Centrale Paris
Achats & Supply Chain
PURCHASING & SUPPLY CHAIN SUSTAINABLE EXCELLENCE

CPIM DE FRANCE

FAPICS Association Française de Management des Opérations de la Chaîne Logistique

Mercredi 22 janvier prochain, de 19h00 à 21H00
à la Maison des Centraliens

Supply Chain Management :

Accélérons les flux, améliorons le service, réduisons les stocks.
Demand Driven MRP, un nouveau moteur de planification

Face à mondialisation des échanges, aux exigences croissantes des clients, à la réduction du cycle de vie des produits, au développement des distributions multi/omni canal, les systèmes de planification industrielle classiques peuvent produire des effets coup de fouet (Bullwhip effect) qui perturbent la chaîne d'approvisionnement de la demande depuis les fournisseurs jusqu'aux clients. Les surstocks rivalisent alors avec les ruptures de stocks, et dégradent la qualité de service.

Pourquoi les moteurs historiques de planification ne répondent-ils plus aux besoins actuels de certaines entreprises ?
Quelles solutions pour accélérer et stabiliser les flux ?
Quels impacts sur les stocks, les coûts et le taux de service client ?

Pour y répondre, Carol PTAK, **CFPIM, CIRM, Jonah, CDDP**, ancienne présidente de l'Apics, ancienne VP manufacturing & distribution chez PeopleSoft, nous expliquera les fondements et principes du Demand Driven MRP, nouveau concept de planification et de pilotage des flux et nous parlera des implantations réalisées dans des multi-nationales (présentation en anglais).
Puis des témoignages de mise en place nous seront présentés par Laurent Vigouroux, **directeur d'usine** chez Bernard Controls et par Paul Cordié, **consultant indépendant**.
Nous poursuivrons nos échanges autour d'un cocktail qui conclura la soirée.

Cet évènement, ouvert à tous, est organisé en collaboration avec Fapics

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SUPPLY CHAIN MANAGEMENT :

Accelerate Flows, Improve Customer Service, Optimise Inventories

Demand Driven MRP, a new planning engine

Fapics and CENTRALE PARIS ACHATS & SUPPLY CHAIN are honoured to welcome

Carol PTAK,

CFPIM, CIRM, Jonah, CDDP

Former APICS President, People Soft Distribution & VP manufacturing

LAURENT VIGOUROUX,
Plant Director, Bernard Controls

PAUL CORDIE (ECP 78),
Independant Consultant

Innovation In Supply Chain

25 topics scrutinized by SC expert contributors

CENTRALE PARIS ACHATS & SUPPLY CHAIN

Centrale Paris
Achats & Supply Chain
PURCHASING & SUPPLY CHAIN SUSTAINABLE EXCELLENCE

CASC = 18 YEARS SO FAR

-Best Practices Purchasing Supply Chain

-Promote Supply Chain and Purchasing skills in our « Centrale » community…

-… and vice versa

- More than 200 attended our 2013 events

-Soon a revamped dedicated website

-JOIN US !

www.achats-supplychain.centraliens.net

jeremie.henrot@centraliens.net

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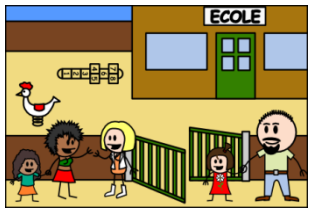
Mission de Fapics :

Bodies of knowledge internationaux certifiants

1) Pour les Français

2) Avec les Français

Qualified Instructor



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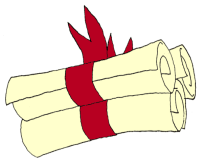


CPIM DE FRANCE FAPICS Association Française de Management des Opérations de la Chaîne Logistique

