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MEI "Supply/Demand School Series" E-Learning Program

S&OP Secrets That Only NASA Can Teach Us




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1



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RADIO MEI



GDI Consulting & Training
Making Breakthrough Changes at Breakneck Speed!

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2

S&OP Process Overview... *THREE Functional Elements*

3

■ Predict demands:

- Family
- SKU

■ Rationalize demand

- Share demand
- Revenue plan

■ Identify demand/supply risks:

- Family
- SKU

■ Develop an ending inventory plan that mitigates demand/supply risks

■ Achieve working capital targets



■ Plan production at the highest level:

- Family
- Model
- SKU

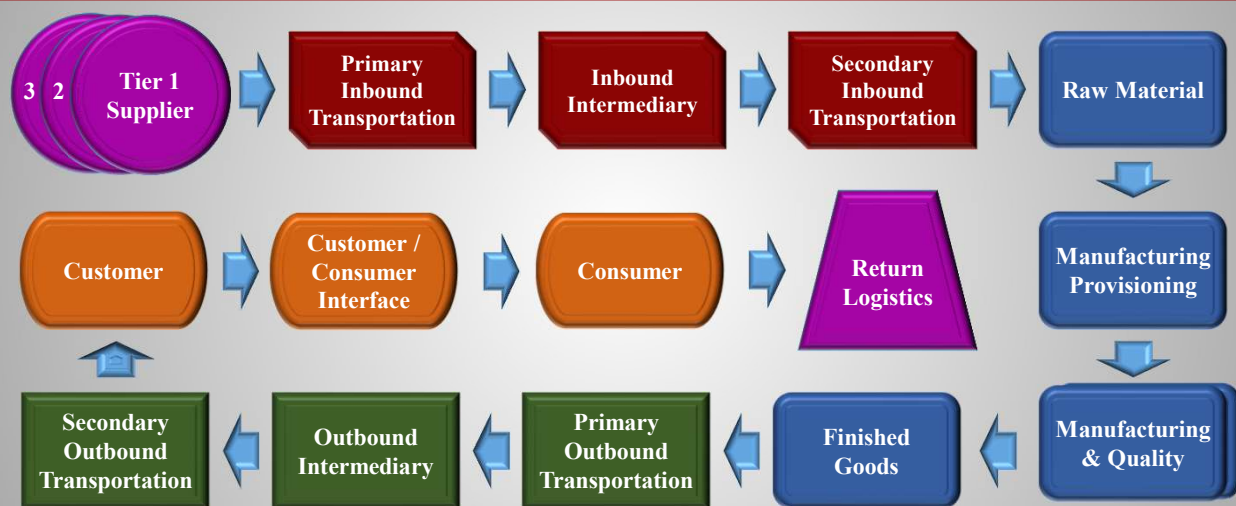
■ Rationalize production plan

- Meet customer & market demands
- Efficient factory
- Utilizing assets & resources
- COGS plan

3

Functional Scope of End-to-End Global Supply Chain Management *15 Major Elements*

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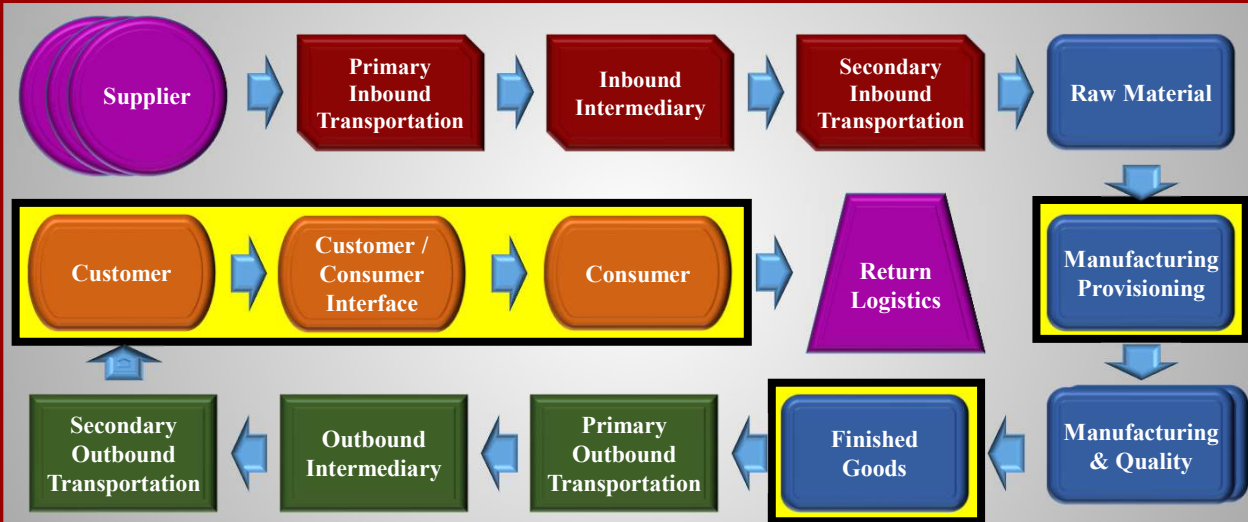


Global Supply Chain Leaders Need To Understand ALL of These Elements!

