

9-12 JUNE 2019

SAPICS CONFERENCE

Century City Conference

Centre, Cape Town,

South Africa



PROFESSIONAL BODY FOR
**SUPPLY CHAIN
MANAGEMENT**

The Demand Driven Movement

A progress report

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CEO and co founder - Demand Driven Technologies



www.sapics.org

The Leading Event in Africa for Supply Chain Professionals

Agenda

- What is Demand Driven?
- DDMRP Overview
- The Demand Driven Institute and its progress to date
- Adopter Success Stories

What is Demand Driven?



Demand Driven means pacing materials and operations to actual market consumption

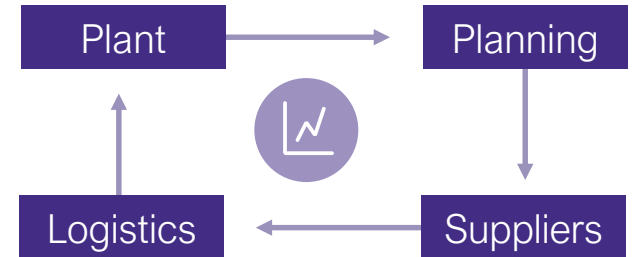
What's Different About DDMRP?

Current MRP systems use Forecast Driven planning





- Planned orders create supply orders in anticipation of need
- Forecast error associated with Planned orders results in inventory misalignments and expedite expenses

DDMRP improves Demand Signal accuracy by shifting to Sales Order Driven planning

- Only sales orders within a short range horizon qualify as demand allocations
- Sales orders give a near perfect demand signal in terms of what will be sold and when it will be sold



DDMRP buffers are designed to achieve constant material availability

-  Over Top of Green represents excess inventory and supply
-  Green Zone sized to support average order size or minimum order quantity
-  Yellow Zone sized to cover usage over lead time
-  Red Zone sized to address item variation

DDMRP determines resupply based on the Net Flow Equation

Generate supply orders based on actual demand

$$\begin{array}{l} \text{Net Flow} \\ \text{Equation} \end{array} \quad \begin{array}{l} \text{On Hand} \\ \text{Open Supply} \\ \text{Sales Orders} \\ \text{Qualified Spikes}^* \end{array} \quad \begin{array}{l} \\ + \\ - \\ - \end{array} \\ \hline = \text{Net Flow}$$

* **Qualified spikes** are sales orders due in the defined near future that are large enough to impact supply



Too High – Look for reduction opportunities



Adequate - No replenishment



Medium - New replenishment order issued

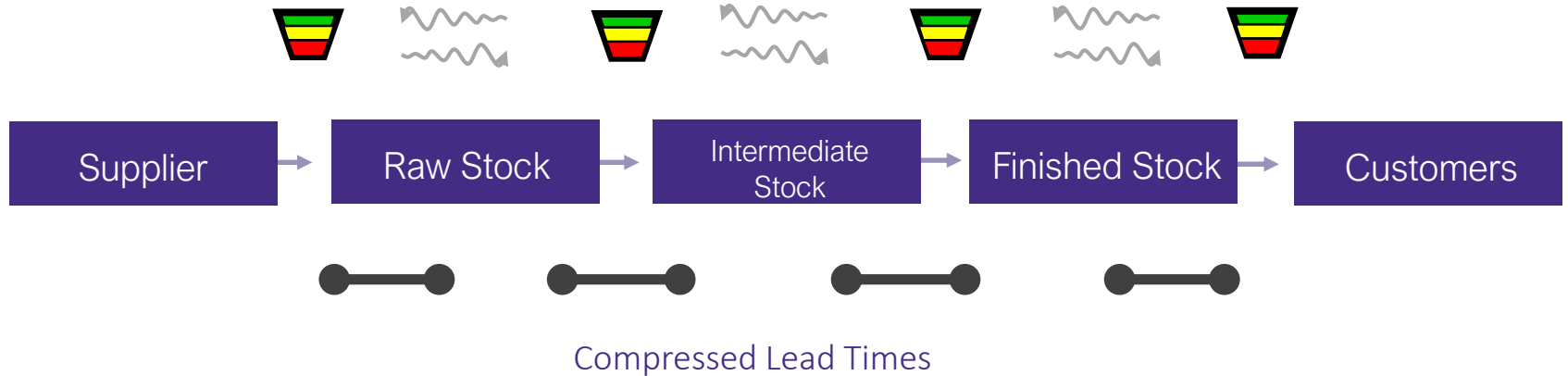


Low or Critically Low - Clear priority for replenishment and possible expedites

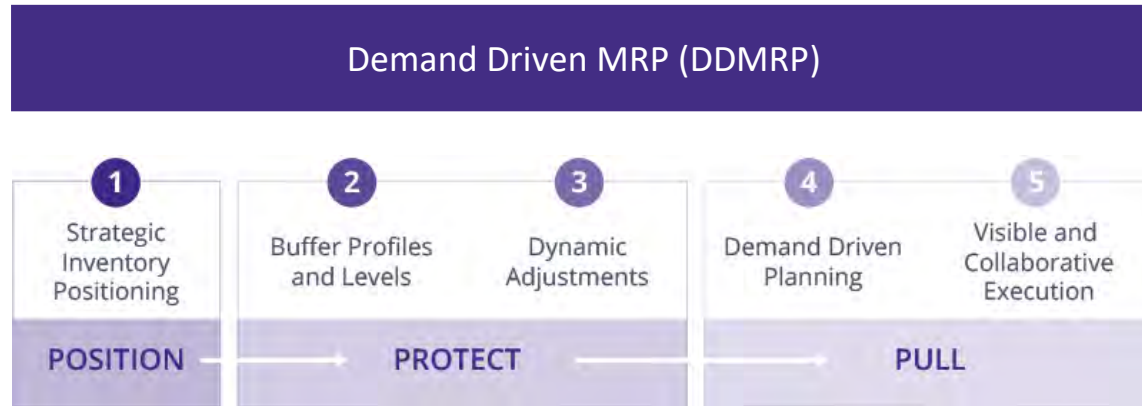
Constant Availability Enables Decoupling Within The Supply Chain

