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Library Technical Services Process Improvement Based on LEAN

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Introduction

Lean Thinking ...is to see and eliminate Muda ‘waste’ –which is essentially any activity in which absorbs resources but creates no value.

8 Types of Waste

- Defects
- Overproduction
- Waiting
- Non-Utilized People

- Transportation
- Inventory
- Motion
- Extra Processing
How do we eliminate those wastes?
Five Principles of Lean

1. Value – specified by the customer/end user
2. Value Stream – value adding activities
3. Flow – sequence of actions
4. Pull – just in time
5. Perfection – continuous improvement
1. Value
Specified by the customer: where meaning is express for a specific good or service, while delivering highest of quality at the lowest possible cost.

2. Value Stream (VS)
Identify a set of activities required to produce a good/service from conception to delivery that creates ‘specified value’ and eliminates waste.
Rush/Replacement & Firm Orders

Customers:
• Subject Liaisons (librarians) & library users (i.e. faculty, students, staff)

Good/Service:
• Rush/Replacement Orders (2-4 days)
• Firm Order (5-10 days)
• 100% Complete/Accurate
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Value Stream – Current State

VS Manager
Value Stream – Current State

Errors

- GOBI
  - Retrieve/Make Corrections
  - Submit Orders
  - 2min
  - 30min-48hrs clarification errors: fund codes - sub acct.
  - 5min (minor error)

- GOBI
  - Review selection cart make corrections
  - 2min (zero errors)

- GOBI
  - process GO-BI orders (check 3-4 x daily)
  - 1min

- Millennium
  - Check Duplicates
  - Added Titles
  - (liaisons will note)

Error Rate:
- 20% error free
- 70% minor errors
- 10% clarification errors
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Value Stream – Current State

Shipping

GOBI Shipments

GOBI Shipping:
- Rush 4-5 Days ($10-$15, 2-DAY AIR)
- Firm 1.5 Months ($ Built into contract)

Amazon Prime Member Shipping:
- Rush 2 Days ($0, 2-DAY AIR)

Campus Receiving
- Receives, sorts, and delivers packages to Library
10min-24hrs

Library Receiving
- Sorts and delivers Packages to Acquisitions
5min

Acquisitions
- Unpacks, verifies items with invoice
10min
Value Stream – Current State

Lead Time/Processing Time

Information Flow

GOBI
- View received rec. for POS and status updates
- FTP Brief Bibs/POs from GOBI, assign POS.
- FTP Bibs/POs back to GOBI

Millennium
- FTP Brief Bibs/POs from GOBI, assign POS.
- FTP Bibs/POs back to GOBI

GOBI
- Retrieve/Make Corrections
- Submit Orders

GOBI
- Review selection cart make corrections

GOBI process GO-Bi orders (check 3-4 x daily)

Material Flow

Campus Receiving
- Receives, sorts, and delivers packages to library
- 5min

Library Receiving
- Sorts and delivers Packages to Acquisitions
- 5min

Acquisitions
- Unpacks packages
- 1min

Acquisitions
- Verifies items with invoice
- 10min

Acquisitions
- Millennium
- Make receive date
- 1min

Acquisitions
- OPAC bib rec.
- 1 sec

Acquisitions
- Highlight Instructions: add holds, replacements, etc.
- 5min

Acquisitions
- Cataloging (IFNRM)
- Complete cataloging rec.
- 1 day

Acquisitions
- Label Cart
- 2min

Acquisitions
- E-Add holds
- 5min

Acquisitions
- Delivers books
- 5min

Circulation
- Adds holds processors
- 1.2hrs

Total Production:
- Lead Time = 1.33 days (mean)
- 1.25 months (Firm)

Total Process Time = 45min (zero errors)
- 1.2hrs (minor errors)
Value Stream – Current State

Do we create value for the customer?

Value Desired

Customer(s)

- Liaison Librarians
- Branch Heads
- Faculty
- Library Users
  - Monographs
  - Rush/Replacements 2-4 days
  - Firm Orders 5-10 days
  - 100% complete/accurate

Value Stream: Current State – Value Creating?

- Total Production Lead Time = 13.3 days (Rush)
  - 1.75 months (Firm)

- Total Process Time = 45min (zero errors)
  - 1.2hrs (minor errors)
Next Step: Establishing a *Future State*
3. FLOW

All steps required proceed through the value stream in a continuous flow without: backflow, scrap, and/or stoppages.

Media Process in BMS

- Process Redesign
- Flowchart
- Travelers
“As-Is” Flowchart: Media Process in BMS
<table>
<thead>
<tr>
<th>Activity</th>
<th>Started Work Date</th>
<th>Time worked on the Item</th>
<th>Sent Out Date</th>
<th>Initials</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receiving in BMS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initial Processing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Checking for Serials</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Media Shelves</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Cataloging</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Processing/Labelling</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delivery</td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>
“New” Flowchart: Media Process in BMS

1. Receive in BMS
2. Cyrus pickup from cart in BMS; barcode as necessary, and cataloged
3. Students capture call number and hub labels
4. Deliver to Media or place in mail bins for delivery to branches
4. PULL

Tasks are taken by employees when they are ready for more work.

