



An Introduction to Demand Driven S&OP

Carol Ptak



Chad Smith



All contents © copyright 2020 Demand Driven Institute, all rights reserved.

1

Professional Development Reminder

1 CEU per
webinar



1 Professional Development Point!

Each attendee gets a certificate of participation.



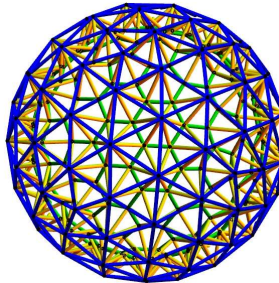
All contents © copyright 2020 Demand Driven Institute, all rights reserved.

2

2

What is VUCA

- Volatile
- Uncertain
- Complex
- Ambiguous



All contents © copyright 2020 Demand Driven Institute, all rights reserved.

3

3

VUCA is the “New Normal” for Supply Chain

Supply Chain Characteristics	1965	Today
Supply Chain Complexity	Low	High
Product Life Cycles	Long	Short
Customer Tolerance Times	Long	Short
Product Complexity	Low	High
Product Customization	Low	High
Product Variety	Low	High
Long Lead Time Parts	Few	Many
Forecast Accuracy	High	Low
Pressure for Leaner Inventories	Low	High
Transactional Friction	High	Low



All contents © copyright 2020 Demand Driven Institute, all rights reserved.

4



4

Topple Rates Increased 6X

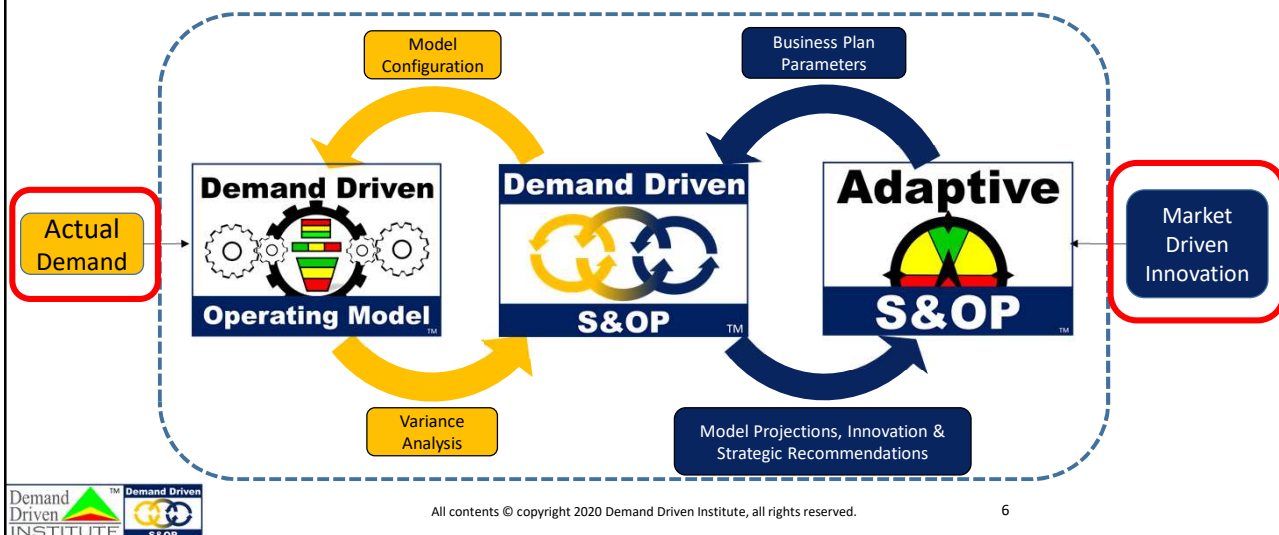
"We investigated the longevity of more than 30,000 public firms in the United States over a 50-year span. The results are stark: Businesses are disappearing faster than ever before. Public companies have a one in three chance of being delisted in the next five years, whether because of bankruptcy, liquidation, M&A, or other causes. That's six times the delisting rate of companies 40 years ago. And the rise in mortality applies regardless of size, age, or sector. Neither scale nor experience guards against an early demise.

We believe that companies are dying younger because they are failing to adapt to the growing complexity of their environment. Many misread the environment, select the wrong approach to strategy, or fail to support a viable approach with the right behaviors and capabilities."

