	Truck loading operations	$0.01414	$176,707	2.4092%	
10	L1B Case Erector OEE	$0.05380	$168,120	2.2922%	
11	Pre-Batching/Batching of raw materials	$0.01338	$167,271	2.2806%	
12	L5A Changeover	$0.05103	$159,480	2.1744%	
13	Shell Yield	$0.02500	$156,250	2.1303%	
14	L1A Case Erector OEE	$0.04562	$142,560	1.9437%	
15	Corrugate delivery to case erectors	$0.02042	$127,629	1.7401%	
16	L5A Filler OEE	$0.03640	$113,760	1.5510%	
17	L1B Changeover OEE	$0.03571	$111,600	1.5216%	
18	L5B Filler OEE	$0.03421	$106,920	1.4578%	
19	L5B Palletizer OEE	$0.03249	$101,520	1.3841%	
20	L5B Changeover OEE	$0.03203	$100,080	1.3645%	
21	L1B Bottle Inserter OEE	$0.03133	$97,920	1.3350%	
22	L1A Changeover OEE	$0.02984	$93,240	1.2712%	
23	L1A Filler OEE	$0.02845	$88,920	1.2123%	
24	Truck raw material receive & unload (corrugate) TL	$0.00708	$88,536	1.2071%	
25	L5A Palletizer OEE	$0.02707	$84,600	1.1534%	
26	Raw material Q/A (ultracon, neo, trend)	$0.00670	$83,692	1.1411%	
27	L1B Capper OEE	$0.02673	$83,520	1.1387%	
28	L1A Bottle Inserter OEE	$0.02350	$73,440	1.0013%	
29	L1A Palletizer OEE	$0.02269	$70,920	0.9669%	
30	L1B Filler OEE	$0.02258	$70,560	0.9620%	
31	L5B Liquid Processing OEE	$0.02189	$68,400	0.9326%	
32	L5A Capper OEE	$0.02143	$66,960	0.9129%	

SAFETY IMPROVEMENTS IDENTIFIED IN THE VALUE STREAM ANALYSIS

#	Issue	Role	Idea/Solution	Yearly Benefit	Implement (Easy/Diff)
2.1	Tool bag not organized and does not have all the right tools	CSM	Make sure proper tools for job are all included & available & organized (deep well socket needed)	Safety	Easy
20	Potential for sparking with current tools	Lab Tech	Buy non-sparking tools	Safety	Easy
23	L1A case erector does not have running/warning signal like L1B that is working	EO's	Enable the signal	Safety	Easy
35	Energized OSBB conveyors shocking mechanic doing changeover.	Mechanics	Investigate if this was static or not	Safety	Easy
37.1	Operator using unsafe vertical elevation device And operator jumped down from filler platform	LLs, EO's, and mechanics	Ensure lines have proper vertical elevation devices (step ladders)	Safety	Easy
37.2	Not using goggles when using compressed air	Everyone	Use goggles - give feedback as necessary	Safety	Easy
37.3	Standing on roller conveyors at case erector while cutting straps on new bundle	EO's	Give feedback as necessary	Safety	Easy
37.4	Observed multpile at risk behaviors during changeovers	Everyone	Conduct hazard analysis for changeovers	Safety	Medium

ANALYSIS

- **Labor Time**
  - Production, Receiving, Warehouse labor
- **OEE**
  - Operating Equipment Efficiency or machine utilization based on 24 hour, 7 days a week availability
- **Changeover time**
  - Line changeover for different package sizes, labeling and formulations
- **First Pass Yield / Rework**
  - Gallons and dollars of product that does not meet First Pass Yield
- **Maintenance Costs**
  - Total cost for preventative and repair of equipment in each operational area
- **Inventory**
  - Raw, WIP and Finished Goods inventory

RESULTS

- **Identified 130 potential improvements with savings of $7.3M**
- **Implemented 8 safety improvements during the rapid improvement event**
- **Recommended 7 future Lean Projects including: Materials Loss (potential cost savings = $1.2M), Changeover (potential cost savings = $0.5M) and 5S Visual Management**
- **Recommended 24 quick-win action items**
- **Recommended 5 longer-term sustainability improvements**

SupplyVelocity®

Reference: Volker Staub, Global Lean Leader
Volker.Staub@Henkel.com