MoreSteam.com

Introduction to Replenishment Pull

Dr. Lars Maaseidvaag

October 26, 2010

Agenda

- Welcome
- Introduction of MBB Webcast Series
  - Larry Goldman, MoreSteam.com
- Introduction to Replenishment Pull
  - Dr. Lars Maaseidvaag, MoreSteam.com
- Open Discussion and Questions

MoreSteam.com – Company Background

- Founded 2000
- Over 250,000 Lean Six Sigma professionals trained
- Serving 45% of the Fortune 500
- First firm to offer the complete Black Belt curriculum online
- Courses reviewed and approved by ASQ
- Registered education provider of Project Management Institute (PMI)

Selected Customers:

Master Black Belt Program

- Offered in partnership with Fisher College of Business at The Ohio State University
- Employs a Blended Learning model with world-class instruction delivered in both the classroom and online
- Covers the MBB Body of Knowledge with topics ranging from advanced *DOE* to *Leading Change* to *Finance for MBBs*
- Go to http://www.moresteam.com/master-black-belt.cfm for more information about curriculum, prerequisites, and schedule

Introduction to Replenishment Pull

Dr. Lars Maaseidvaag

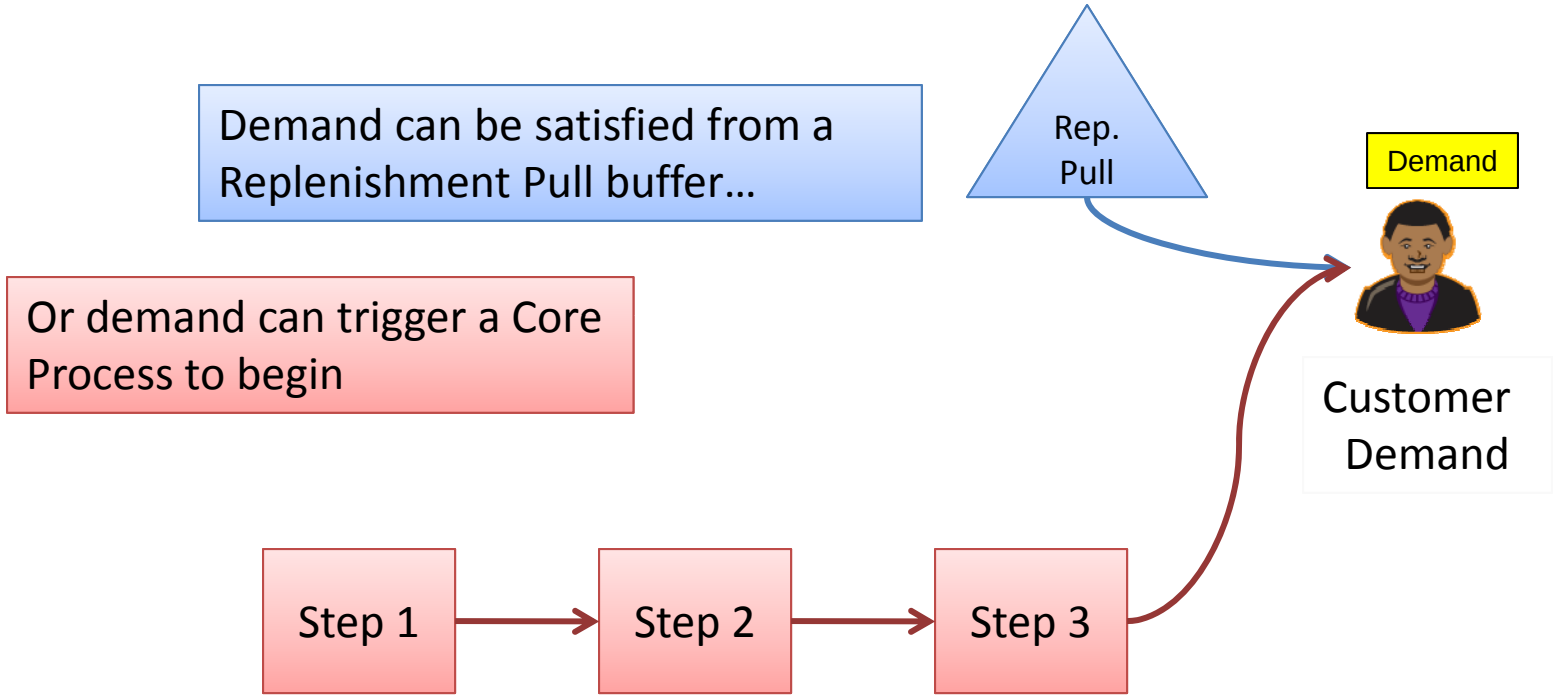
Senior Master Black Belt

- MoreSteam.com MBB Faculty - Integrates the learning of Lean tools and concepts with advanced process modeling methods
- Operations research and management consulting
- Curriculum Director, Accenture/George Group

Why Pull?