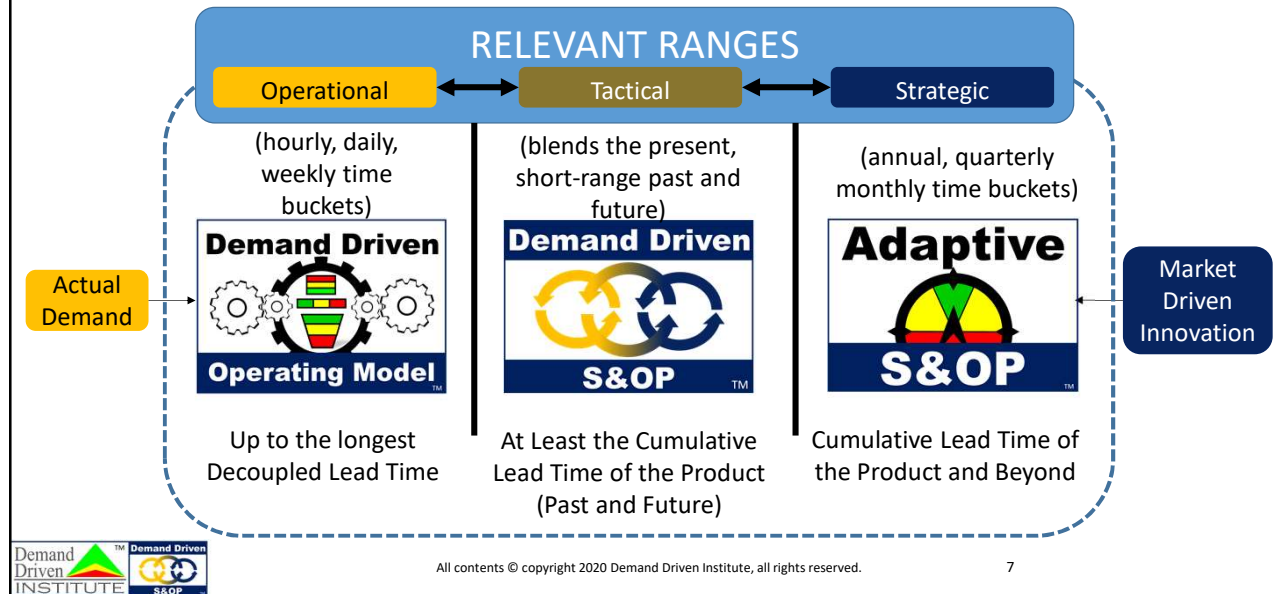
[\(Martin Reeves, Simon Levin, and Daichi Ueda, Harvard Business Review, January-February 2016\)](#)

"We believe that companies are dying younger because they are failing to adapt to the growing complexity of their environment."