- 1 Decoupling points within the product structure absorb variability and compress lead times
- 2 DDMRP buffers create demand signals to upstream buffers reducing the impact of the bullwhip effect

Dampened Variability



The 5 Components of DDMRP



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The Demand Driven Institute was formed in 2011 by Carol Ptak and Chad Smith



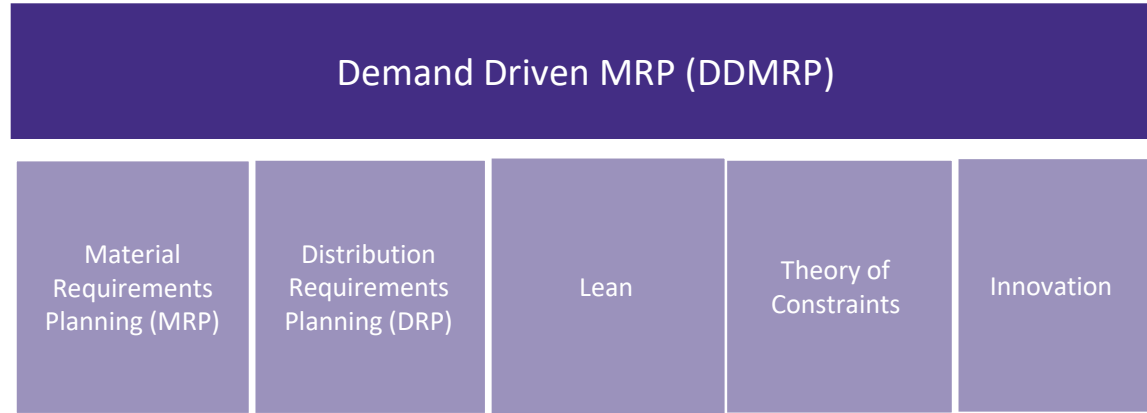
DDI Mission Statement

Advance and proliferate Demand Driven strategies and practices in the global industrial community

REPLENISHMENT+



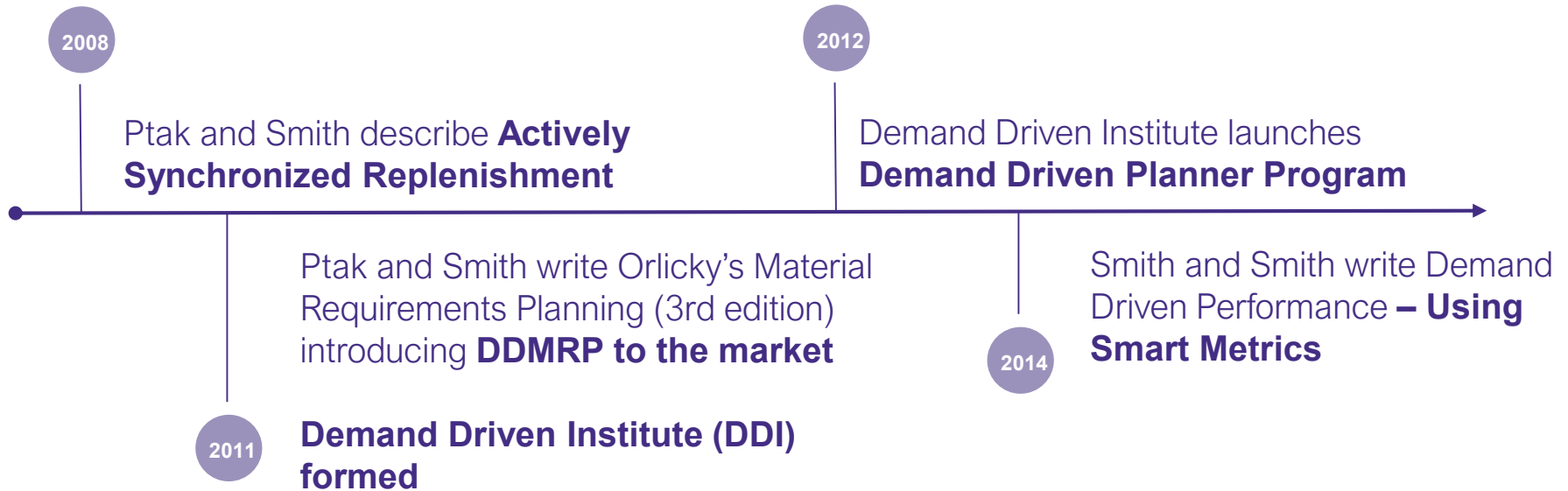
Demand Driven MRP was introduced by Ptak and Smith in 2011



DDMRP is an innovative multi-echelon materials and inventory planning and execution solution for today's market conditions.