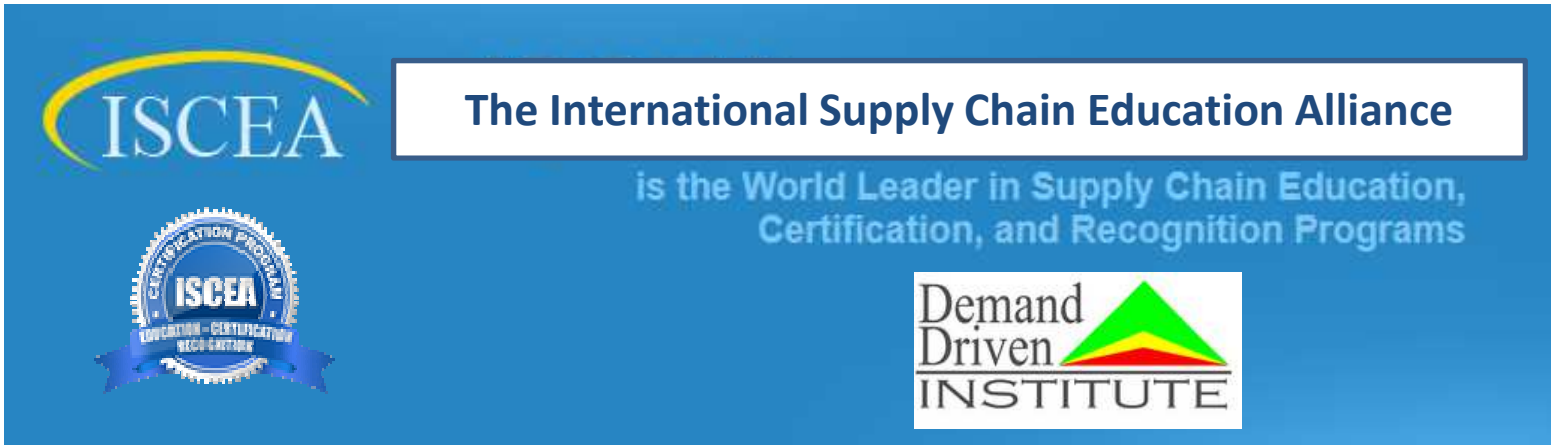
Historique

2000 : CPIM de France rencontre de Carol PTAK présidente de l'APICS
2012 : Fapics assiste aux conférences de Carol au congrès APICS Asia à Shanghai

2013 mars : Fapics invite Carol PTAL au SITL pour 2 conférences

EUROPE SITL Semaine Internationale du Transport et de la Logistique

2013 juin : Fapics rencontre la direction de ISCEA à Chicago



FAPICS Association Française de Management des Opérations de la Chaîne Logistique

Historique :

2013 Mai : Fapics organise avec son partenaire Festo
la 1ère formation Certified Demand Driven Planner

2013 Septembre : Fapics organise la 1ère formation de trainer CDDP
avec son partenaire PMI Germany

2013 Septembre : Fapics organise 1ère conférence de Chad SMITH
chez son partenaire Citwell

2013 Novembre : Fapics et son partenaire Citwell invite un
directeur SC Unilever CDDP au Supply Chain Event

2014 Janvier : Fapics collabore avec l'association des Centraliens pour inviter Carol PTAK

2014 Janvier : Fapics organise avec son partenaire Festo le 2ème formation Certified Demand Driven Planner chez un adhérent qui applique la méthode

Carol Ptak, CFPIM, CIRM, Jonah, CDDP

cptak@demanddriveninstitute.com

Carol Ptak is the co-author of the third edition of Orlicky's Material Requirements Planning and a partner at the Demand Driven Institute. Previously, Carol was at Pacific Lutheran University as Visiting Professor and Distinguished Executive in Residence after years of executive management experience at PeopleSoft and IBM Corporation. Ptak served as the vice president and global industry executive for manufacturing and distribution industries at PeopleSoft. Carol is a past APICS President and CEO.