Demand Driven Adaptive Enterprise Model

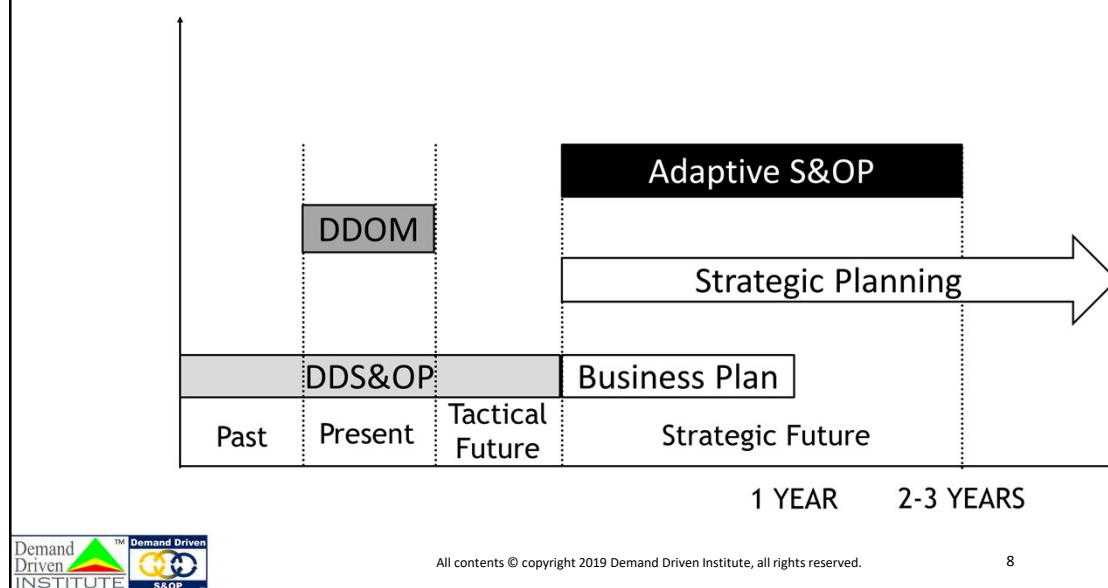


Relevant Ranges in the DDAE Model



7

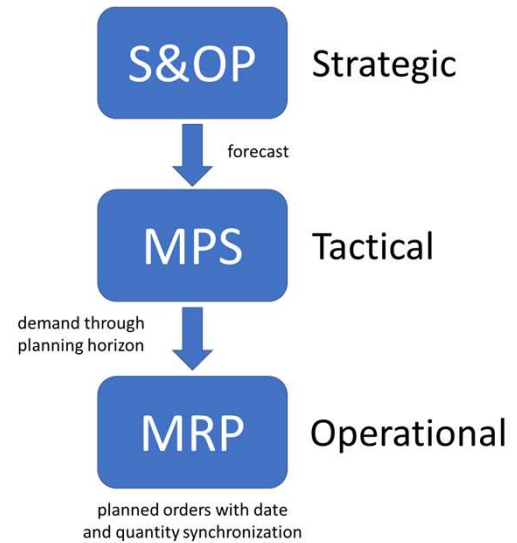
Relevant Ranges in the DDAE Model



8

Convention and Precisely Wrong Numbers

- Effective S&OP has always been about projecting ranges
- Convention, however, forces the use of a single number as the MPS input (the connection to any range is lost)
- This single wrong number propagates down through MRP
- When the number changes everything changes (even if that number was in the original forecasted S&OP range)



DDMRP Basic Training. All material and content © copyright 2020 Demand Driven Institute. All rights reserved.

9

The One-Way Everchanging Street



New MRP Runs

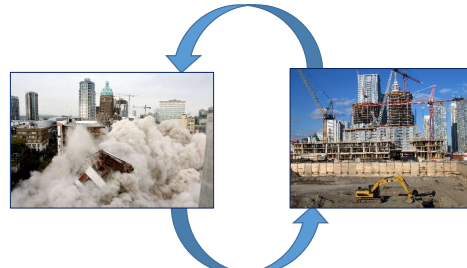
MRP run results in massive cascading schedule changes as date and quantity changes at higher levels effect all connected lower level components.



System Nervousness

Monthly Planning Update

Monthly planning updates create massive shifts at the beginning of every month.



Tactical Demolition and Reconstruction



DDMRP Basic Training. All material and content © copyright 2020 Demand Driven Institute. All rights reserved.

10

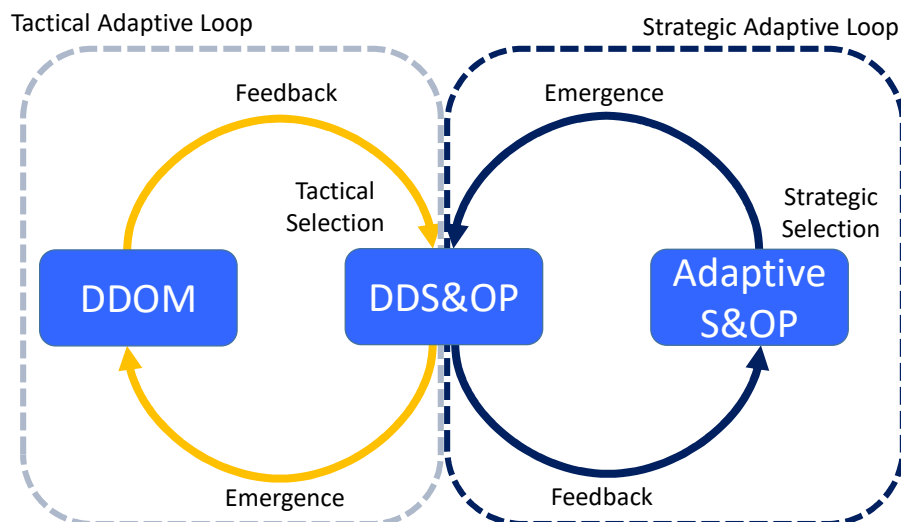
DDS&OP Performs Tactical Reconciliation

- The assumptions and information between relevant ranges differ
- There is a need to reconcile these assumptions in a constant **bi-directional and iterative** fashion in order to drive adaptation
- Strategy must be influenced by operational capability and performance as well as how the model might perform under predicted conditions.
- Operational capability must be influenced by predicted conditions and/or strategic expectations in future time periods.



