Engineering Lean & Six Sigma Conference 2015
Sept. 30 - Oct. 2, 2015
The Westin Atlanta Perimeter North Atlanta

Never Stop Learning
Sharing Improving Networking
SIPOC supports the development of the Process Map

- At all levels...process mapping needs to be founded in a SIPOC
- High level process mapping is based on concept and not details
- Details of process become clear as the drill down occurs
Levels of Process Mapping

• **Strategic:**
  - A view of business practices from the 30,000 foot level.
    - Value Stream Map is ideal as it looks at large processes and concepts
    - Level Zero Map – Swim lanes are great to show lanes of control and cross-functional interaction

• **Operational:**
  - Level One Map - Captures management interactions at the management level and not the corporate level.
  - For ease of understanding color code the major players where there is cross-functional interaction

• **Tactical:**
  - Level Two Map – Production process mapping, start to finish of a product capturing the inputs, the processes, and the other inputs
  - Level Three Map – Process map the individual work activities and functions...builds to Standard Operating Procedures (SOP)
Process Map Symbols and Functions

Terminal: defines the start and end of a process. There can be more than two of these on a process map.

Process Step or Activity: contains the description of the process sub-step. Can have the WBS number or color coded to tie to a higher owner.

Decision Box: contains a question (yes or no, pass or fail). Negatives should go down and positives continue in the horizontal plane.

On & Off Page Connectors: Mark sub parts of maps on the same page or on different pages.

Document or Multiple Documents: Capture where documents are used, filled out in the process. Digital document can be drawn with dashed lines.

Database or Application: Supports a process, call it out and name it.

Process Step Connector: Dash the line, if the next step is electronic or digital.

Graphic Symbols or Picture
A few tricks on Process Mapping

1. Think horizontal: try to get the work flow to travel in a fairly straight line from left to right

2. There is no such thing as a perfect map

3. The process map is a snapshot in time…date the map…make it a change document

4. Swim lanes show departments or multiple functional areas, where the process travels from one area to another or back and forth between areas or there are inputs from different departments or areas

5. Annotate time in both the process step and the space between the steps. The time between the steps can show the waste of time or travel time. This can be an area for improvement, as the space between steps is transportation, waiting, communications, or a push-pull distribution.
A few tricks on Process Mapping

6. Work Breakdown Structure annotation numbers tie the process map steps and processes for quick reference.

7. Use color for quick identification of alignment in swim lanes, functional areas, or risk.

8. Do not try to build the map all at one time. When interviewing different people capture their processes and then add their portion to the overall process. During the interview try to get them to show you what they do, where variation can occur, and how they deal with issues, changes, or shortfalls.

9. Question Everything!!! Then circle back in a few days and validate what you learned.

10. Last..... 'Walk the Dog'
Process Map Structure (Swim Lane mapping)

Finance & Contracts Intra-Actions

<table>
<thead>
<tr>
<th>Finance Dept</th>
<th>Contracts Dept</th>
</tr>
</thead>
<tbody>
<tr>
<td>Need to fund contract</td>
<td>Does funding exist?</td>
</tr>
<tr>
<td>Finance does not have funding approved</td>
<td>Contracts sends contract to vendor</td>
</tr>
<tr>
<td>Memo sent to Corporate for approval</td>
<td>Vendor signs contract</td>
</tr>
<tr>
<td>Corporate approves funding</td>
<td>Vendor send product</td>
</tr>
<tr>
<td>Finance tells Contracts to proceed</td>
<td>Shipping send CBL to Contracts</td>
</tr>
</tbody>
</table>

Swim Lane Process Maps are good for mapping interaction between Staff and Administrative functions
A simple process map for warehouse operations

This simple level three (tactical) map is good to post in operational procedures. They are normally not long or complex. Getting the message to the end user may require a simple visual. A graphic display may work better.
A graphic image process map is effective for level three maps (tactical)

Suppliers ship cargo

Cargo arrives at Warehouse

Cargo is inspected

Cargo is unloaded and moved to holding area

Sign for cargo

Split ships are held until complete

Copies made, driver keeps original

Copies & Bill of Lading goes to accounting

Cargo is inventoried then shelved

Scan inventory into warehouse spreadsheet w/shelf location

Inventory entered into computer

This is the same level three (tactical) process map. A visual graphic form may work well for the end user and may be much easier to follow the process.
Laying out the Process Map

Not a good manufacturing process map

1. Customer request or requirement
2. Functional review by Corporate
3. Production plan
4. Material on-hand
5. Order is paid and closed

Corporate:
- Referral Source
- Purchasing gets needed BOM
- Purchasing buy & have materials shipped to plant
- Corporate notifies customer

Production Plant:
- Tech Plan
- Production schedule and plan
- Production issues
- Production line available
- Material on-hand

Production:
- Production gets schedule & requirements
- Production schedules work
- Production lays out work
- Production completes requirements
- Finished goods go to warehouse

Shipping & Warehouse:
- Warehouse gets the goods
- Warehouse holds goods
- Warehouse sends doc to corporate
- Shipping sends goods to customer
Same map...... just better

A good manufacturing process map (24 March 2019)

1. Corporate
   - Customer request for requirements
   - Functional review by Corporate

2. Production Plant
   - Production schedule & plan
   - Is production line available?
   - Are materials on hand?
   - Meet with Production Line Forman
   - Purchasing gets needed DOM request

3. Production
   - Production schedules & lays out work
   - Production completes requirements

4. Warehouse & Shipping
   - Finished goods to warehouse
   - Warehouse ships goods
   - BOM shipped to plant

5. Terminator, Define process, J.O.B.S, Decision, Documentation
Get exclusive access to the latest innovations, techniques, research and best practices to improve quality and efficiency at the Engineering Lean and Six Sigma Conference 2015, held in collaboration with the Lean Educator Conference.

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