It is a fusion of key MRP, Lean and ToC tactics

Timeline of the Demand Driven Movement



Timeline of the Demand Driven Movement

2015

● **DDI Launch Software Compliance program** for DDMRP
● **DDI launch Demand Driven Leader program** for DDOM and DDS&OP

2017

DDI introduces exams and professional endorsements (DDPPTM, DDLPTM)
Ptak and Smith write **Precisely Wrong – Why Conventional Planning Systems Fail and How to Fix It**

2016

Ptak and Smith write **Demand Driven Material Requirements Planning**

Timeline of the Demand Driven Movement

2019

DDI **partners with APICS** in offering DDI courseware through the ASCM instructor network

The first wave of **APICS instructors begin training** to be DDI Instructors

2018

DDI releases **Demand Driven Supply Chain Fundamentals Program**

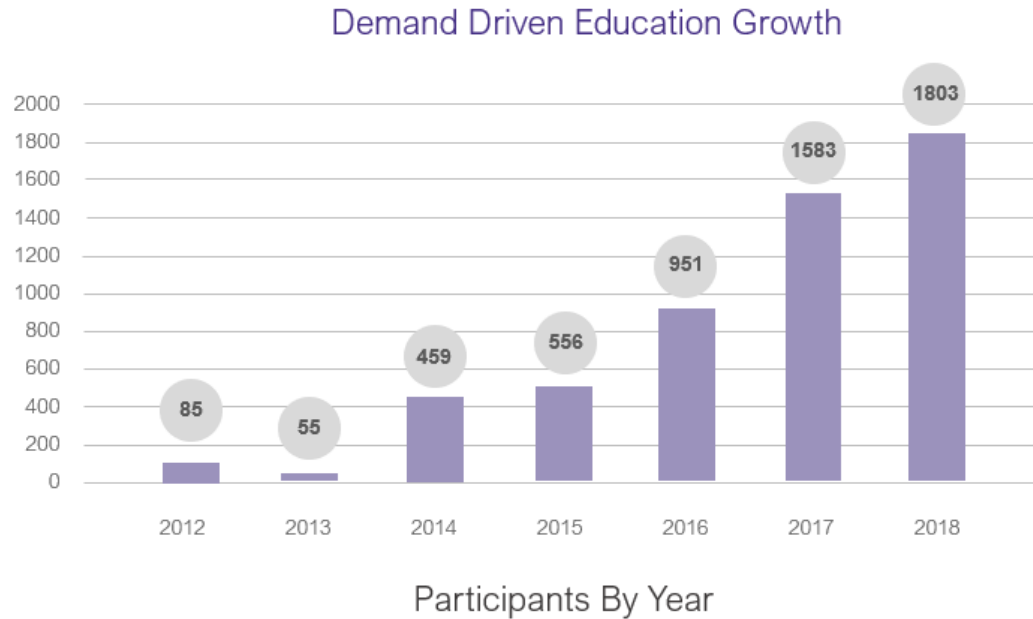
DDI introduces **Demand Driven Fundamentals Professional™** exam and endorsement

Version 2 **of Demand Driven Material Requirements Planning** published

DDI introduces additional **software compliance categories** (DDOM and DDS&OP)

DDI releases **Adaptive Systemic Thinking** program

Substantial Growth in Demand Driven Institute Education



Substantial growth in DDMRP Compliant Solutions

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REPLENISHMENT+ NS
Demand Driven MRP for NetSuite

Orchestr8®

flowsoft
supply chain innovation

B2WISE
Redefining Planning

DDMRP for Dynamics

DDMRP for SYSPRO

DynaSys

The ONE
Driven by Demand

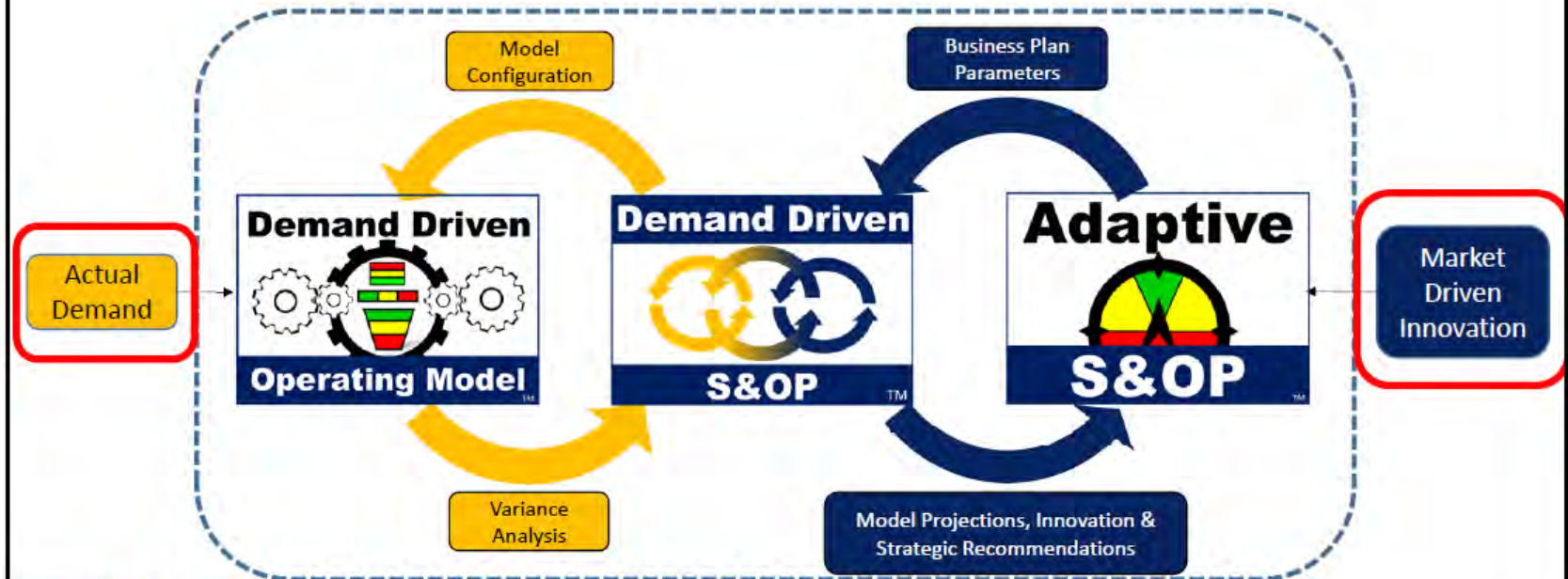
BEVOLTA

DDMRP Compliant Bolt On Solutions

Demand Driven INSTITUTE™

DEMAND DRIVEN TECHNOLOGIES

Demand Driven Adaptive Enterprise Model





Client Success Story

Large Portfolio 4,000 + Products and Services



**Specialized
standardized cell
culture media**



**Full range of cell
separation tools and
reagents**



Functional assays



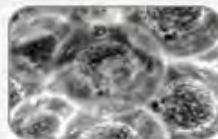
**Training and
proficiency testing**



Instrumentation



Contract services



**Primary cells and
cell lines**



**Support products
(e.g. antibodies,
cytokines, small
molecules)**

Service Level

The global Service Level result for Fiscal Year 2016 was **88.6%**.