11

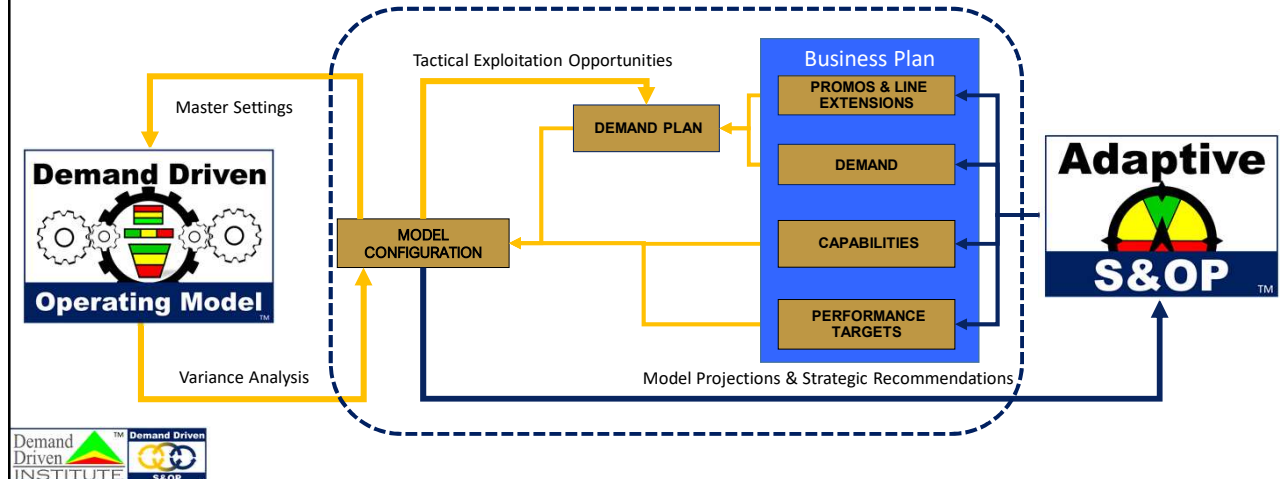
Tactical Reconciliation Helps Drives Adaptation



12

The DDS&OP Schema

DDS&OP is a bi-directional tactical reconciliation hub in a Demand Driven Adaptive Enterprise (DDAE) Model between the strategic and operational relevant ranges of decision making. DDS&OP sets key parameters of a Demand Driven Operating Model (DDOM) based on the output of the Adaptive S&OP process. DDS&OP also projects the DDOM performance based on the strategic information and requirements and various DDOM parameter settings. Additionally, DDS&OP uses variance analysis based on past DDOM performance against critical metrics (reliability, stability and velocity) to adapt the key parameters of the DDOM and/or recommend strategic changes to the business.



13

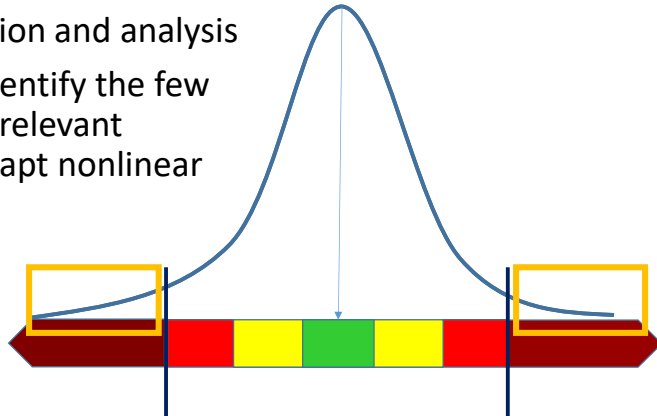
The Six Elements of DDS&OP

1. Tactical Review (Demand Driven Variance Analysis)
2. Tactical Projection (Projecting model performance within the tactical range)
3. Tactical Configuration/Reconciliation (shaping the model to the evolving environment and strategy)
4. Tactical Exploitation (short range supplements to flow when necessary)
5. Strategic Recommendation (ideas for better model performance needing senior-level approval)
6. Strategic Projection (projecting model performance in the strategic relevant range)

14

Tactical Review (Demand Driven Variance Analysis)

- Emphasizes outlier identification and analysis
- The tails of the distribution identify the few critical points that define the relevant information to predict and adapt nonlinear complex systems.