4

S&OP Is the Great “Enabler” To the Global Supply Chain Ecosystem

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Global Supply Chain Leaders Need To Understand ALL of These Elements!

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S&OP Is Both a Messaging System & a “Triggering” Tool

6



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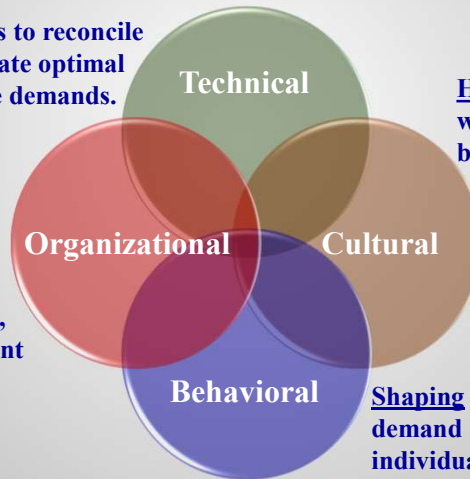
S&OP Is a More Than a Technical Planning System!

7

S&OP is really a manufacturing ecosystem enabler that demands excellence in technical, organizational, cultural & behavioral interfaces to find success in the demand/supply equation.

Data, information & algorithms to reconcile marketplace demands & calculate optimal conversion tactics to meet those demands.

Defining roles, responsibilities, accountabilities & work-content to execute planned demand & supply tactics.



How to drive sustainable execution within the context of enterprise beliefs & values systems.

Shaping individual & team approaches to demand & supply conflicts... relegating individual agendas to shareholder agendas.

7

S&OP Is “*Supposed To Be*” Consistent With the Goals of Customer Service, Factory Management & Capital Efficiency

8

1. Acceptable & Reliable Deliveries To Customers
2. Support Conversion Efficiencies
3. Minimum Inventories:
 - Raw Materials
 - Work in Process
 - Finished Goods

but unfortunately...

8

2020 Study on Manufacturing Enterprise S&OP Effectiveness

9



- Wanted to learn about benefits derived from S&OP...
- Surveyed 3,227 manufacturing companies:
 - ❖ U.S.
 - ❖ Canada
 - ❖ Mexico border towns
- 1,143 CEO's, Presidents or COO's responded
- 722 Heads of S&OP, Demand Planning, Master Planning or Master Production Scheduling responded

9

Partial Study Results

10



84%

Does your company have a Sales & Operations Planning (S&OP) function and/or department?	Yes	No	Don't Know	Total
	16%	62%	22%	100%

67%

Rate the effectiveness of your S&OP function	Very Effective	Effective	Good	Fair	Poor	Don't Know	Total
	8%	3%	11%	52%	15%	11%	100%

81% < 75%

On average, how accurate are your unit forecasts at the FAMILY level?	Between 95% & 100%	Between 90% & 95%	Between 85% & 90%	Between 75% & 85%	Between 65% & 75%	Less Than 65%	Total
	0%	2%	6%	11%	41%	40%	100%

10

Partial Study Results, *continued*

11



87% < 75%

On average, how accurate are your unit forecasts at the SKU level?	Between 95% & 100%	Between 90% & 95%	Between 85% & 90%	Between 75% & 80%	Between 65% & 75%	Less Than 65%	Total
	0%	0%	4%	9%	36%	51%	100%

49% < 85%

What is your company's on-time delivery to customers performance?	Between 95% & 100%	Between 90% & 95%	Between 85% & 90%	Between 75% & 85%	Between 65% & 75%	Less Than 65%	Total
	11%	18%	22%	32%	11%	6%	100%

91%

Relative to your competitive peers, how does your company turn its inventory?	Better	The Same	Worse	Total
	9%	37%	54%	100%

11

Moment of Wisdom (MoW)

12

S&OP is a “*Positive Cultural & Behavioral Enabler*:”

- 1. Enables disparate voices to be heard**
- 2. Enables constructive conflict**
- 3. Enables supply/demand compromise**
- 4. Enables supply & demand balancing solutions**
- 5. Enables planning structure**
- 6. Enables institutional planning discipline**