A number of factors affected the result:

- Supplier issues
- Production issues
- **Capacity constraints**
- **Lead-time variability**
- **Trouble planning and executing product transitions**

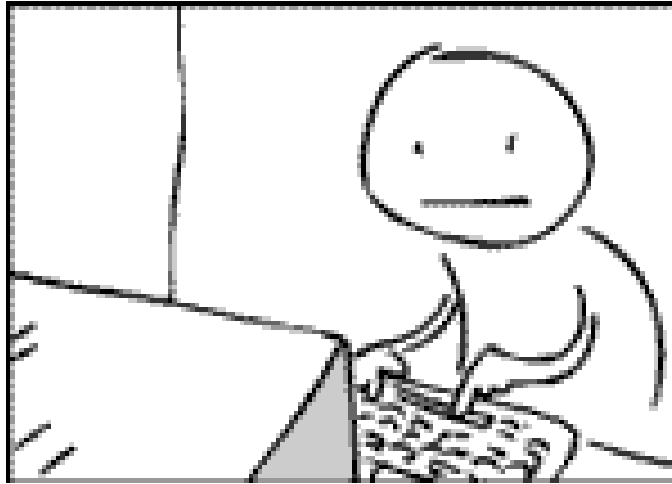
HOW Were We Going to Improve It



Our External Variability Reality

- Global sourcing and demand
- Variable product shelf life (1 day to 10 years)
- Product complexity and/or customization
- Increasing product variety and changes in mix
- Biological variability from batch to batch
- Many single source & long lead time parts
- Short customer tolerance times
- Changing demand variability
- Pressure for leaner inventories

We Needed to Change the Way Looked at Things



Just Working Harder...
Only Gives You a Headache

Stats

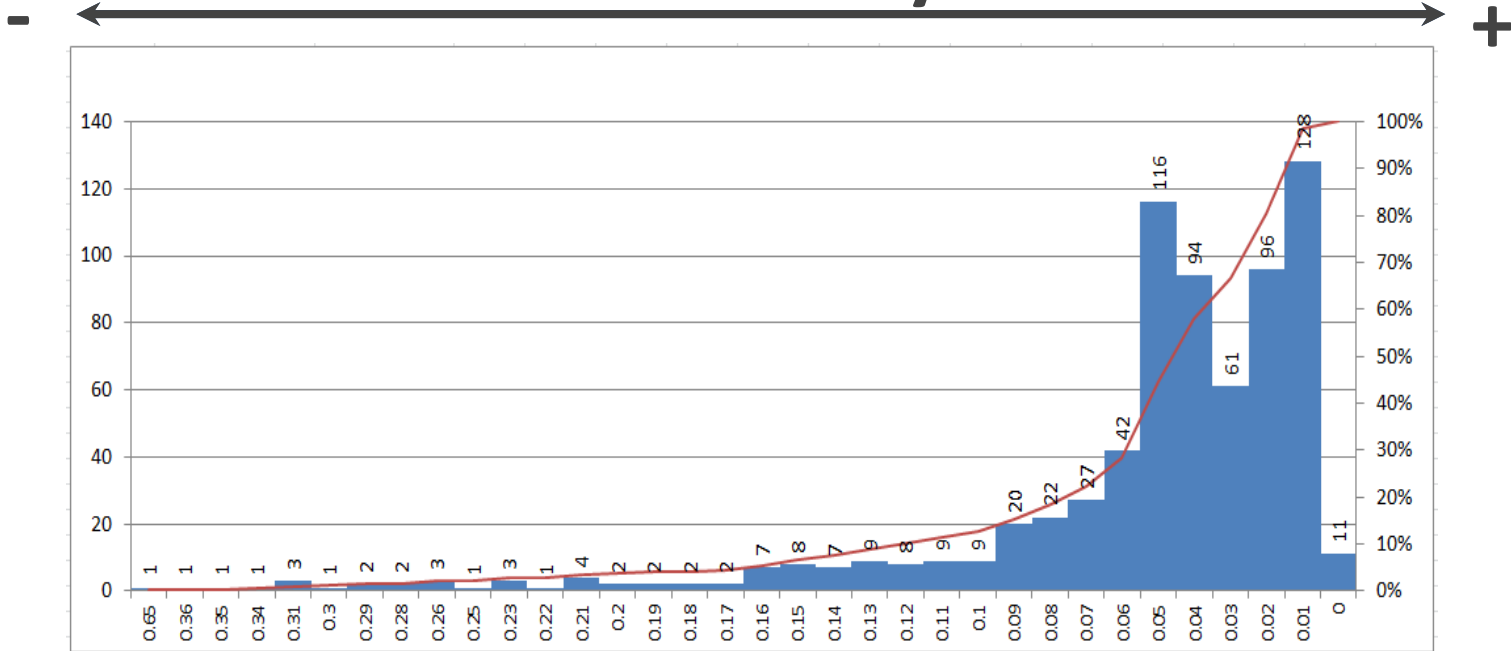
Raw Materials = 2,800 * In Process = 1,400 * Finished Goods = 4,100