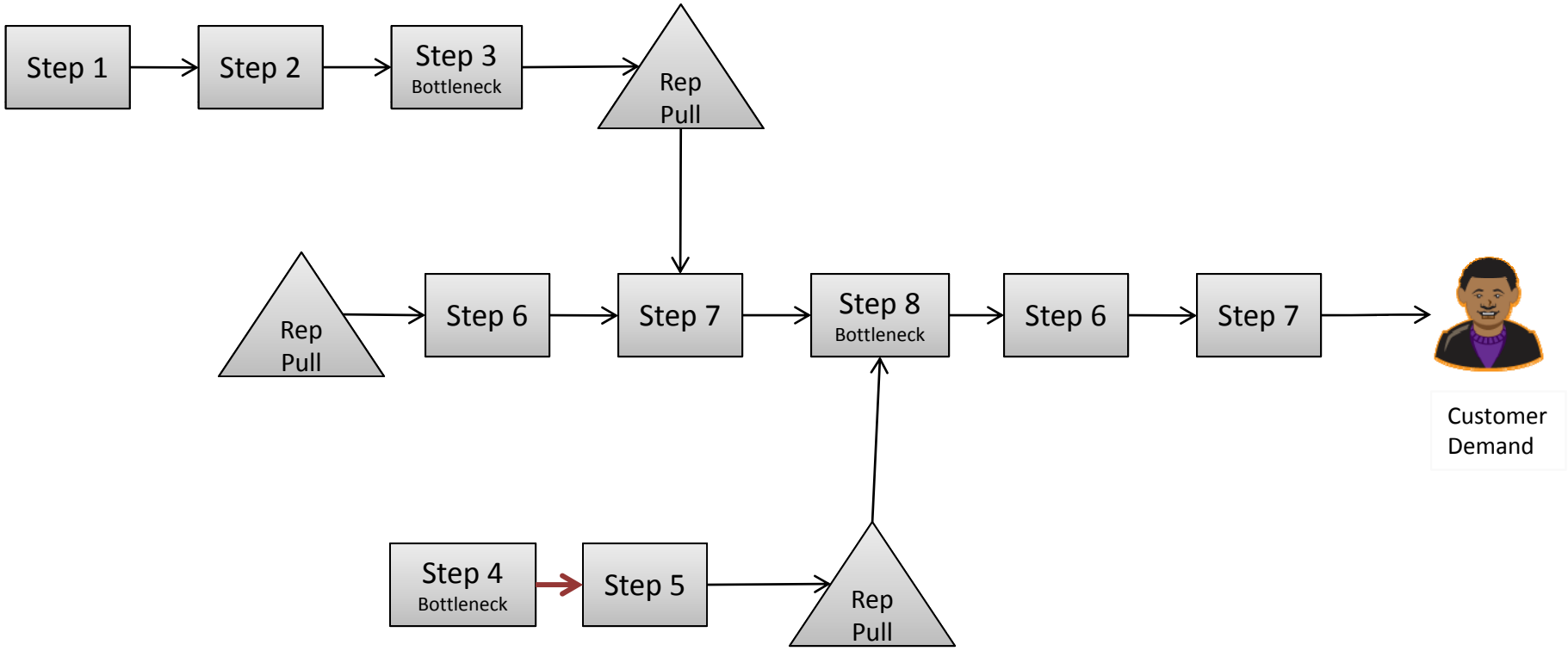
Demand can be satisfied from a Replenishment Pull buffer…

Or demand can trigger a Core Process to begin



Implementation Scope

Replenishment Pull buffers are used to decouple segments of the process from each other, and if needed, decouple the process from the customer completely



Core Process vs. Replenishment Pull

Core Process Pull

- Focused on a Process
- Determines lead time
- Make to order
- Applicable everywhere
- Physical or electronic signals

Replenishment Pull

- Focused on a Part
- Lead time is an input
- Make to stock
- Primarily manufacturing and distribution
- Physical or electronic signals

Key Parameters

Cycle Time: The amount of time between the arrival of replenishment orders

Lead Time: The amount of time a replenishment order takes to arrive

Demand Rate: The mean and standard deviation of demand

Sizing Calculations

Replenishment Pull **SYSTEM**

Working Stock – this is the **on-hand** inventory which cycles up and down

WS = mean demand X cycle time

Safety Stock – this is the **on-hand** inventory which protects against variation