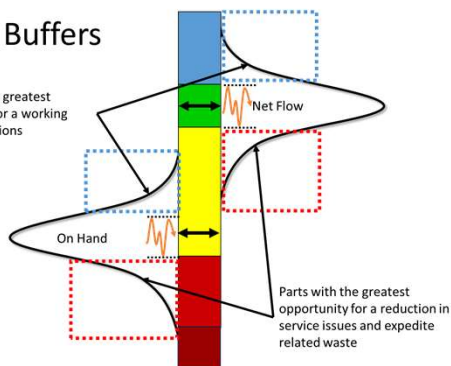


15

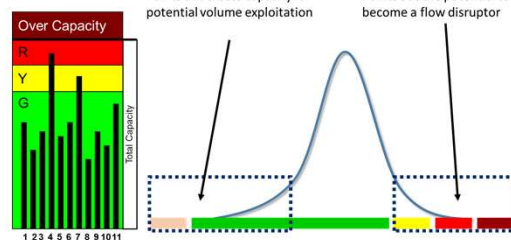
Tactical Review

Stock Buffers

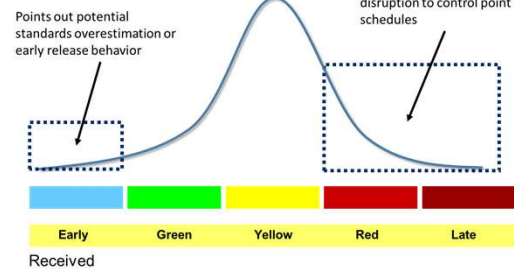
Parts with the greatest opportunity for a working capital reductions



Capacity Buffers



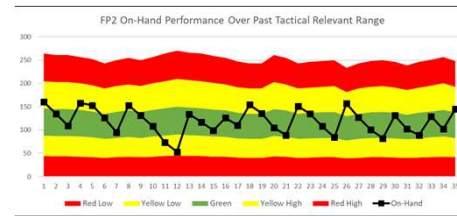
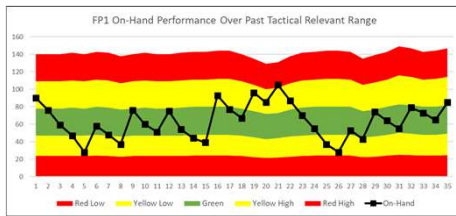
Time Buffers



16

Tactical Review – Buffer Run Charts

An analytical view in DDMRP displaying buffer positions over time relative to buffer zone levels. The buffer run chart can be displayed for both planning (net flow) and execution views (on-hand). The buffer run chart can also depict the changing sizes of buffer zones over time.



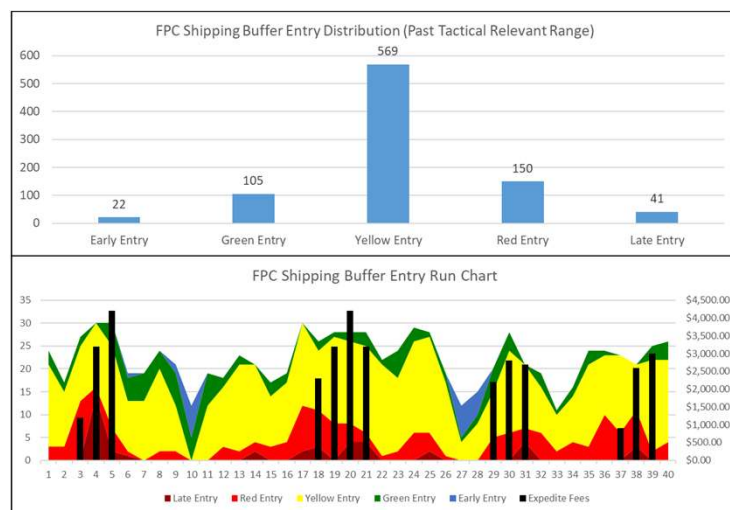
All contents © copyright 2020 Demand Driven Institute, all rights reserved.

17

17

Tactical Review – Buffer Entry Analysis

- A sample 40-day (CLT) past horizon
- Buffer entry distribution
- Buffer entry run chart with expedite expenses by day



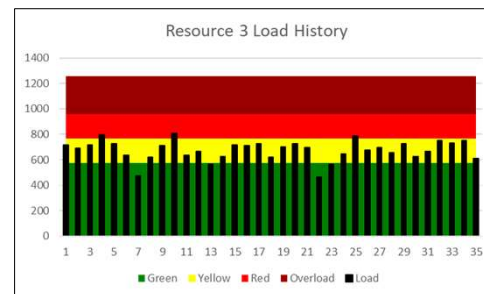
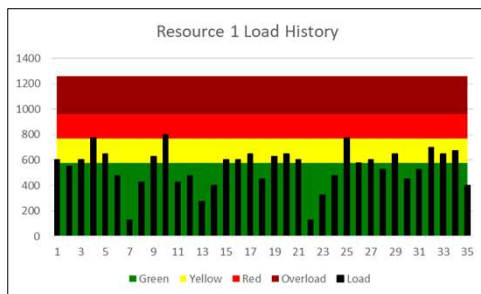
All contents © copyright 2020 Demand Driven Institute, all rights reserved.