Material Planning in a Demand-Driven World

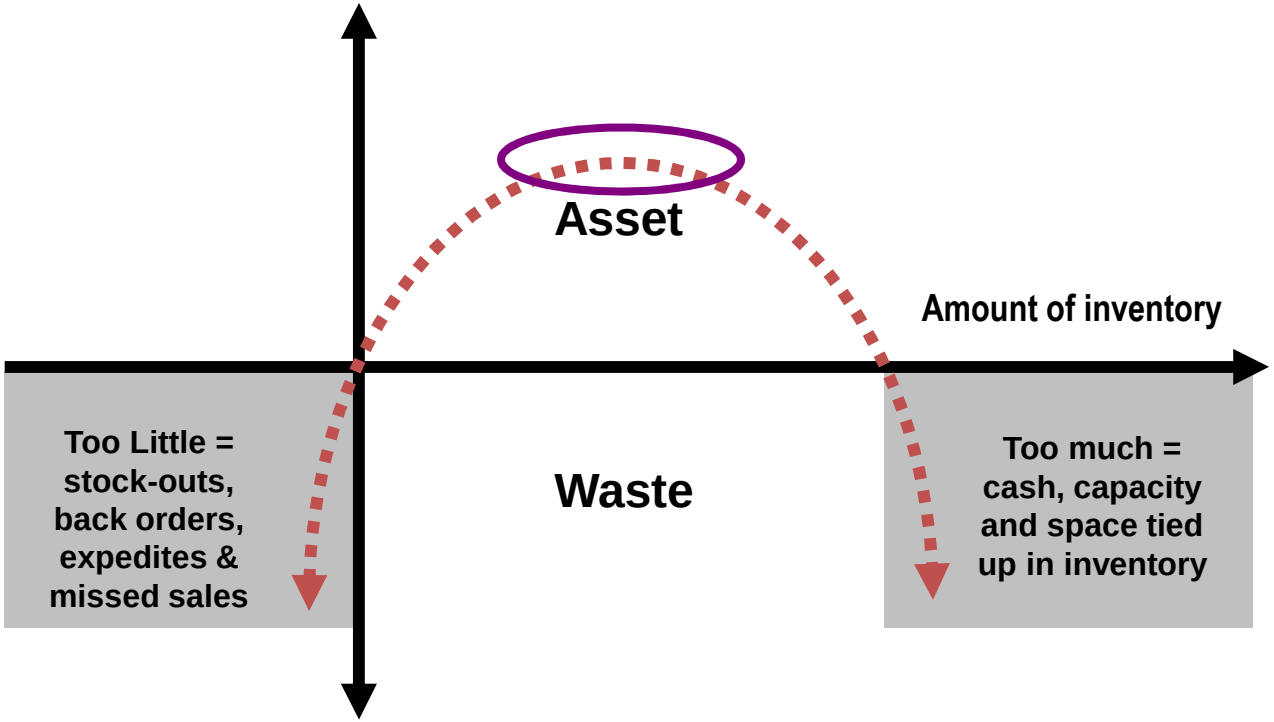
Carol Ptak, CFPIM, CIRM, Jonah, CDDP

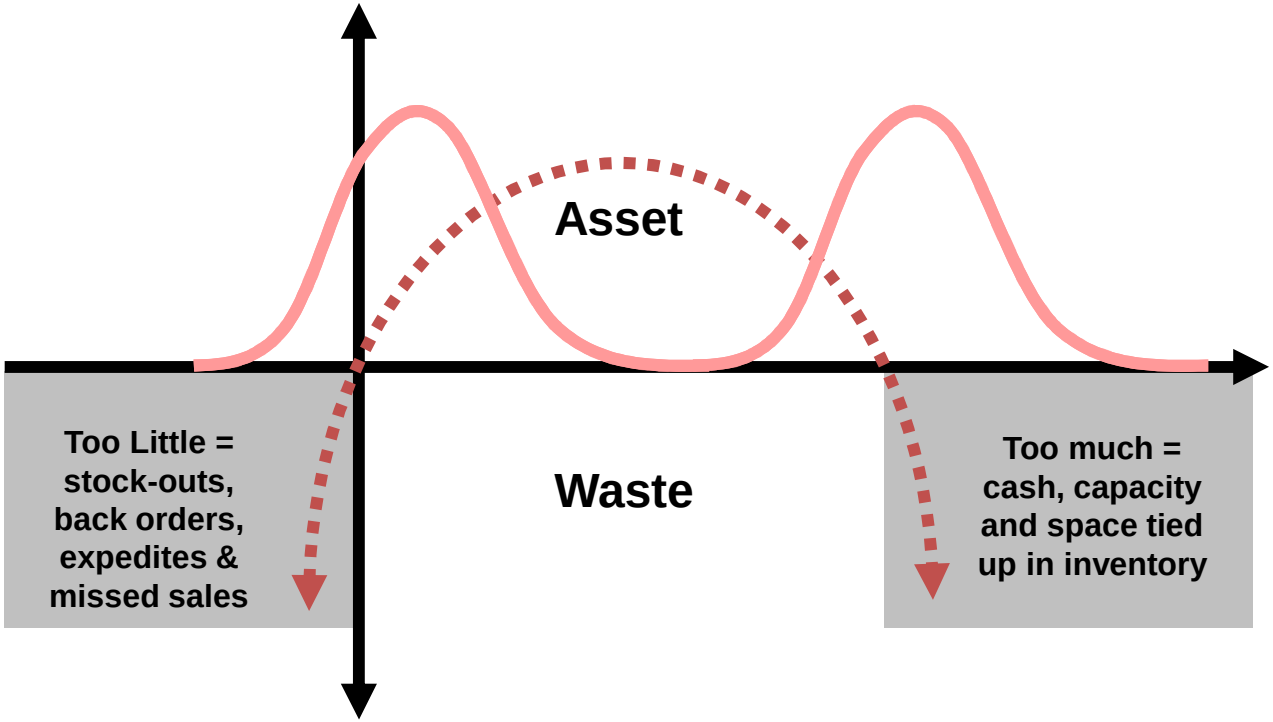
What is the Problem we are Solving?