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12

FOUR Significant Findings That Illuminate Why S&OP Success Has Been Elusive

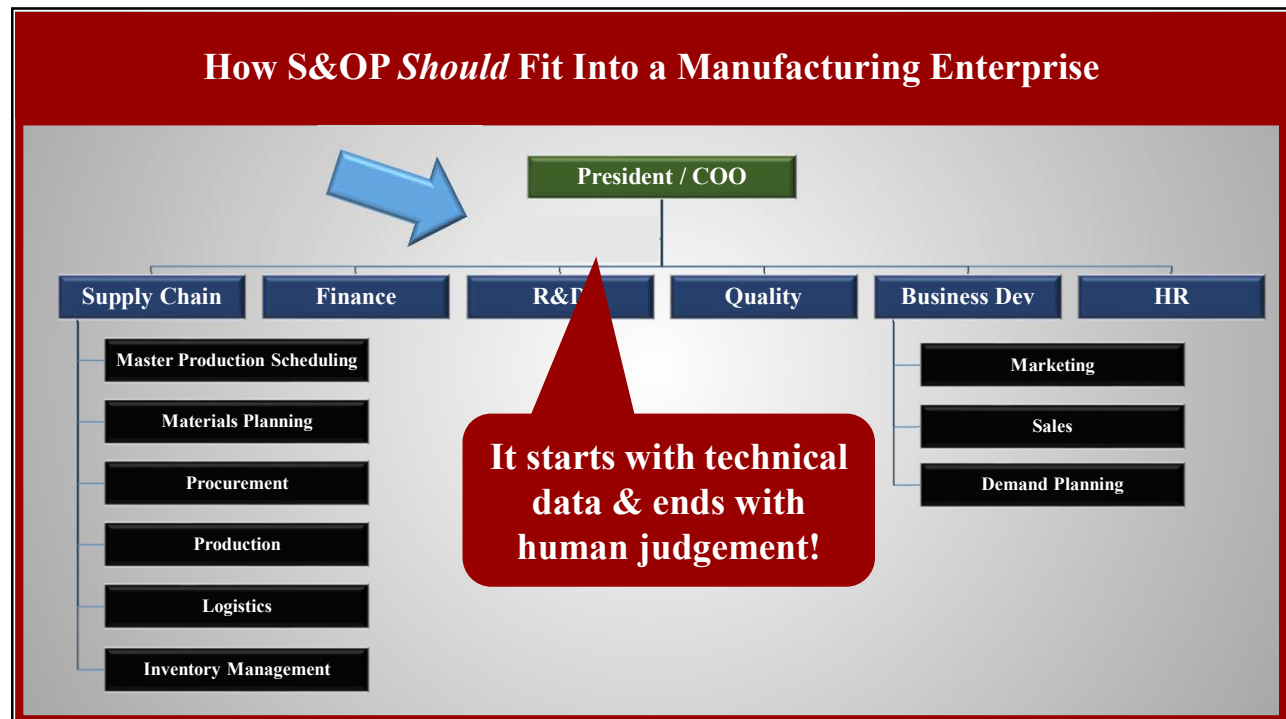
13

Corporate decision makers generally:

1. Underestimate the complexities involved when predicting demands.
2. Underestimate the complexities involved when scheduling factories.
3. Undervalue the skills, experience & judgement required from individuals engaged in the execution of S&OP activities.
4. S&OP reports to a “*biased*” leader.