SS = service level X SQRT(leadtime) X std.dev. of demand

Replenishment Stock – this is the **on-order** inventory which refills our stock

RS = mean demand X lead time

Replenishment Pull Operation

Maximum Inventory in the System is: WS + SS + RS

Trigger point for reorder is: SS + RS

Trigger Rule: if On-Hand + On-Order is less than or equal to Trigger Point
then place an order to return the system to Maximum Inventory

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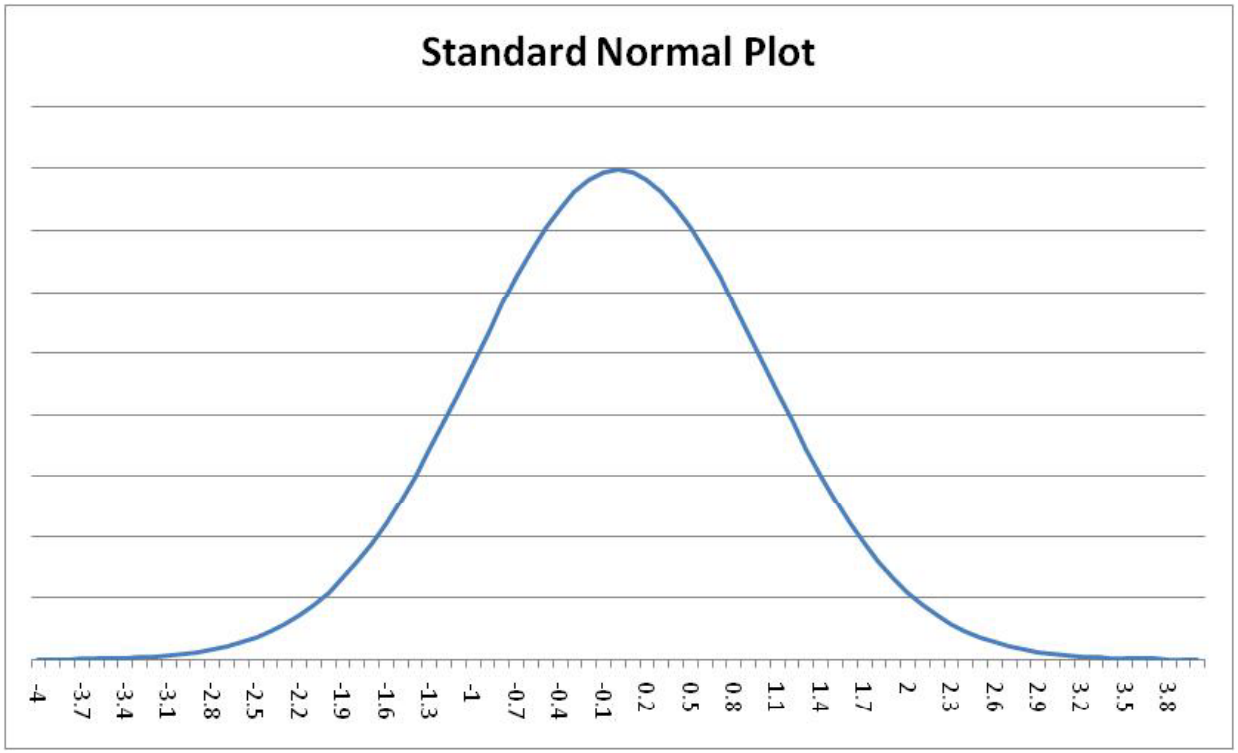
Example: Cycle time = 5 days, Lead time = 10 days, Demand = 2 / day, SS = 2 pieces

A Brief Look at Safety Stock

Safety Stock = service level X SQRT(lead time) X std.dev. of demand



Assuming Normal variation:

SL = 2 yields 97.7%
SL = 3 yields 99.87%

Tools

Spreadsheet modeling tool

Process Playground discrete event simulator

Replenishment Pull Summary

- Is a key component of a Lean transformation
- Is used to decouple processes from demand when synchronization is difficult or impractical

Thank you for joining us

Resource Links and Contacts

Questions? Comments? We'd love to hear from you.

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Larry Goldman, Vice President Marketing - MoreSteam.com
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Additional Resources:

Archived presentation: http://www.moresteam.com/presentations/webcast-lean-pull-systems.cfm

Core Process Pull Worksheet: http://www.moresteam.com/presentations/download/cpp-worksheet.xls

Master Black Belt Program: http://www.moresteam.com/master-black-belt.cfm

Join Us for Another MBB Webcast

"Could Your Balanced Scorecard Use Some Lean Six Sigma?“

Maurice Klaus, MoreSteam.com
Thursday, November 4, 2010 @ 11:00 AM (EDT)

http://www.moresteam.com/presentations/webcast-balanced-scorecard.cfm

Questions

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