3 R+ Instances	Planning Locations	Buffered Part Locations	Non Buffered Part Locations	Supply Order Lines/Year	Demand Order Lines/Year
North America	24	6,100	27,000	75,000	199,000
Europe	4	1,400	11,500	13,000	60,000
Asia Pacific	4	1,100	14,800	9,000	25,000
Total	33	8,600	53,300	97,000	285,000+

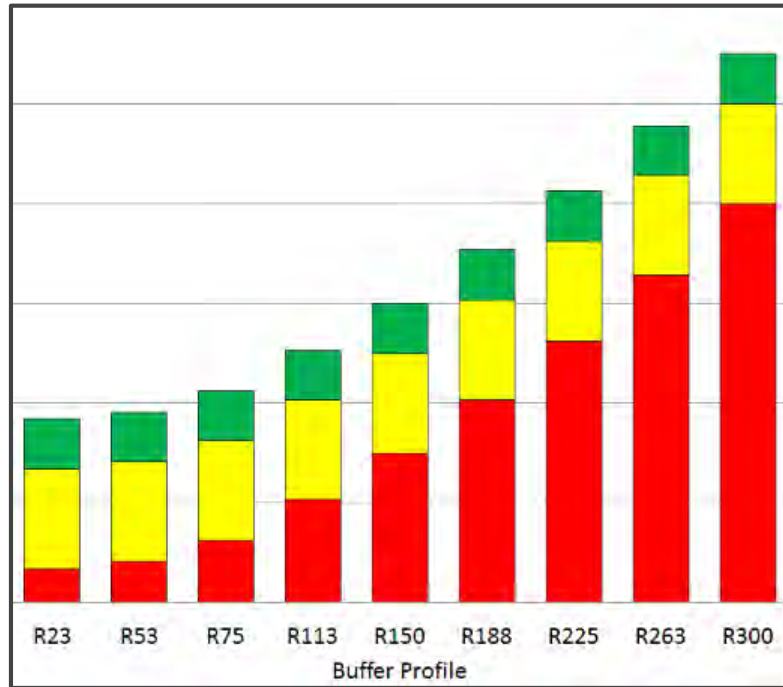
Twice/Day = Over 60,000 Part Location Calculations

Building the appropriate Buffer Profiles

Variability

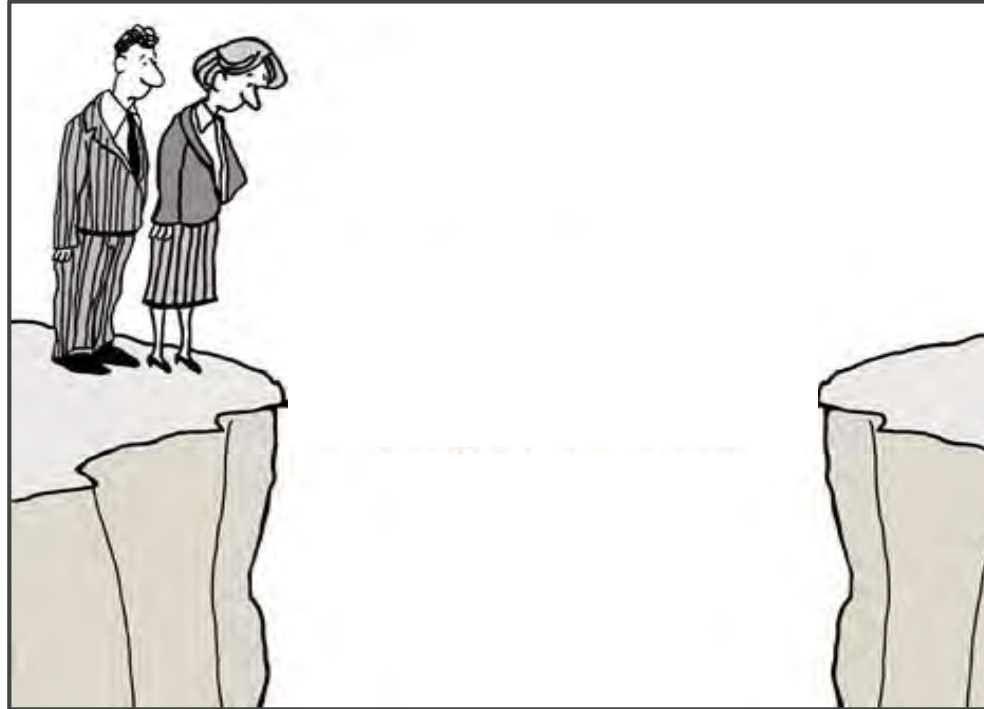


Buffers defined to match variability range

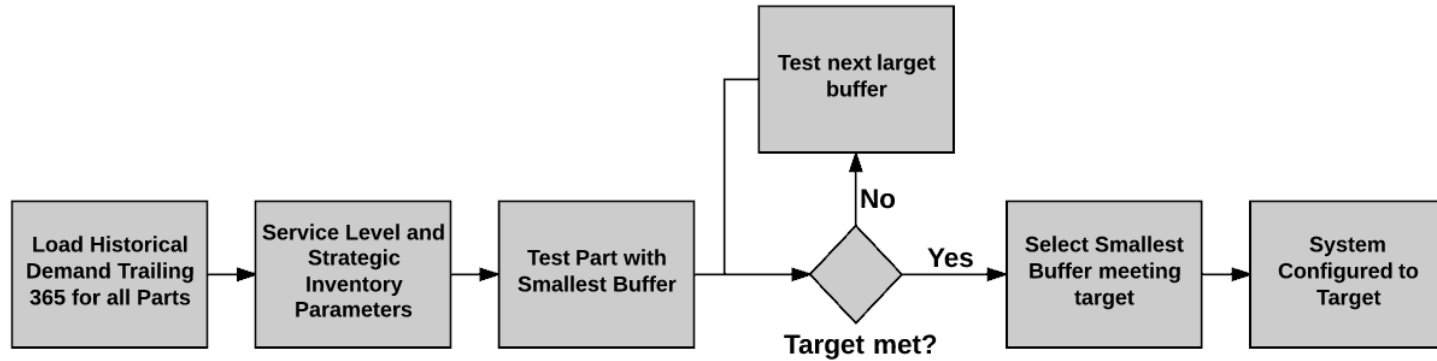


→ Escalating Red Zones handle high variability for the long tails

How can I know that DDMRP will deliver the service levels I need?