18

18

Tactical Review – Capacity Buffer Analysis

- A sample 35-day (CLT) past horizon
- Which resource has less of a capacity buffer?



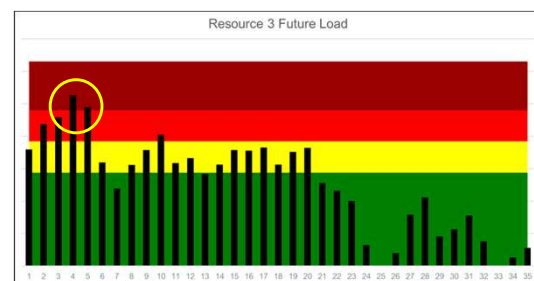
All contents © copyright 2020 Demand Driven Institute, all rights reserved.

19

19

Tactical Projection

- Projections of one CLT in the future to identify threats or opportunities with capability
- Intervention may be required for known and/or planned events within the tactical horizon such as:
 - Promotions
 - A planned shutdown
 - A known impending supply disruption
 - The cut-over to a new manufacturing process
 - The introduction of a new product
 - Severe weather



What is a realistic lead time that should be quoted based on this chart?



All contents © copyright 2020 Demand Driven Institute, all rights reserved.

20

20

Tactical Configuration/Reconciliation

- Based on Tactical Review, Tactical Projection and know strategic initiatives
- DDS&OP reconfigures the Demand Driven Operating Model through the “Master Settings”

DDOM Master Settings	
DDMRP	Demand Driven Scheduling
Stock Buffer Profiles - The groupings and settings for replenished parts (part type, variability and lead time).	Time Buffer Profiles - The time buffer groupings and settings for scheduled parts.
Planned Adjustment Factors - The adjustment factors to be applied to buffered items or groups of buffered items.	Time Buffer Profile Assignment - The assignment of scheduled parts to time buffer groupings.
Part ADU - The average rate of use for each replenished parts.	Resource Assignment - The assignment of a resource to a resource type (control point, resource, buffered resource).
Part Profile Assignment - The assignment of each replenished part to particular buffer profile.	Resource Properties - Applicable scheduling properties for each resource (capacity, calendar, shifts, operators, etc.).
	Part Properties - Applicable scheduling properties for each part (routings and run rates).



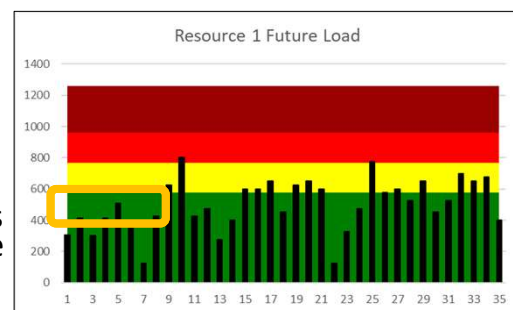
All contents © copyright 2020 Demand Driven Institute, all rights reserved.

21

21

Tactical Exploitation

- DDS&OP can bring short range supplements to flow when/if capacity is available as well as look for ways to minimize cash outlays while maintaining and/or increasing flow.
- Tactical exploitation requires visibility to DDOM capability in the short term in order to be opportunistic in nature within the relevant time frame.
- The DDS&OP team has the proverbial “keys to the car” for the tactical range; they drive it and maintain it
- They are responsible for managing variable costs within the tactical range (Fixed costs are fixed).



All contents © copyright 2020 Demand Driven Institute, all rights reserved.

22

22

Strategic Recommendation

- Ideas for better DDOM performance needing senior-level approval to the management team.
- Examples: Recommendations for a third shift, a new piece of equipment, or the reengineering of a specific product to be manufactured differently for better flow.
- These recommendations are beyond the DDS&OP team's authority but, the DDS&OP team typically has the best ability to make a justifiable case for change and relate the options to both tactical and strategic metric objectives.



All contents © copyright 2020 Demand Driven Institute, all rights reserved.

