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Value Stream Mapping

for Service

Presented by

Anthony Manos

ASQ Illiana Section 1213
Frankfort, IL USA
Tuesday, February 16, 2010
7:30 pm – 8:30 pm

Profero, Inc.
9270 Corsair Road
Suite 18
Frankfort, IL 60423
Tel: .312.718.0078
www.proferoinc.com

Learning Objectives

- VSM Scopes
- How VSM is different in Office vs. Manufacturing
- The Four Step VSM Process

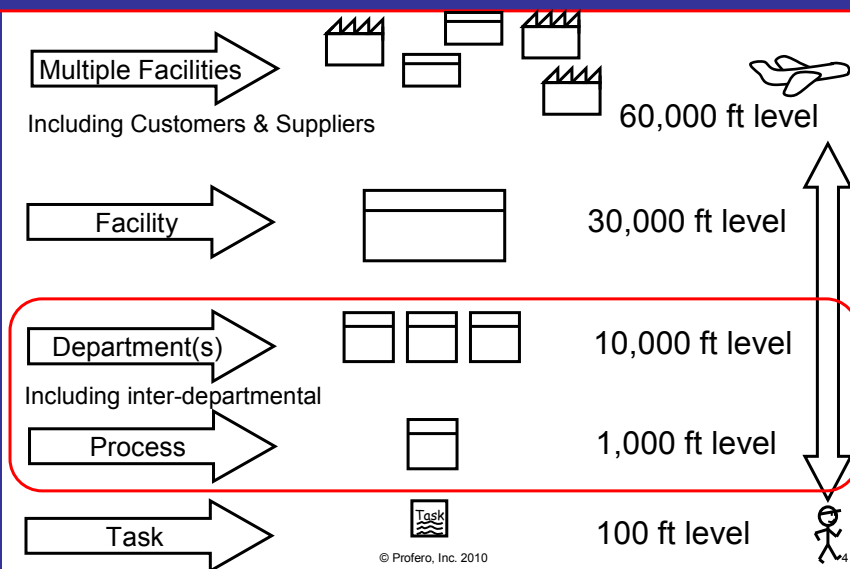
Brief History

- “Material and Information Flow Diagrams” were originally developed by Taiichi Ohno and the Operations Management Consulting Division of Toyota to help suppliers learn TPS
 - Visual communication tool
 - Able to identify & eliminate waste
- Mike Rother and John Shook (1999) adapted and refined this technique into what we now call “Value Stream Mapping”

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Value Stream Scopes



VSM is Applicable Anywhere

- Finance
- Accounting
- Purchasing
- Human Resources
- Information Technology
- Customer Service
- Engineering
- Quality
- Purchasing
- Distribution
- Research & Development
- New Product Development

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Where's the Waste?

- 80% of the waste in an organization does not occur on the “shop floor”
- Example: In a Request for Quote (RFQ) process...

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Shop Floor vs. Office

Shop Floor

- Typically easy to determine Process Families
- Some resources are dedicated
- More open to change and improvement
- “It depends” answer

Office

- Process Families are harder to determine, based on function
- Resources are almost always shared
- More resistant to change
- “It depends” answer raised to the 100 power

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VSM for Service

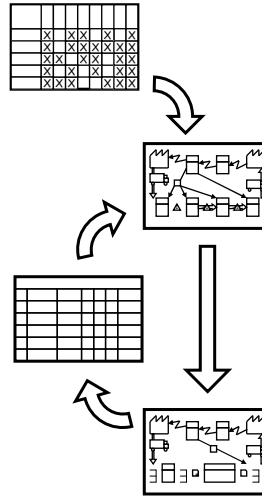
- Define value from your customer’s point-of-view
- Determine which steps add value and which ones add waste
- Standardize and improve value-added processes
- Eliminate waste

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4 Steps for VSM

1. Process Family
2. Current State Map
3. Future State Map
4. Plan



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1. Process Family

Customers \neq Process Families

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Process Family

- Process Family are groups of products or services that go through the same or similar processing steps (a.k.a. “Product Families”)
- Many companies want to skip this step or take shortcuts – *DON'T*
- Take the time to complete this step (even if you have many service offerings) and continue to update as necessary

Focus on One Process Family

Determine process families by:

- Look for similar processing steps, departments and equipment
- By process, not product
- Quantities or volumes may help in the decision of which items to include
- Many organizations fall into the trap that they think customers or products are process families
- You typically will have Value Stream Maps for more than just one process family