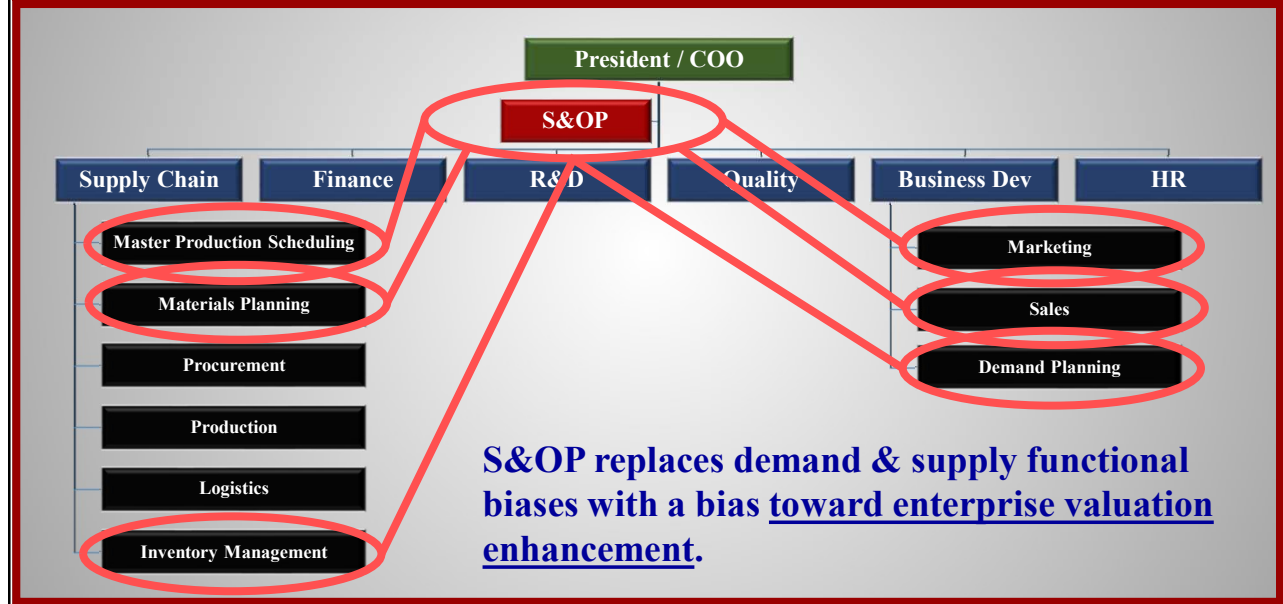
13

How S&OP *Should* Fit Into a Manufacturing Enterprise



14

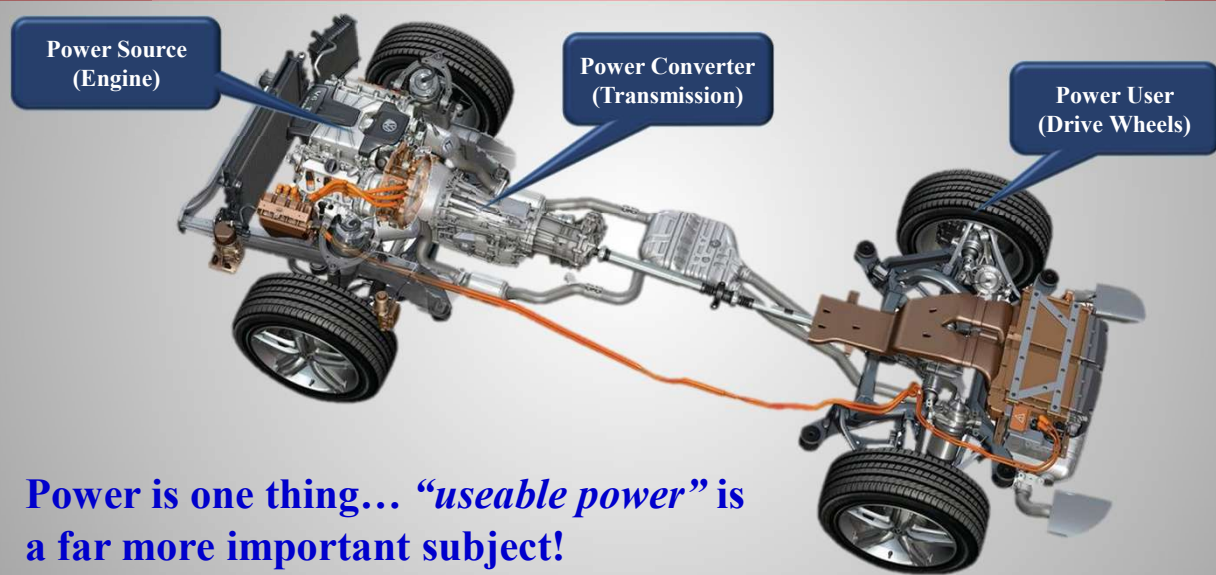
S&OP Pulls Broad Talent & Information To the Master Planning Equation