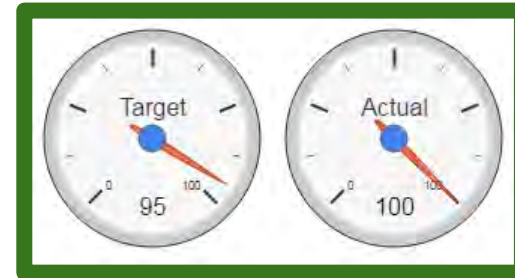
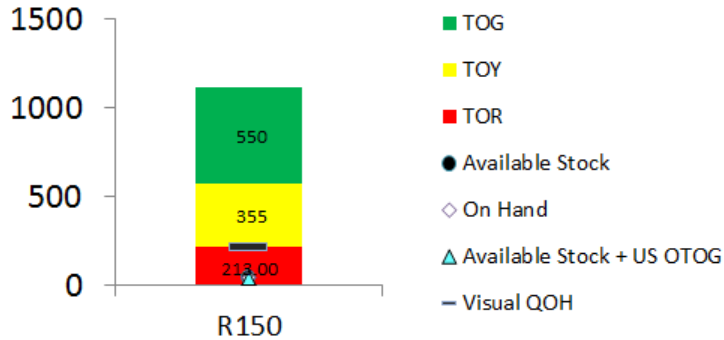
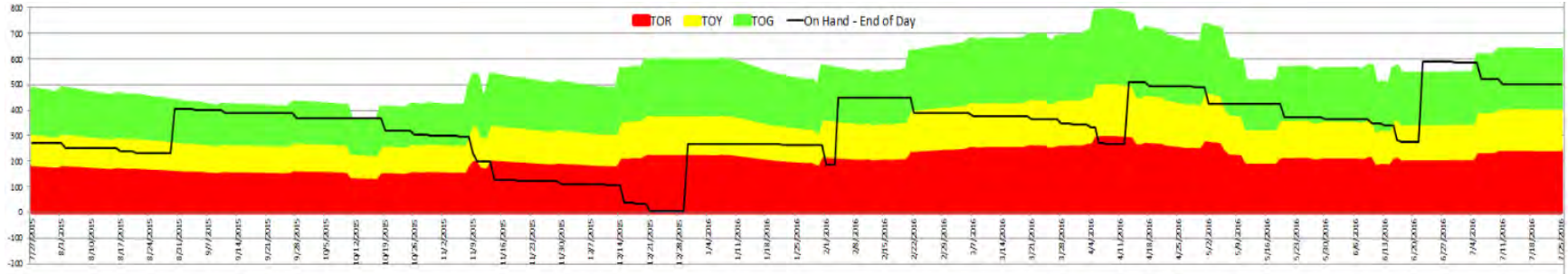


Using Historical Data to Select the appropriate starting Buffer Profile

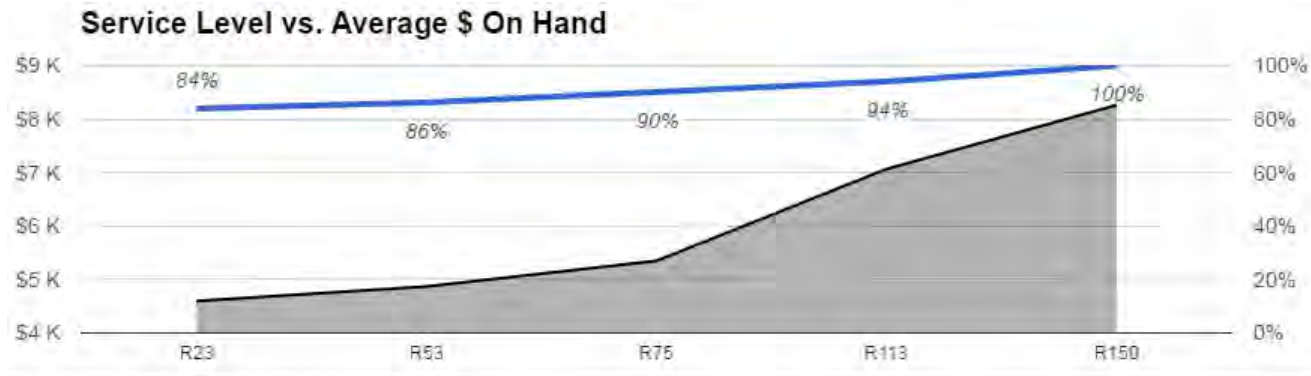


Historical simulation example

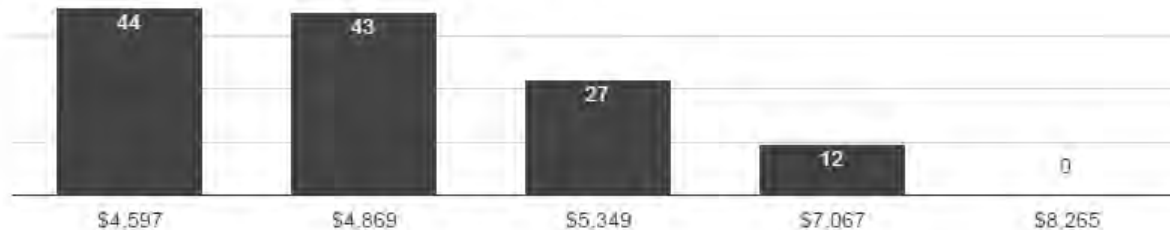
Demand pattern analysis optimizes inventory and minimizes risks to service levels