Customer Support Example

Types	Steps	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Process Family
		Contact	Open Case File	Research Reason	Initial Response	Send Something	Receive SampleInfo	Second Response	Transfer Sample	QC Testing	RA Disposition	Transfer Case	Transfer Issue	Information Request	Negotiation	Close Case File	
Recipe		X	X	X	X	X										X	General Inquiries
Samples		X	X	X	X	X										X	
Coupons		X	X	X	X	X										X	
Fragrance		X	X	X	X	X										X	
Minor Irritation without Product		X	X	X	X	X										X	
Can't Find...		X	X	X	X	X										X	
Advertising		X	X	X	X	X										X	
General Product Information		X	X	X	X	X										X	
International		X	X	X							X					X	Secondary Process General Inquiri
Product Ingredients		X	X	X	X					X						X	
General Company Information		X	X	X	X								X			X	
Major Irritation		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	High Risk
Hair Loss		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Property Damage		X	X	X	X	X	X									X	Property Damage
Nexus Product Dissatisfaction		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Complaints
Packaging - Lot Code Received		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Product Dissatisfaction		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Packaging - No Lot Code Received		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Off Odor		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Watery		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Consistency		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Clumping		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Minor Irritation with Product		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	

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IT Department Example

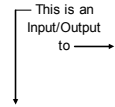
Processes -->	ID	Quantity (estimates) per day / week / month / quarter / year	Needs Analysis	Architecture Design	Project Management	Vendor Management	Budgeting	Purchasing	Ticketing	Change Management	Decom	Racking	DC LAN Support	Base OS	DNS	Firewall Support	Backups	Monitor	Reporting	Documentation	Asset Management
Build New Server	High																				
Network Management	High																				
Backup Support	Medium																				
Maintain WAN	Medium																				
Server Monitoring	Medium																				
Firewall Rules - Change	High																				
Firewall Rules - Maintenance	High																				
Create New VLAN	Low																				
Create VPN Pool	Low																				
Decom VPN Pool	Low																				
New VPN Token	High																				
Decom VPN Token	High																				
File Recovery	Low																				
Rollout a Server	Low																				
Replace Server	Low																				
Consulting/Research	High																				
Cell Phone - New	Low																				
Cell Phone - Upgrade	Low																				
Cell Phone - Decom	Low																				
Response - New	Low																				
Telephones - Decom	Low																				

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HR-Payroll Example

	ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Weekly Payroll Entries																										
Create Badge																										
Punch In/Out																										
Fill-out Missing Punch Sheet																										
Print Error Report																										
Print Weekly Time Sheets																										
Review timesheets																										
Distribute to Supervisors																										
Correct Punches																										
Interface to Payroll																										
Review Payroll																										
Send to IPM & Review																										
Print Checks																										
Receive Checks																										
Begin New Week																										
Receive & Translate																										
Sort Checks																										
Run Misc. Payroll Reports																										
Pass out Reports																										
Pass out Checks																										
Express Checks																										
Review Section 125 Reports																										
Check Requests																										
401(k) Data Entry																										
Confirm Deductions																										
Quantity (estimates) - US																										
Input/Output/ Forms																										
Checks	750/wk																									
Express Checks	12/wk																									
Timesheets																										
Daily Missions																										
Check Request	2/wk + 20-30/mo																									
Vacation Request	10/mo																									
Hire Request	15-30/wk																									
Replacement Request	3/wk																									
Payroll Reports	5/wk																									
CD Payroll Reports	25-30/wk																									



Inputs/Outputs

Purchasing Example - Start

	ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
Inventory Adjustments																
Expedite																
Run/Review Report																
Making/Distribute Copies																
Scheduling																
Problem Solving																
Negotiation																
Pricing																
Approval																
Research/Sourcing																
Quality Issues																
Credit Setup																
Data Entry																
Meetings																
Quantity (estimates)																
Process Family																
Research new suppliers	2/month															
Purchase orders	50/day	X	X	X												
Supplier issues	5/day		X	X												
Blanket orders	10/day	X	O	X	X											
Reorder Point Planning	10/week	X		X												
New Product Development	1/month															
A/P Issues	2/week	X														
Management Reports	10/month	X		X		O										
Inventory Reporting	30/month	X		X			X		X							
Sales Forecast/Planning	1/day		X	X		X	X	X							X	X