15

S&OP Is the “Power Conversion Process” In a Manufacturing Company

16



16

Inspiration - *"Knights of the Roundtable"*

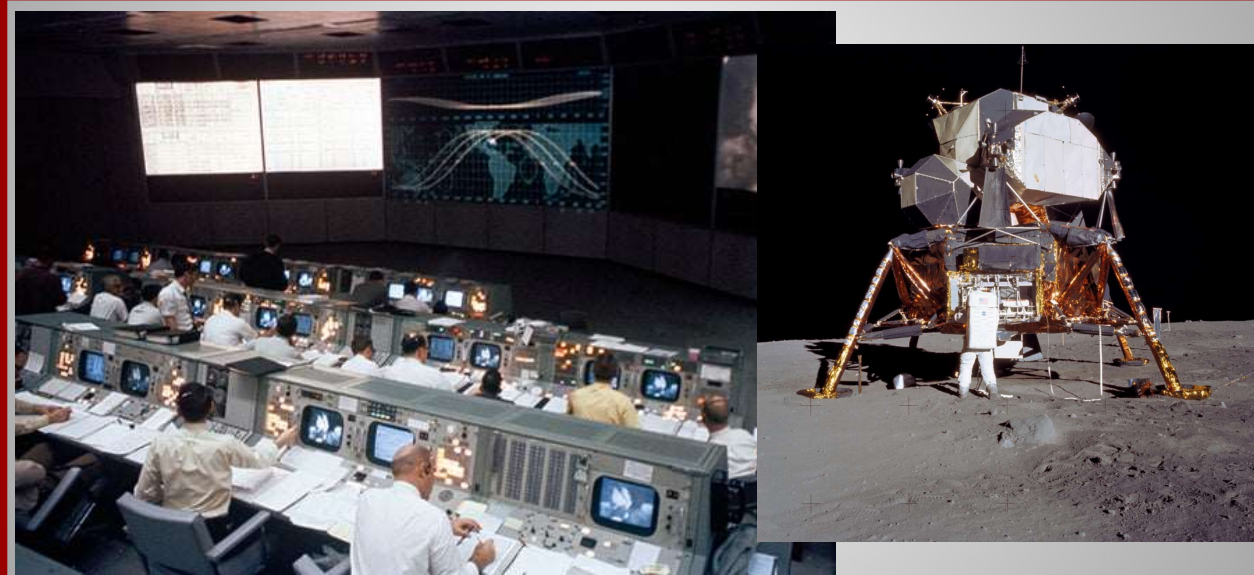
17



17

NASA Mission Control-West July 20, 1969

18



18

More Inspiration – *Sewage Treatment Plant Control Room*

19



19

And More Inspiration - *Chemical Manufacturing Control Room*

20



20

Yet More Inspiration – *NASA Jet Propulsion Lab Mission Control*

21



21

Inspiration Applied!

22



22

Inspiration Applied - "Knights of the S&OP Roundtable"

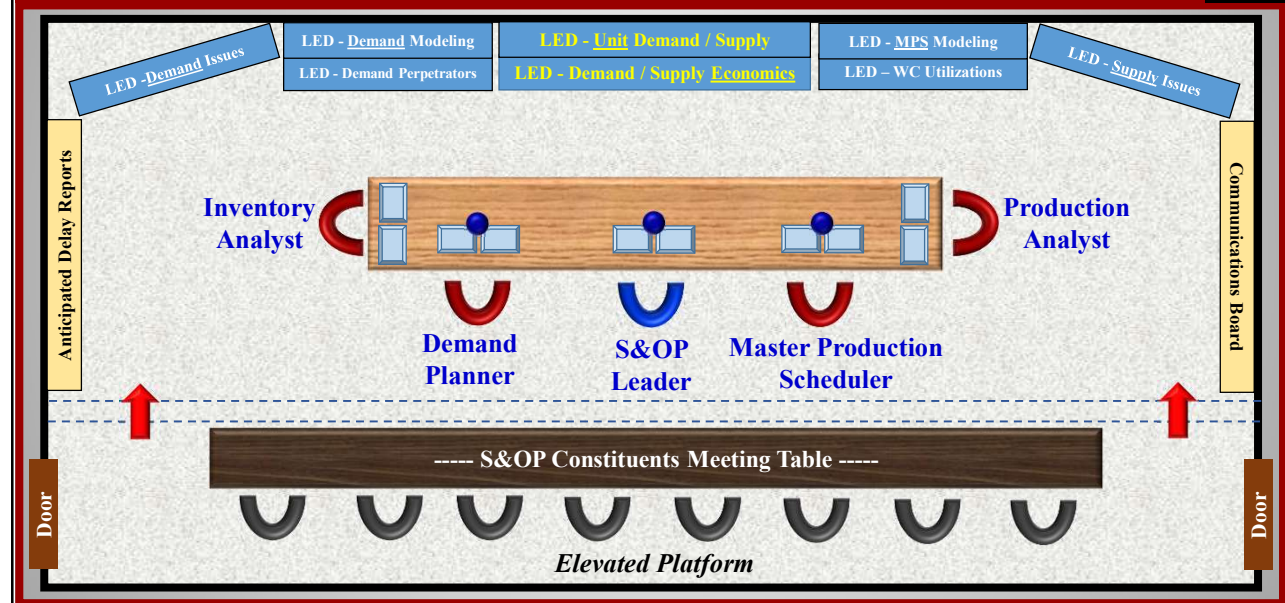
23



23

"S&OP Control Rooms" are Always a GREAT Idea!