23

23

Strategic Projection



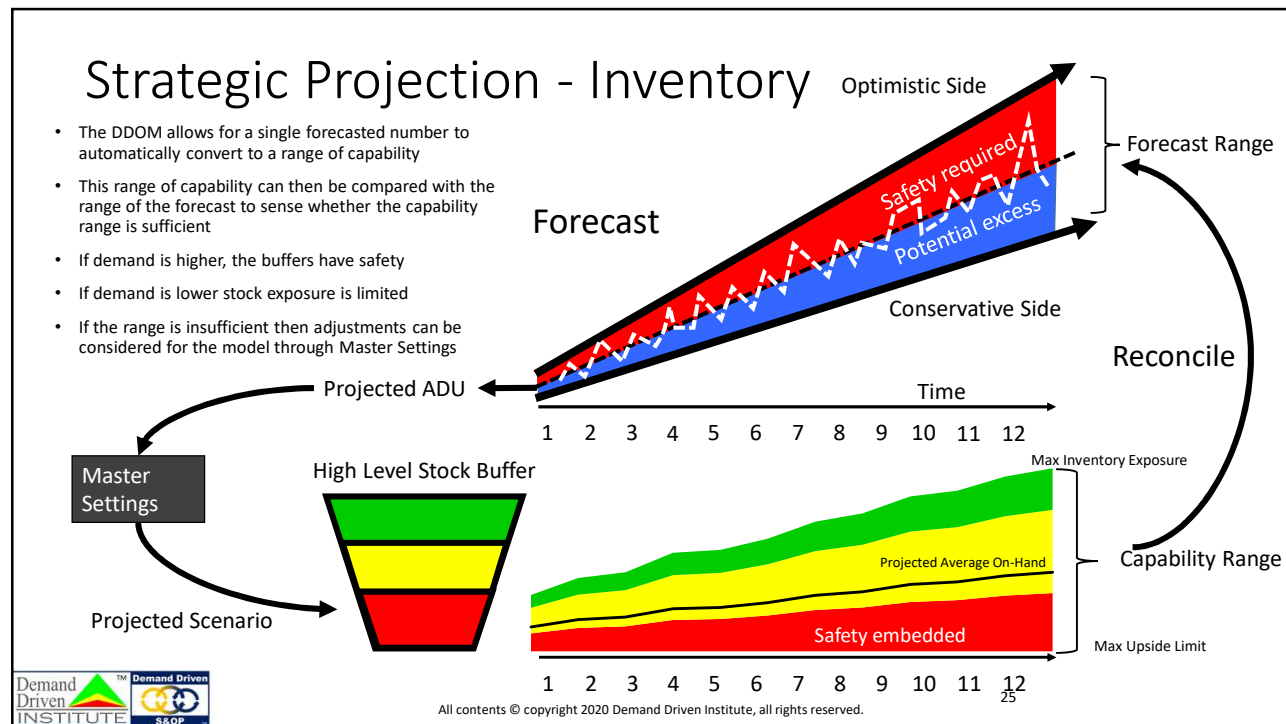
- DDS&OP provides an operational reality check for the Adaptive S&OP (strategic relevant range) Integrated Reconciliation process.
- DDS&OP projects capability ranges against long-range forecasting activity.



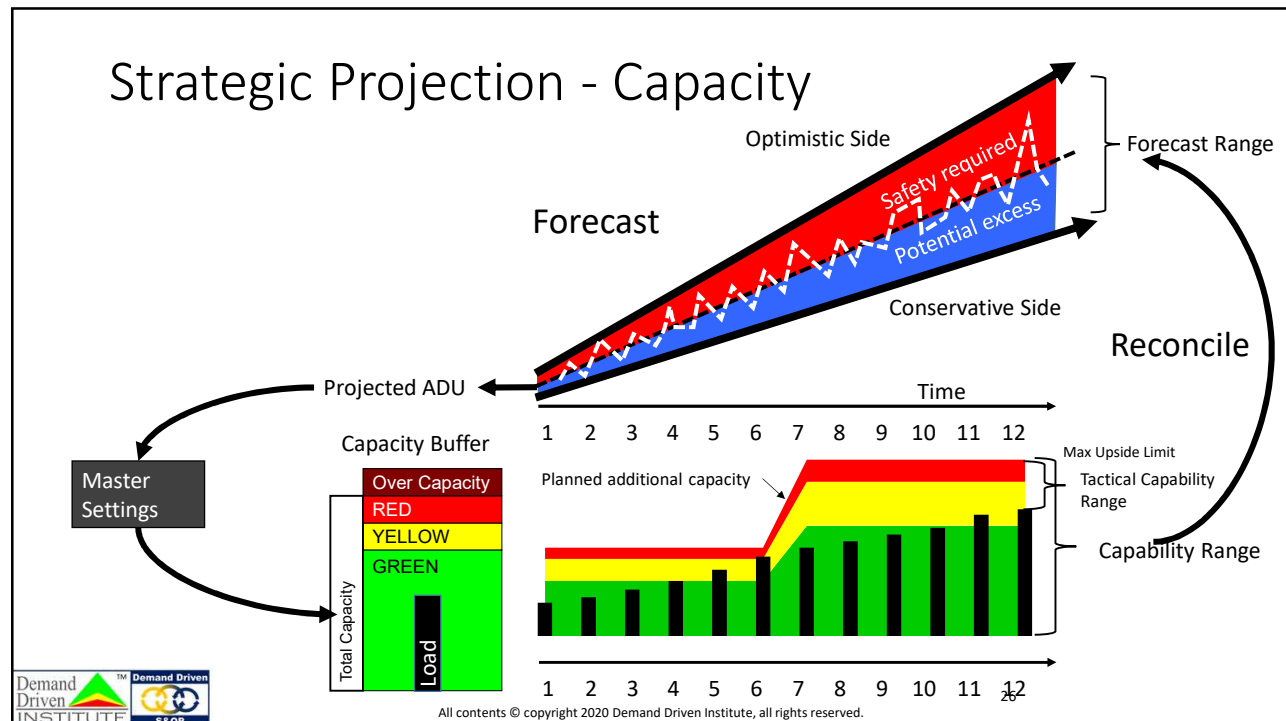
All contents © copyright 2020 Demand Driven Institute, all rights reserved.