Purchasing Example - Final

Services	ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Process Family
	Quantity (estimates)	Inventory Adjustments	Expedite	Run/Review Report	Making/Distribute Copies	Scheduling	Problem Solving	Negotiation	Pricing	Approval	Research/Sourcing	Quality Issues	Credit Setup	Data Entry	Meetings	
Purchase orders	50/day	X	X	X		X	X			X		X		X		Daily Buyer Tasks
Supplier issues	5/day		X	X			X	X	O		O	O	O		X	Daily Buyer Tasks
Sales Forecast/Planning	1/day		X	X		X	X	X						X	X	Daily Buyer Tasks
New Product Development	1/month					X	X	X	X	X					X	NPD
A/P Issues	2/week	X					X	X		X	X		O			A/P Issues
Reorder Point Planning	10/week	O		X	X	X				X	X			X	O	Planning
Blanket orders	10/day	O	X	X	X	X								X		Planning
Management Reports	10/month	O		X	X	O								X		Planning
Research new suppliers	2/month							X	X	X	X		X		X	New Suppliers
Inventory Reporting	30/month	X		X			X		X							Inventory Reporting

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Reasons Why This Step is Skipped

- It is hard to determine when processing steps need to be included, omitted, split apart, etc.
- Your VSM Team knows your company the best, you will be able to figure out at what level this needs to be performed at
- The process will become easier with more experience

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Current State Map

The way it is today

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Information Gathering

- Walk the flow
- Gather data as you go
- Inform people ahead of time that you will be doing a VSM – use a Communication Plan
- Put the person at ease when you ask questions, put yourself in their shoes
- Allow the person doing the task to answer (not the manager or supervisor on the team), you want to hear what they say and perceive
- Look for waste as you walk

Process Box

- Name the process or step
- Try to keep the name short – without abbreviating
- Which department
- Any software that is utilized


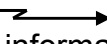
Scheduling
Purchasing
ERP

Data Boxes

- There are different types of data to collect that may be helpful with office and support functions
- Don't overload yourself with data – use what is important
- “Ball Park” close is good enough to get started

P/T= 30 min
L/T= 1 day
hr/day = 3 hours
Diff= 1/3
A&C= 30% /90%
Pri.= Due Date
Qty= 13/day
☺ = 1 (2)

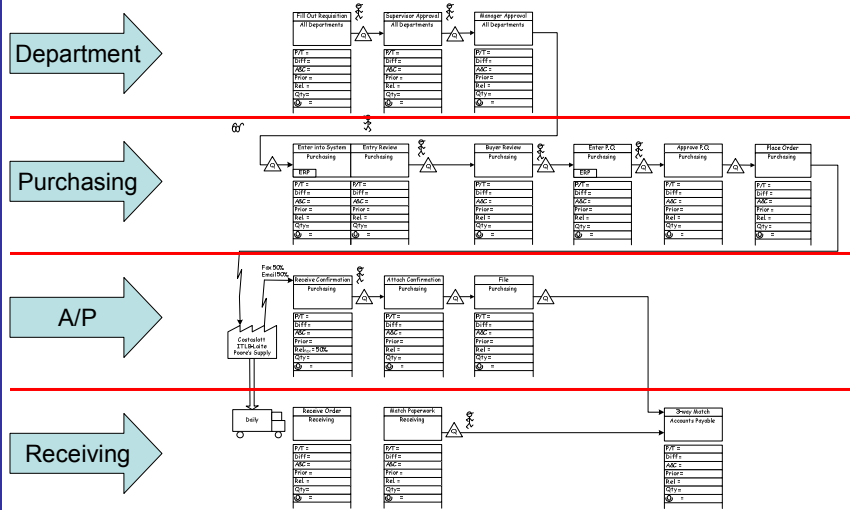
Data & Symbols

- P/T = Processing Time: the time it takes to get a task done
- L/T = The total time for an item to move through that process step
- Diff = difficulty of a task based on a scale from 1 to 5 for an experience person and new person
- A&C = Accurate and Complete: how many times do you get all the right information and feedback
- Pri = Priority: how you prioritize this work
- Hr/day = amount of time spent on this task
- Qty = Quantity: how per period of time
- ☉ = number of people that perform the task
-  = Queue or wait time
-  = electronic information (fax, email, ERP, etc.)