Today's formal planning systems are fundamentally broken!

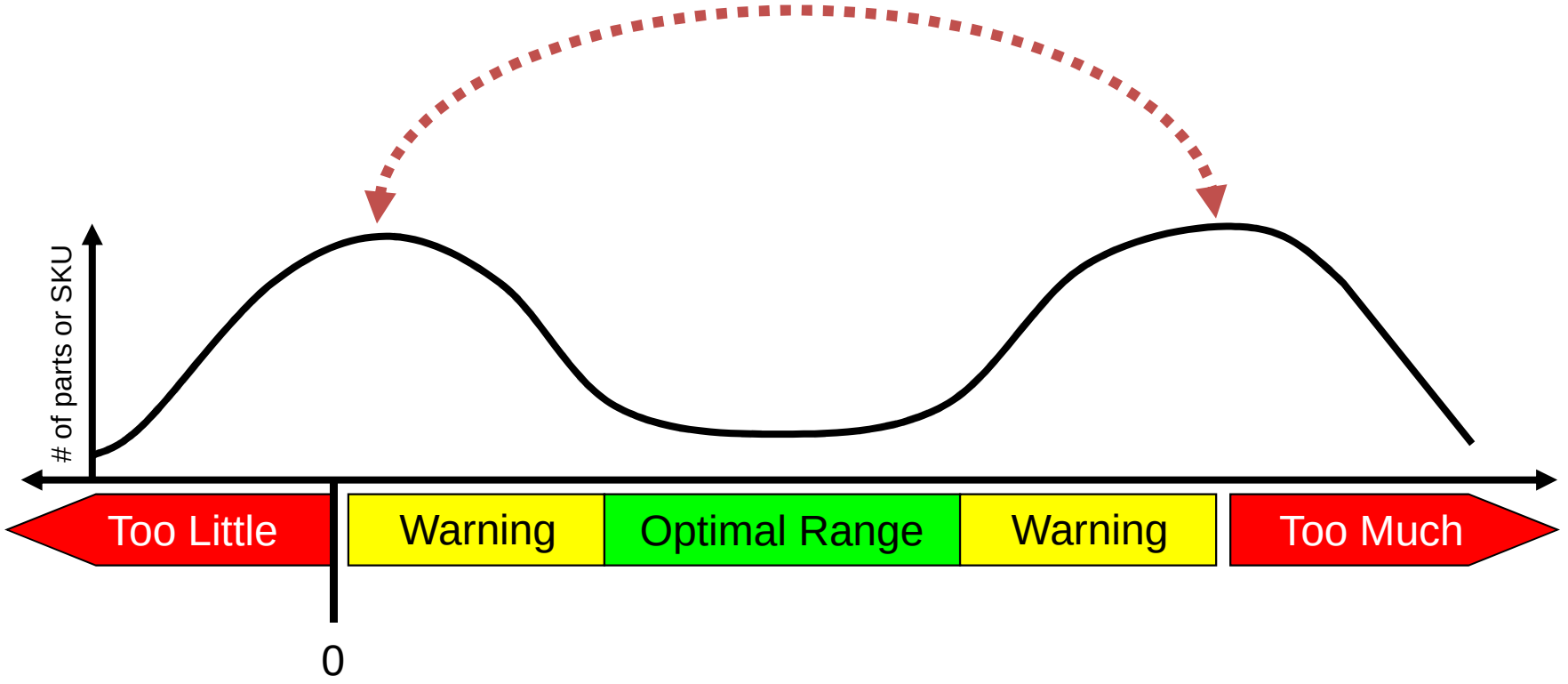
How do you Know if Your Demand and Supply Chain is Broken?

Inventory – Asset or Waste?




