Optimizing Materials Handling on the Cheap

How to Lean Your Workflow
Lori Bowen Ayre
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Infopeople Webinar

Defining Lean

Lean is a set of concepts, principles, and tools used to create and deliver the most value from the customer's perspective while consuming the fewest resources.

THE TOYOTA WAY

CONTINUOUS IMPROVEMENT | RESPECT FOR PEOPLE

Value and Value-Add

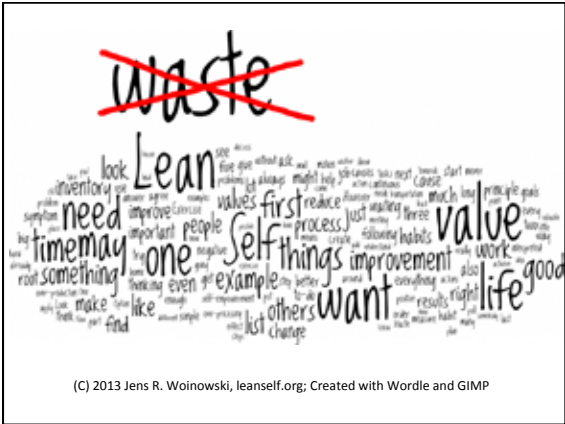Lean focuses on effectively delivering *value* to your customer

Value-add activities
- Are activities the customer is willing to pay for
- Transform the product or service
- Must be done correctly the first time

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How Waste Happens

- Defects
- Inventory
- Transportation
- Extra Processing
- Waiting
- Motion
- Bureaucracy

Value Stream

All the activities, materials, people, and information that must flow and come together to provide your customer the value they want, when they want it and how they want it
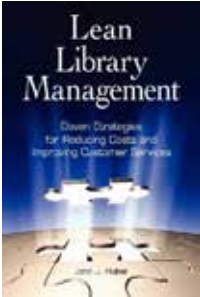

PDCA Improvement Cycle

Process of "leaning your workflow"
- **Plan:** determine goals and needed changes to achieve them
- **Do:** implement the changes
- **Check:** evaluate the results
- **Act:** standardize and stabilize the change or begin the cycle again

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Lean Library Management by John J. Huber

- Excellent resource for applying Lean ideas to library workflows
- Provides step-by-step instructions

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Huber Steps to Leaning Your Workflows

1. Form Team
2. Select Value Stream to tackle and set goals
3. Document the process (value stream)
4. Analyze the process to find waste
5. Design new workflow
6. Implement new workflow and analyze results (measure)
7. Continue to make adjustments (continuous improvement)

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Lean is an Organizational Effort

- The people who do the work are the experts – they must be involved
- Management support critical
- Top Down and Bottom Up

Define Value Stream in Customer Terms

- Not a Value Stream: processing bookdrop
- *Value Stream:* shorten return to shelf time (RTS) for bookdrop returns

Use Value Stream and Process Maps
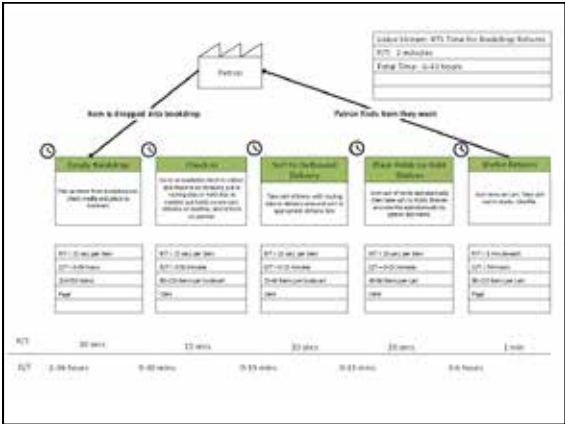
Value Stream Map – high level view
- Designed for leadership (people who can authorize changes)