Drawing the VSM

- Use pencil, 11' X 17" paper and large eraser
- If it is a short process, start from left to right (vs. Facility Level VSMS)
- Use "swim lanes" if needed to clarify departments or roles

Swim Lane Example



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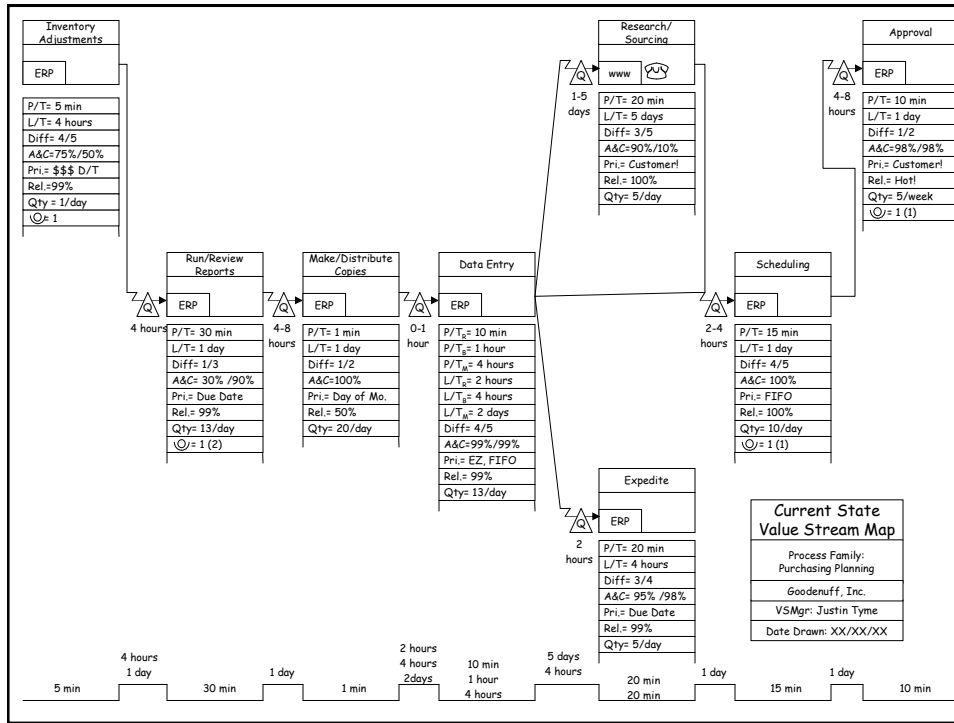
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Current State Map

- From the Process Family example for Purchasing
- Process Family: Planning
- Services:
 - Reorder Point Planning
 - Blanket Orders
 - Management Reports
- This is a case study – *the details are not important in this example*

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Current State Condition

Processing Time	85 min	
Queue Time	6 days	
Lead Time	10 days	
Average Difficulty	2.6/3.9	
Average A&C in/ feedback	60%/80%	
Priority	\$\$\$ D/T, Due Date, EZ, FIFO, Customer!	
Reliability (RTY)	48%	

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Future State

Where do we want to be?