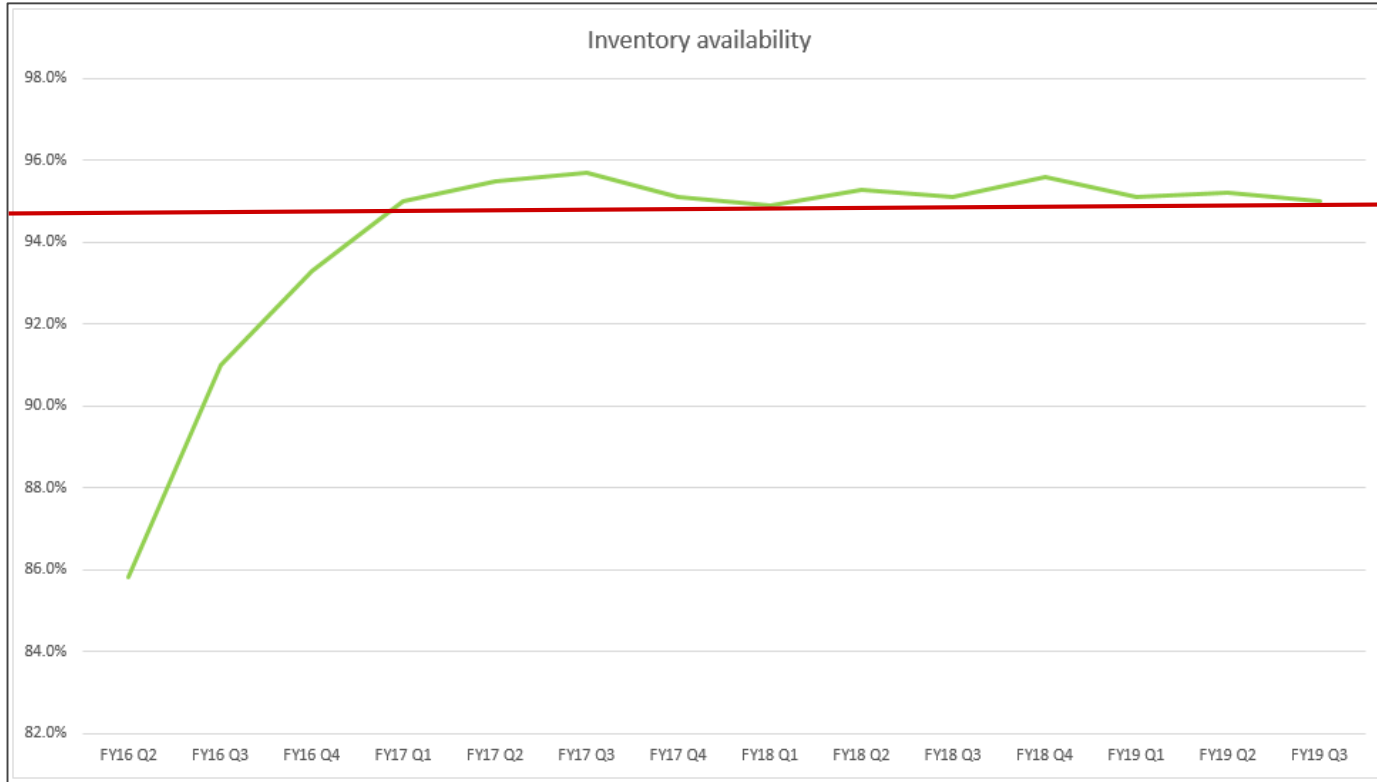
An informed service level investment decision



Days Stocked Out vs. Average \$ On Hand



DDMRP Results



The Demand Driven Operating Model Improvement Cycle

Too much or too little

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Stock Outs Experienced for the Part