24

24



25



26

The DDS&OP Team

- Relative to the size of the Organization
- Strong Operations Management and Demand Driven understanding (should be DDLP™ certified)
- In-depth knowledge of company's DDOM (both design and capability)
- Good communication skills are helpful
- Representation/Inclusion of Finance, Sales, Engineering is helpful
- At least one DDS&OP member should also be a member of the Integrated Reconciliation process or team

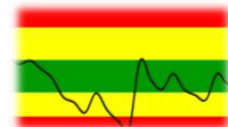


27

Measuring DDS&OP Success – Tactical Metrics

Tactical metrics emphasize DDOM improvement, waste reduction, expense control, and cash contribution opportunities in order to determine relevant information and materials in the tactical relevant range. There are three primary metric for a DDS&OP team

Tactical Range	Metric Objectives	The Message Behind the Objective
	Tactical Improvement & Waste Reduction (Opportunity \$)	Identify and prioritize obstacles/conflicts to flow
	Tactical Expense Control	Spend minimization to meet the requirements of the market and the DDOM design
	Tactical Contribution	Maximize system return according to relevant model factors and tactical opportunities (volume and rate)



28

Key Takeaways

- At least a partial Demand Driven Operating Model must exist to perform DDS&OP.
- There is no Master Production Schedule! Demand Driven uses Master Settings. The difference is not trivial (planned discrete activity versus planned capability to perform any potential qualified activity).
- Forecasting (deterministic or probabilistic) is often incorporated into DDS&OP activity to perform Tactical and Strategic Projection activities.



All contents © copyright 2020 Demand Driven Institute, all rights reserved.

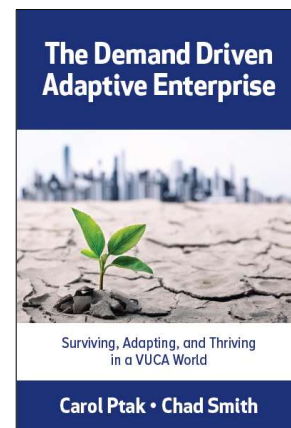
29

29

An Extensive DDS&OP Example

Read an entire chapter on DDS&OP and demonstration of all elements of DDS&OP using a company called SampleCo

Available at Amazon (e-book and hard copy)



All contents © copyright 2020 Demand Driven Institute, all rights reserved.





30

30

Remote Learning Opportunity

NOW ON SALE

INTRODUCING SELF-STUDY BUNDLES

 	<ul style="list-style-type: none"> • Demand Driven Planner (DDP)™ self-study access and courseware • Sample exam and solution key • Two DDPP™ certification exam attempts • Lifetime access to updated videos and courseware 	\$650*	ENG ESP
<small>* DDI Affiliates can provide you discount codes that will provide a further price reduction of \$100 – \$200 USD (depending on your location)</small>			
 	<ul style="list-style-type: none"> • Demand Driven Leader (DDL)™ self-study access and courseware • Sample exam and solution key • Two DDL™ certification exam attempts • Lifetime access to updated videos and courseware 	\$650*	FRA ITA
<small>* DDI Affiliates can provide you discount codes that will provide a further price reduction of \$100 – \$200 USD (depending on your location)</small>			

INDIVIDUAL REMOTE EDUCATION AND TESTING



All contents © copyright 2019 Demand Driven Institute, all rights reserved.

31

31

Thank you!



All contents © copyright 2020 Demand Driven Institute, all rights reserved.

32

32