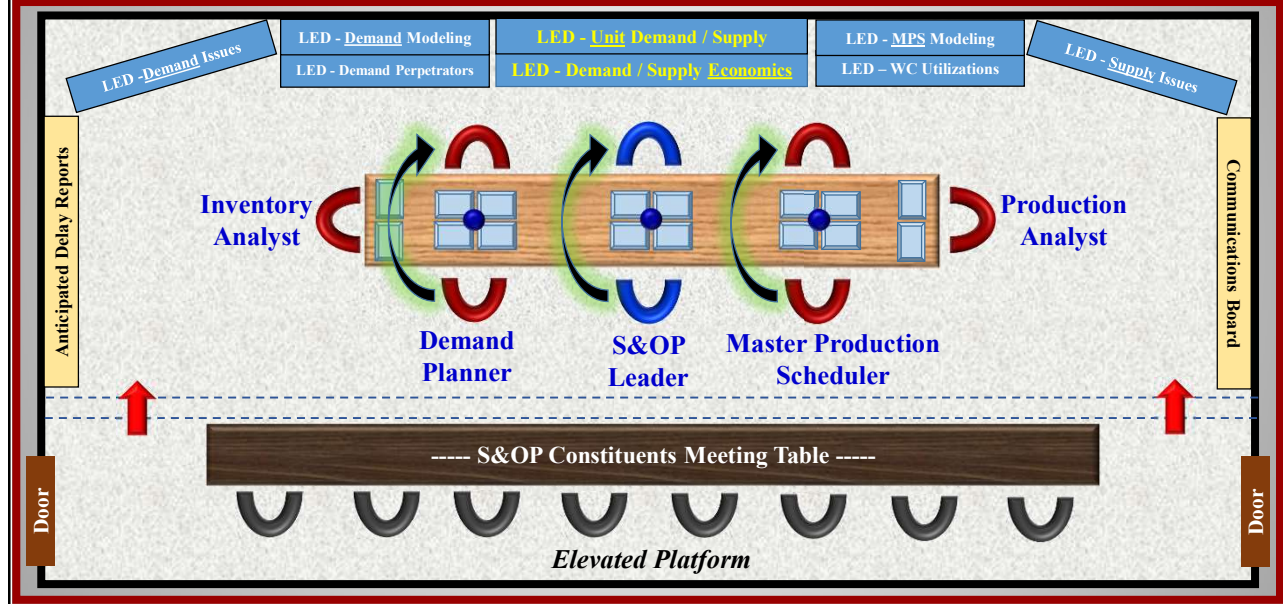
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24

S&OP Work & Meetings are Dramatically Different

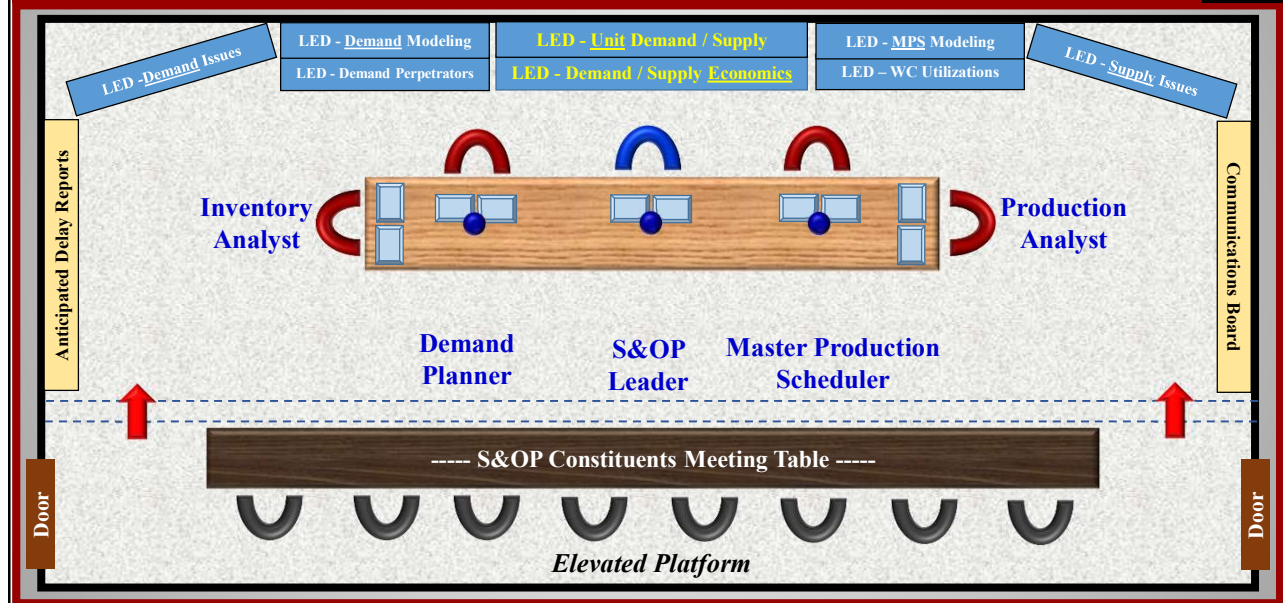
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25