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Future State

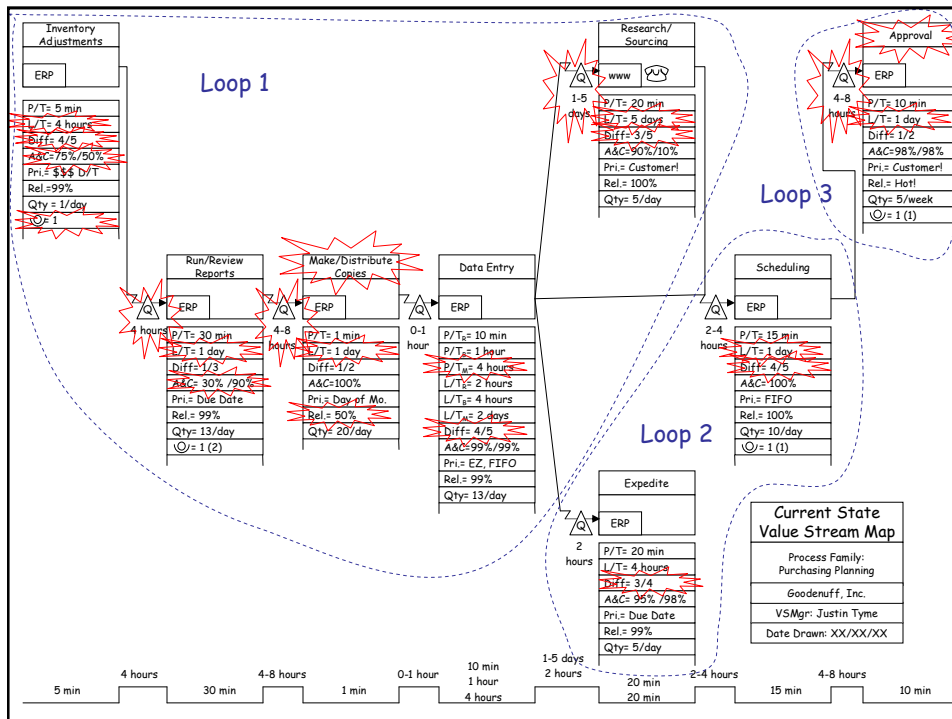
- Pick a timeframe – for office or support functions it may be better to try to keep it short – 3 to 4 months
- Use Kaizen bursts on the Current State Map to see what areas need improvement
- Add Loops if necessary
- During the Planning process the team will then decide what are the top items to work on
- Remember – don't try to solve the problem right now, just look for candidates

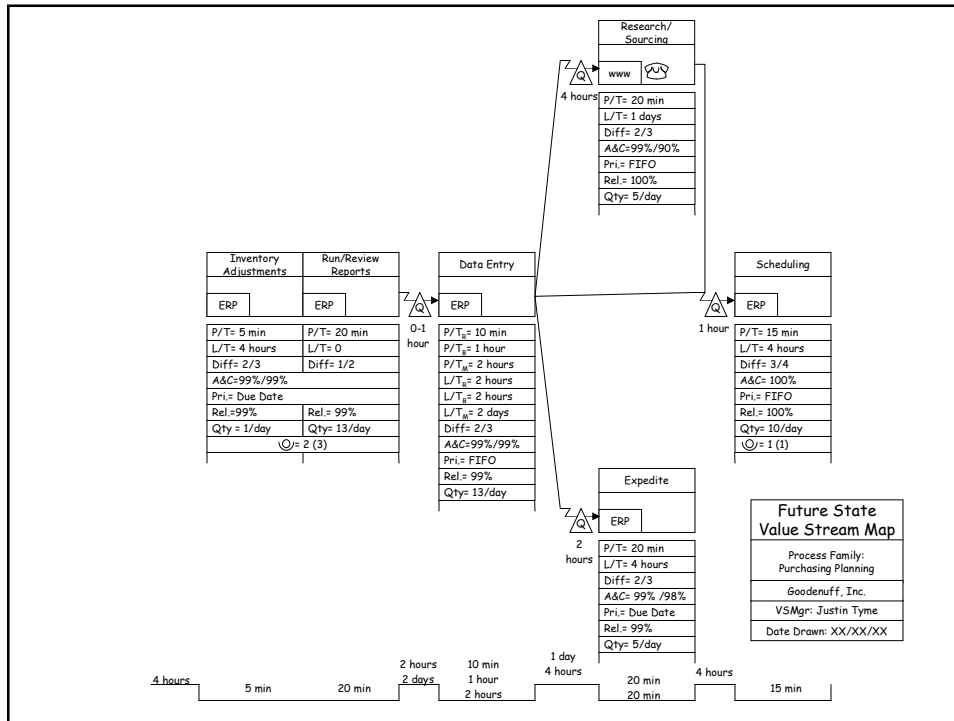
What to Look for

- Any non-value added steps
- Long lead-times or queue times
- High difficulty levels (≥ 3)
- Accurate & Complete levels that are less than 95%
- Where priorities do not match
- Quantities or batching work
- Long processing times
- No back-up people trained

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Future State Condition

Processing Time	231 min	140 min
Queue Time	6 days	1 day
Lead Time	10 days	3 days 6 hours
Average Difficulty	2.6/3.9	2.0/3.0
Average A&C in/ feedback	60%/80%	99%/97%
Priority	\$\$\$ D/T, Due Date, EZ, FIFO, Customer!	Due Date, FIFO
Reliability (RTY)	48%	99%



4. The Plan

“People don’t plan to fail, they fail to plan.”