On Hand Below Target

On Hand Above Target

Stock Out with Demand and Stock Out Heatmaps

Buffer Review

Run Part in Simulation for last 6 months

Simulation Results do not match actuals

Validate Leadtimes - verify part is delivered on time

DBR+

Simulation Results match actuals - Stocks outs present

Change the buffer

Investigate Further

System Leadtime Does not match Actuals

Update the Lead-Time

Buffer Failure

Run Simulation to Service Level Target & Update Buffer

System Leadtime matches actuals

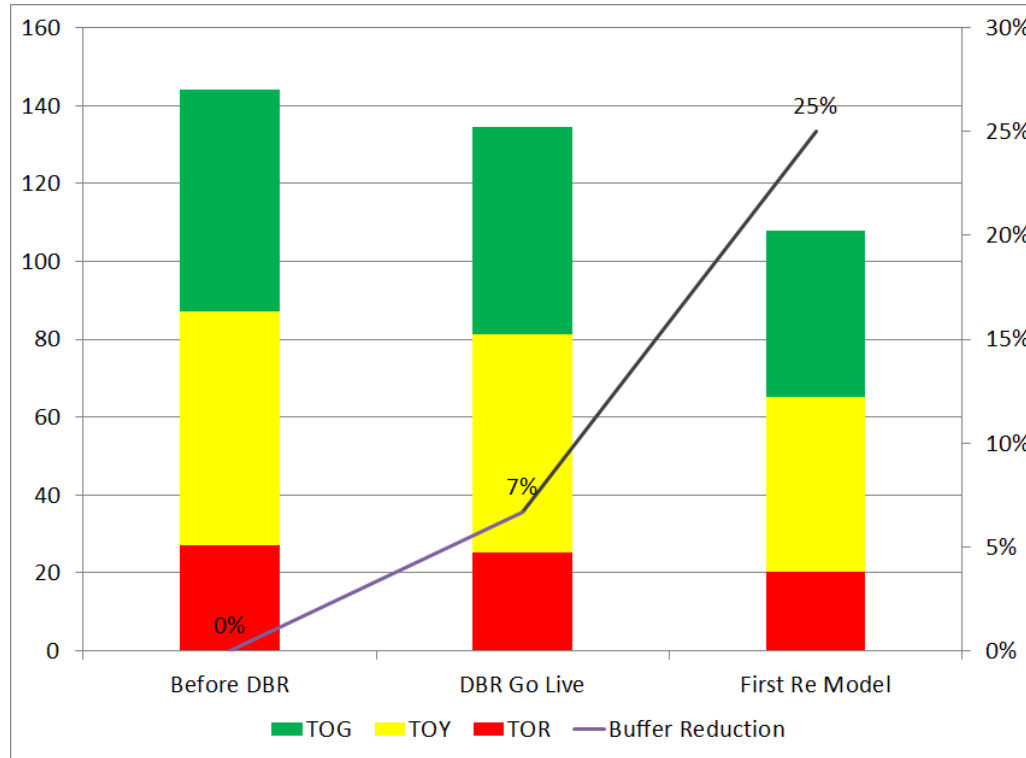
Team Investigation, validate simulation and leadtime data

Update Leadtime

Run Simulation to Service Level Target & Update Buffer



DBR+ Results - Effects on Stock Buffers (60 Day LT Example)



Demand Driven MRP – Lessons Learned

It works! – Consistent results proven across a wide range of industry segments

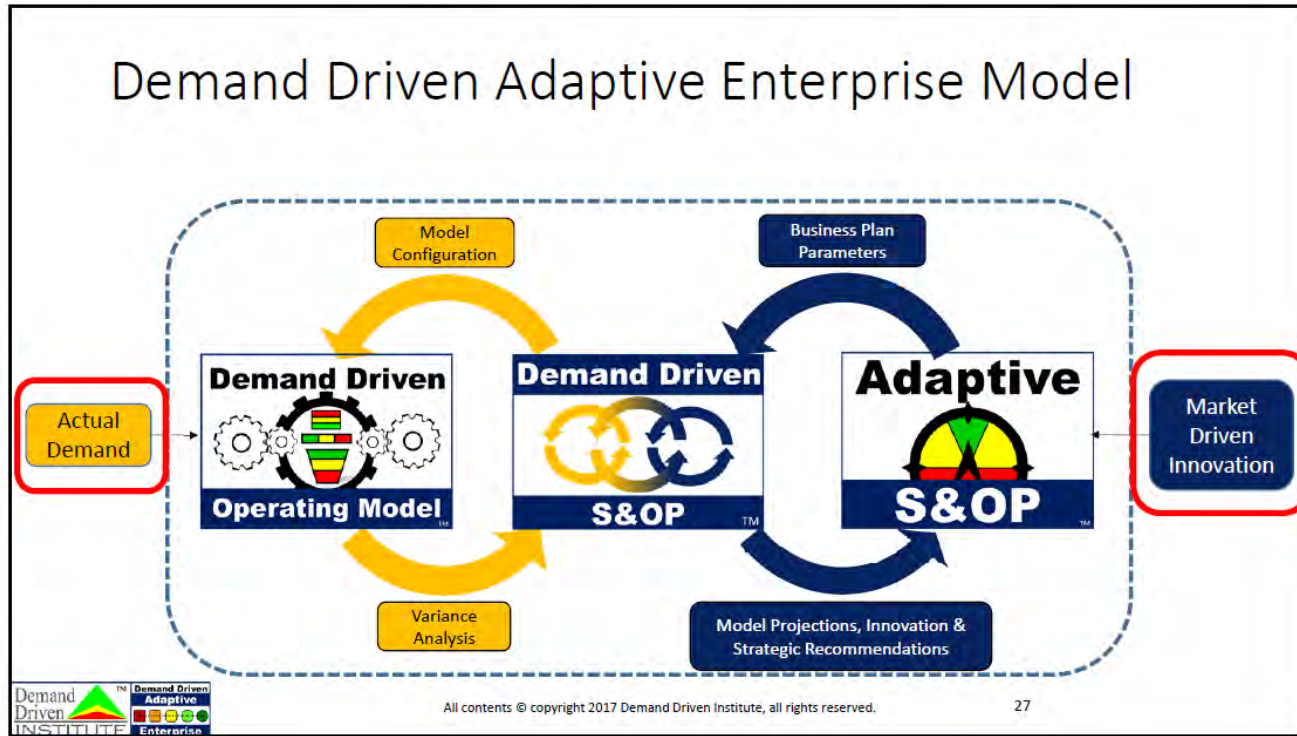
It's easier to use – clients report a substantially higher reliance on the system

Improves ability to focus on true priorities

It's all about strategic buffer positioning!

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Where DD is going - The Demand Driven Adaptive Enterprise Model



Demand Driven – Summary

The Demand Driven Methods have expanded to cover the key pillars of Materials management, Production planning and scheduling and Sales and Operations Planning

Clients are achieving tangible and sustainable results through the application of Demand Driven tactics and technology

The Demand Driven Movement has become 'open source' as a rapidly growing community of advisors and adopters contribute to the body of knowledge

DD is here to stay!



DEMAND DRIVEN
TECHNOLOGIES

Unlocking Supply Chain
Performance