S&OP Work & Meetings are Dramatically Different

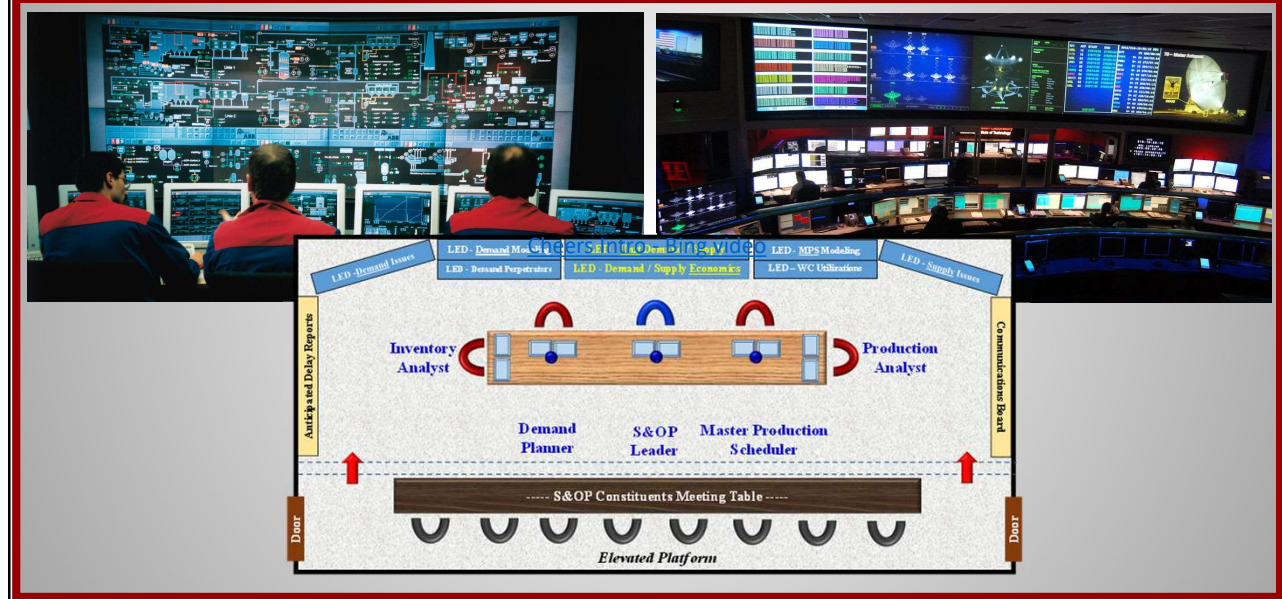
26



26

If This Will Work for Spacecraft Tracking & Chemical Manufacturing... Why Won't It Work for S&OP?

27



27

Final Thoughts

28

S&OP, like all other elements in supply chain management, has technical, organization, cultural and behavioral elements:

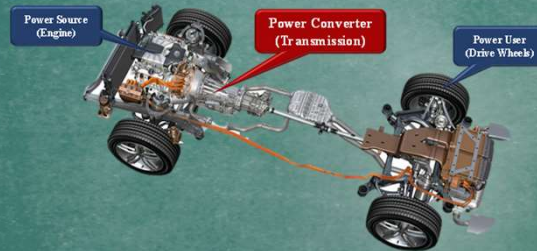
- **Technically...** forecasting, inventory management and master production scheduling tools must be integrated into the bigger ERP systems environment, especially for the purpose of simulating schedule scenarios on capacity utilization.
- **Organizationally...** the S&OP office needs to report to an unbiased senior leader, preferably the President.
- **Culturally...** S&OP processes need to exist within a formal and disciplined framework, and...
- **Behaviorally...** the S&OP professionals should always search for way to say “yes” to demand... but when desired solutions are not possible, “no” means “NO!”

28

Critical Insights

29

S&OP is the “*Power Conversion Process*” in a manufacturing company. Its what “converts” demand into enterprise valuation, through efficient supply.