Process Maps – micro view of each step
- Created by people doing the work
- Includes:
  – Each step of process
  – Person doing the work
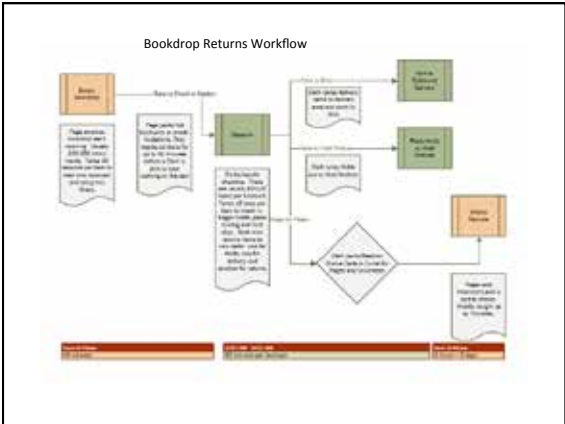 – Equipment used
  – Handoffs
  – All "wait times"

Optimizing Materials Handling on the Cheap: How to Lean Your Workflow

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Process Map

SEQ	Process Steps	Process Time (PT)	Lead Time (LT)
1	Page gathers 3 bookcarts and take them to bookdrop return area	3	3
2	Page picks up items off floor	30	30
3	if media, check disc and contents		
5	Arrange stacks on bookcarts	10	10
7	Take book cart to check-in workstation	3	3
8	WAIT (for clerk to be available)		60
9	Clerk scans each item to check-in	30	30
10	resensitize		
11	place on shelving bookcart		
12	if hold triggered, put slip in book and place on Holds bookcart		
	Clerk takes Holds cart to high priority shelving staging area	3	3
	WAIT (for pages who do shelving)		10
	Page shelves Holds	15	15
	Clerk takes outgoing delivery items to delivery bins	6	6
	Clerk sorts outgoing delivery to bins	8	8
	Clerk takes returns to low priority shelving staging area	10	10
13	WAIT (for pages who will do shelving)		120
15	Page shelves returns to Sorting Shelves	15	15
16	WAIT		2160
17	Page (or volunteer)loads books from Sorting Shelves to cart	5	5
18	Shelve	45	45
	TOTAL PROCESS TIME (per cart)	183	
	TOTAL LEAD TIMES		2533

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Bookdrop Returns Workflow

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ANALYZE THE PROCESS AND FIND THE WASTE

Critical Questions for the Team

- Do we really need all these steps?
- How can we eliminate all delays and make this process flow?
  - adjust work assignments
  - plan around "peak" volumes
  - simplify!
- What equipment changes would make a difference?

Find Ways to Eliminate…

- Excessive walking, reaching, or bending
- Wait times and delays
- Errors and defects
- Handoffs between people
- Transfers of material

Implement New Workflow and Begin Monitoring Results

- Not as easy as it sounds
  - may require new equipment
  - may require training
  - will undoubtedly require workspace changes

- Make sure you are doing the measurements that will tell you how you are doing – in terms of value to the customer

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FOCUS ON LABOR EFFICIENCY AND PRODUCTIVITY AFTER THE PROCESS HAS BEEN STREAMLINED, BATCH SIZES REDUCED AND LEAD TIMES REDUCED.

(Huber)

CONTINUE TO MAKE ADJUSTMENTS

Continuous Improvement

- An important Lean principle because…
  - Conditions change
  - Always room for improvement
- Everyone should be looking for those improvements every day
- Many Lean tools to support continuous improvement

Goal: status of system can be understood at a glance for everyone

VISUAL MANAGEMENT

Display Boards Showing Goals and Key Metrics

Teachers are Naturals at Visual Management!

Display Board Reveal Problems to Address

Labeling Work-in-Progress

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"Sorting" Shelves are NOT Visual Management

- Don't know how bad backlog is
- Wasted steps of shelving and unshelving

LEAN TOOL: FIVE SS OF EFFICIENCY

#1 Sort

- Retain, Return, Rid
- Only what is needed, in its proper place, clean and ready to use
- When in doubt, move it out

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#2 Straighten

- Find a place for every essential item, delineate it and label it
- A place for everything and everything in its place

#3 Scrub

- Clean work areas make everyone feel better, are safer, and reveal problems

#4 Systematize

Keep area
- organized
- orderly
- clean

5 Standardize

- Make this the new status quo
- "Standardized Work"

WHERE LIBRARIES OFTEN GO WRONG

Bookcart Defines the Batch Size

"Large batches are the result of placing too much emphasis on labor efficiency and not enough on delivery lead times or the performance of the service chain as a whole." (Huber)

Think Differently About Bookcarts

Okay NOT to fill a bookcart
- Better ergonomically
- Limiting items on bookcart to smaller batch can reduce need to presort

Reliance on Staging Areas

Libraries use lots of different things for staging:
- Sorting carts
- Ready to shelve carts
- Sorting shelves
- Stacks
- All of the above!