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Muda

- If you don’t do anything with the maps and more importantly with the Plan, then all you did was create more muda (waste)
- The process of creating Value Stream Maps can be very eye opening, but the power in this tool is following through with the Plan
- Use the Plan!

Plan Format

- Many organizations use software or have other means to create a project plan
- Use whatever you currently have or the forms provided – you don't have to reinvent the wheel
- Make it easy to use & update and visual

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How to Prioritize Projects?

- Resources, resources, resources!
 - Time
 - People
 - Budgets
- Effort & Impact
- Just-do-it, Kaizen Events, 6 Sigma Projects, other projects

	High	No!		
Effort	Med			
	Low			Yes!
		Low	Med	High
		Impact		

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Draft Plan

- Gather the information from the Future State Map and put it into the plan
- Assign:
 - Project Leaders
 - Support people or functions
 - Goals
 - Metrics
- Additional information is needed before the final Plan can be presented

VSM Plan Example

Project Status		Value Stream Mapping				Percent Complete		VSM Goal Chart				Percent of Projects Completed On-time		
N = Not Started	1	20%	Goals & Objectives	Location/Facility	Gooderuff, Inc.	60%	20%	Legend	1 Block Fabric Cycle	2 Weeks LT	3 Weeks LT	4 Weeks LT	5 Weeks LT	6 Weeks LT
I = In-progress	1	20%	Process Family	Process Manager	Purchasing-Planning	Justin Tyme	XXXXXXXX	2-Block	3-Block	4-Block	5-Block	6-Block	7-Block	8-Block
C = Closed	3	60%	Date Reviewed	Value Stream Manager	XXXXXXXX	XXXXXXXX	XXXXXXXX	M+ Minutes	Stiles After Set Up	Block LT	Block LT	Block LT	Block LT	Block LT
NOTE:	5		NOTE: Update Value Stream Map											
ID	Status	Loop	Effort	Impact	Priority	Description	Start Date	End Date	Leader/Team	Goals/Metrics	Comments			
Inventory Adjustments & Run Reports														
1	N	1	M	H	1	Reduce Difficulty of Inventory Adjustments	XXXXXXXX	XXXXXX	Jean	From 4/5 to 2/3	Implement Standard Work			
2	I	1	H	H	1	Improve A&C of Inventory Adjustments	XXXXXXXX	XXXXXX	Jean	From 75% to 99%	Need Inventory Control on team			
3	C	1	L	H	1	Combine with Run/Review Reports	XXXXXXXX	XXXXXX	Joanne	0 Q/T, 4 hours L/T	Create an Office "Cell"			
4	C	1	L	M	2	Eliminate Making Copies	XXXXXXXX	XXXXXX	Joanne	No extra copies	Waste!			
5	C	1	M	M	2	Improve A&C of Running Reports	XXXXXXXX	XXXXXX	Joanne	From 30% to 99%	Six Sigma Project			
Data Entry														
6	I	1	M	M	2	Reduce the P/T of Management Reports	XXXXXXXX	XXXXXX	Ralph	From 4 hours to 2	Determine needed reports			

Communicate the Plan

- **Dedicated execution** is the key to the power of the Plan
- Post the Plan with the maps
- Keep it current and update it often by walking the flow
- The Value Stream Manager is responsible for keeping the plan on-track and moving forward

Wrap-up

What we covered:

- Introduction to VSM
- VSM Scopes
- How VSM is different in Office vs. Manufacturing
- The Four Step Process
 1. Process Family Matrix
 2. Draw a Current State Map
 3. Develop a Future State Map
 4. Create the Plan
- Thank you
- Open up for Questions

Learning Objectives

- VSM Scopes
- How VSM is different in Office vs. Manufacturing
- The Four Step VSM Process

Developer

Anthony Manos

- Tony Manos is a Catalyst with expertise in Lean and quality. Trained and certified by the Department of Commerce, National Institute of Standards and Technology (NIST) in Lean principles and as a trainer in Lean courses. He is an international speaker on Quality and Lean Enterprise topics.
- Mr. Manos has helped over 100 companies with Lean from point-solutions to full implementations in diverse industries, applications and company size.



- Mr. Manos is a Senior Member of ASQ with several certifications. He was the co-founder of the Lean Enterprise Division of ASQ and past Chair. He is also a Shingo Prize Examiner and helped developed the AME/SME/Shingo Prize Lean Certification.



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