Eliminate Scheduled Tasks

• Prioritized list of daily tasks
• Next person does next task
• Reduce inventory/waiting
5. PERFECTION

All activities along a value stream create value.

Shelving Accuracy Tracking

- Main purpose of Stacks
- How do we add value for users?
Establish the goal.

Design method to track data.

Phase-in new procedures.
### Shelving Accuracies

**Goal is 100%**

<table>
<thead>
<tr>
<th>Month</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
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<tbody>
<tr>
<td><strong>January</strong></td>
<td>16</td>
<td>15</td>
<td>16</td>
<td>15</td>
<td>16</td>
<td>15</td>
<td>16</td>
<td>16</td>
<td>14</td>
<td>16</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td><strong>Correct</strong></td>
<td>16</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>16</td>
<td>15</td>
<td>16</td>
<td>16</td>
<td>13</td>
<td>15</td>
<td>15</td>
<td>15</td>
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<tr>
<td>%</td>
<td>100.00%</td>
<td>100.00%</td>
<td>93.75%</td>
<td>100.00%</td>
<td>100.00%</td>
<td>93.75%</td>
<td>93.75%</td>
<td>100.00%</td>
<td>#DIV/0!</td>
<td>92.86%</td>
<td>93.75%</td>
<td>#DIV/0!</td>
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<tr>
<td><strong>Average</strong></td>
<td>96.79%</td>
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<td></td>
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<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

| **February** | 16 | 16 | 15 | 16 | 15 | 16 | 15 | 16 | 14 | 16 | 16 | 16 |
| **Correct** | 16 | 15 | 14 | 16 | 15 | 13 | 15 | 15 | 14 | 15 | 15 | 15 |
| % | 100.00% | 93.75% | #DIV/0! | #DIV/0! | #DIV/0! | 93.33% | 100.00% | 86.67% | 100.00% | #DIV/0! | 87.50% | 93.75% |
| **Average** | 94.40% |

| **March** | 16 | 16 | 16 | 16 | 15 | 16 | 15 | 16 | 14 | 16 | 16 | 16 |
| **Correct** | 16 | 15 | 14 | 15 | 16 | 13 | 15 | 16 | 14 | 15 | 15 | 15 |
| % | 100.00% | 87.50% | 93.75% | 100.00% | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | 100.00% | #DIV/0! | #DIV/0! | #DIV/0! |
| **Average** | 96.25% | 4 in a row! | 4 in a row! |

| **April** | 15 | 16 | 15 | 16 | 16 | 15 | 16 | 14 | 16 | 16 | 16 | 16 |
| **Correct** | 15 | 16 | 15 | 16 | 15 | 15 | 16 | 15 | 14 | 15 | 15 | 15 |
| % | 100.00% | 100.00% | #DIV/0! | 100.00% | #DIV/0! | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% | 81.25% | #DIV/0! |
| **Average** | 95.68% | 5 in a row! | 5 in a row! |

| **May** | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| **Correct** | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| % | 100.00% | 100.00% | #DIV/0! | 100.00% | #DIV/0! | 100.00% | 100.00% | 100.00% | #DIV/0! | 100.00% | 100.00% | #DIV/0! |
| **Average** | 100.00% | 6 in a row! | 6 in a row! |

| **Spring 2012 Average** | 16 | 15 | 16 | 15 | 16 | 15 | 16 | 16 | 14 | 16 | 16 | 16 |
| **Correct** | 16 | 15 | 15 | 15 | 16 | 15 | 16 | 16 | 13 | 15 | 15 | 15 |
| % | 100.00% | 93.75% | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! |
| **Average** | 96.65% | 96.20% | 93.75% | 100.00% | 100.00% | 96.83% | 93.65% | 97.40% | 100.00% | 97.73% | 90.63% | 93.75% |
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DATA FOR INITIAL AS-IS STATE

![Graph showing data from Aug-2010 to Apr-2011 with percentages ranging from 85.00% to 100.00%]

June 23, 2012          ALA / ALCTS – Anaheim          25-G
Assess first round of data

Why was goal not attained?

Implement new idea:

• Incorporate Shelf-reading
RESULTS AFTER FIRST REVISION
Assess second round of data

Why was goal not attained?

Implement new ideas:

• Better training

• Reduce Batch Size
“...If I find 10,000 ways something won't work, I haven't failed. I am not discouraged, because every wrong attempt discarded is often a step forward...”

Thomas A. Edison
QUESTIONS?
REFERENCES


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SURVEY LINK