"Staging areas hide inefficiencies and imbalances between workstations and staff, and they are an open admission by management that they have designed into the service flow imbalances and delays" (Huber)

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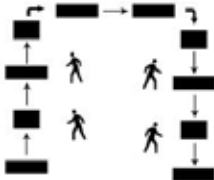## Lack of Acquisitions Master Schedule

Exceptions and Expedited Workflows

- Expedited Workflows (holds, media)
- Volunteers who choose material they want to shelve instead of what needs to be shelved
- Staff unwilling to pitch in to help when needed
- Very difficult to design a workflow with lots of exceptions

Make a Single Workflow

- You should be able to stand in the middle of a process and see where everything is and how everything is doing (U-shape)

Rigid Staff Roles

- Surges are a way of life (delivery, holidays, new acquisitions)
- Implement flexible job descriptions
- Cross train staff so they can be more flexible about handling surges
- Seeing the bottlenecks and clogs in the flow isn't useful if you can't put resources to the task of unclogging

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"If the current organizational structure cannot change, then the processes behind this organizational structure cannot change either" (Huber)

San Jose Lessons Learned

- Don't need staging areas for sorting
- Sort only to top shelves of book carts
- Two return slots are better than four

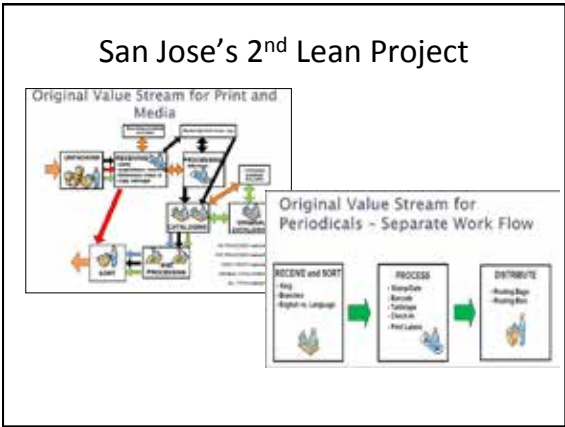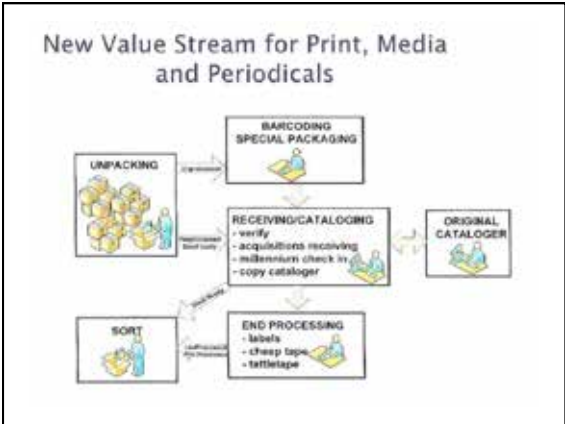San José Public Library

San Jose's Lean Project

- Time for returned materials back to shelf went from 23 hours to 15 hours
- 20% reduction in labor costs
- Improved employee productivity and morale
- Improved space utilization
- Staff re-assigned to relational work

San Jose's 2nd Lean Project

New Value Stream for Print, Media and Periodicals

Getting Started with Lean

- Huber, John J. (2011) Lean Library Management: Eleven Strategies for Reducing Costs and Improving Customer Services, Neal-Schuman Publishers, New York.
- Review SJPL Presentation (CLA 2012)
- Free webinars from Lean office consultant Karen Martin: http://www.ksmartin.com/webinars/

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Questions?

Thank you.

Lori Bowen Ayre
lori.ayre@galecia.com

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