Remember... *“Power is one thing... useable power is altogether another, more important subject!”*

29



30

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31

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GDI Supplier Assessment Practice



GDI Talent Acquisition Practice

Specify | Source | Evaluate | Profile | Engage | Onboard

GDI Owner & Investor Services Practice

Governance | Ops Due-Diligence | Valuation Enhancement



We can bring numerous professional services to our manufacturing and distribution clients... all focused on making people and companies more successful.

32

About GDI Consulting & Training Company

GDI Consulting & Training (GDI) provides practical solutions to complex business and managerial problems in manufacturing and related industries. Our firm has successfully assisted clients around the world for more than 38 years, having performed more than 185 projects in over 110 companies in 22 countries. GDI applies specialized and common-sense solutions... *not overly-intellectualized approaches*... to numerous types of challenging client problems in manufacturing and distribution industries, including:

- Factory & distribution center layout & design
- Factory & distribution information systems implementation
- Cost management systems
- Quality management systems design & implementations
- Core business process re-engineering
- Information systems data integrity & reliability improvements
- Enterprise performance metrics & compensation systems
- Organization design & improvement
- Business strategy formulation
- Complex problem solving

GDI Consulting & Training
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33

About GDI's Supplier Assessment Practice



GDI's comprehensive *Supplier Assessment Practice* utilizes a structured fact-based methodology that clinically assesses the performance of your company's significant materials Suppliers by quantifying up to 19 categories of risks that may directly impact your company's performance.

www.gdisupply.com



- Fact-Based, Proven & Tested Methodology
- Execute in 3 Weeks With Up To 3 Trained Assessors
- Execute Any Where In the World
- Quantifies 19 Specific Areas of Risk
- Results in Terms & Condition Mandates
- Provides an Improvement Path For the Supplier
- Modeled After Operational Due-Diligence From the M&A World

34

About GDI's Talent Acquisition Practice

GDI Talent Acquisition Practice

Specify | Source | Evaluate | Profile | Engage | Onboard

Leadership, management and technical staff requirements continually evolve, but the need for high-performing talent remains constant. Recruiting top-talent into any manufacturing or distribution company requires a rigorous methodology. It begins with a thorough understanding of the position and continues through a detailed vetting and structured evaluation process that determines each Candidate's *real* abilities and *real* potential to succeed.

Using proven assessment and evaluation processes, GDI's Talent Acquisition Practice specializes in matching the best Candidates with each position we are engaged to fill. We have 35 years of relationships with high-performing manufacturing and distribution industry talent, giving us unparalleled capabilities to fill almost any management and technical position within these industries. Our clients value our deep industry expertise, valuable insights, rigorous Candidate evaluation methodologies and commitment to the success of both clients and Candidates.



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35

About GDI's Owner & Investor Services Practice

GDI Owner & Investor Services Practice

Governance | Ops Due-Diligence | Valuation Enhancement

www.gdiinvest.com

Working in concert with other GDI practices, GDI's Owner & Investor Services Practice focuses on **THREE** specific professional services:

Governance	Assisting public and private manufacturing and distribution companies to establish, strengthen and reconfigure Boards of Directors and various Board committees. We also sit on Boards of Directors, always bringing strong global operational and economic perspectives to the governance process.
Operational Due-Diligence	Normally working for an acquirer, we often execute comprehensive operational analyses both pre and post-acquisition. Many of our operational due-diligence assignments have resulted in significant changes in the acquisition scope, price and terms.
Valuation Enhancement	Helping clients to understand <u>precisely</u> how to increase enterprise valuation by defining specific ways to generate more cash from a company's suite of gross assets is what we do best. Often, we utilize our analytics to support capital raising and recapitalization activities.

We have completed numerous projects for private equity investors, individual investors, business owners, corporations and activist shareholders.

36

About the Manufacturing Executive Institute (MEI)

The Manufacturing Executive Institute (MEI) is a training and publishing organization dedicated to bringing relevant knowledge to individuals who are interested in making dramatic performance improvements in their manufacturing and distribution companies.

MEI delivers knowledge to these communities in THREE distinct ways:



- **Training Workshops...** includes venue-based workshops, e-learning programs and hybrid training programs. All can be modified to speak to specific environments, and scheduled to minimize impact on business operations.
- **Publications...** includes books, white-papers, archived e-learning programs & other information of interest to the manufacturing and distribution communities. Also includes access to the "*MEI Bookstore*" containing all of the most important manufacturing & distribution industry books for sale.
- **Manufacturing & Distribution Focused Research...** MEI conducts and supports ongoing research to extend the body-of-knowledge in various manufacturing and distribution disciplines. These research projects result in valuable reports and presentations that are routinely shared with these communities.

To learn more about the Manufacturing Executive Institute, it's mission and additional programs, call (951) 736-2114 or visit us on the web at www.mfgexecutive.com.