Asset
Too Little = stock-outs, back orders, expedites & missed sales
Waste
Too much = cash, capacity and space tied up in inventory

Formal Planning Oscillation



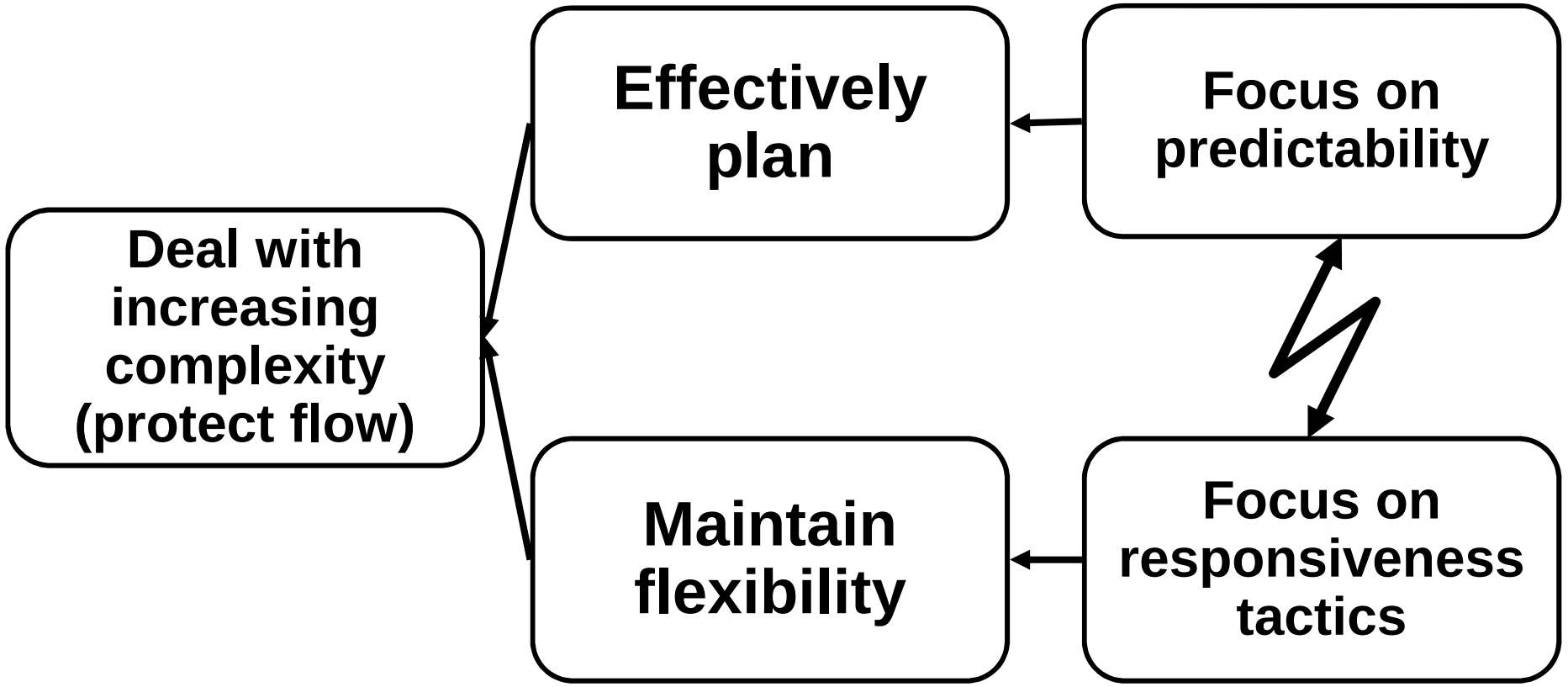
Effects at Most Companies

- Persistent Unacceptable Inventory Performance
  - High Stocks resulting in mandated cuts or periodic refusal of inventory receipts
- Service Level Challenges
  - Consistent service challenges in mature markets
- High Expedite and Waste Related Expenses
  - Premium freight in
  - Schedule break-ins
  - Unnecessary shipments to and from warehouses

The Legacy Tactics – Planning Today

1. Demand input to MRP and DRP = Forecast
2. Focus on forecast accuracy improvement
3. Aggregate demand into weekly buckets
4. Dependency throughout the bill of material
5. Use Safety Stock to cover forecast error
6. Freeze production scheduling (longer than CTT)
7. Most batch decisions based on unit cost performance rather than agility

The Complexity Dilemma (Push vs Pull)



New Pressures

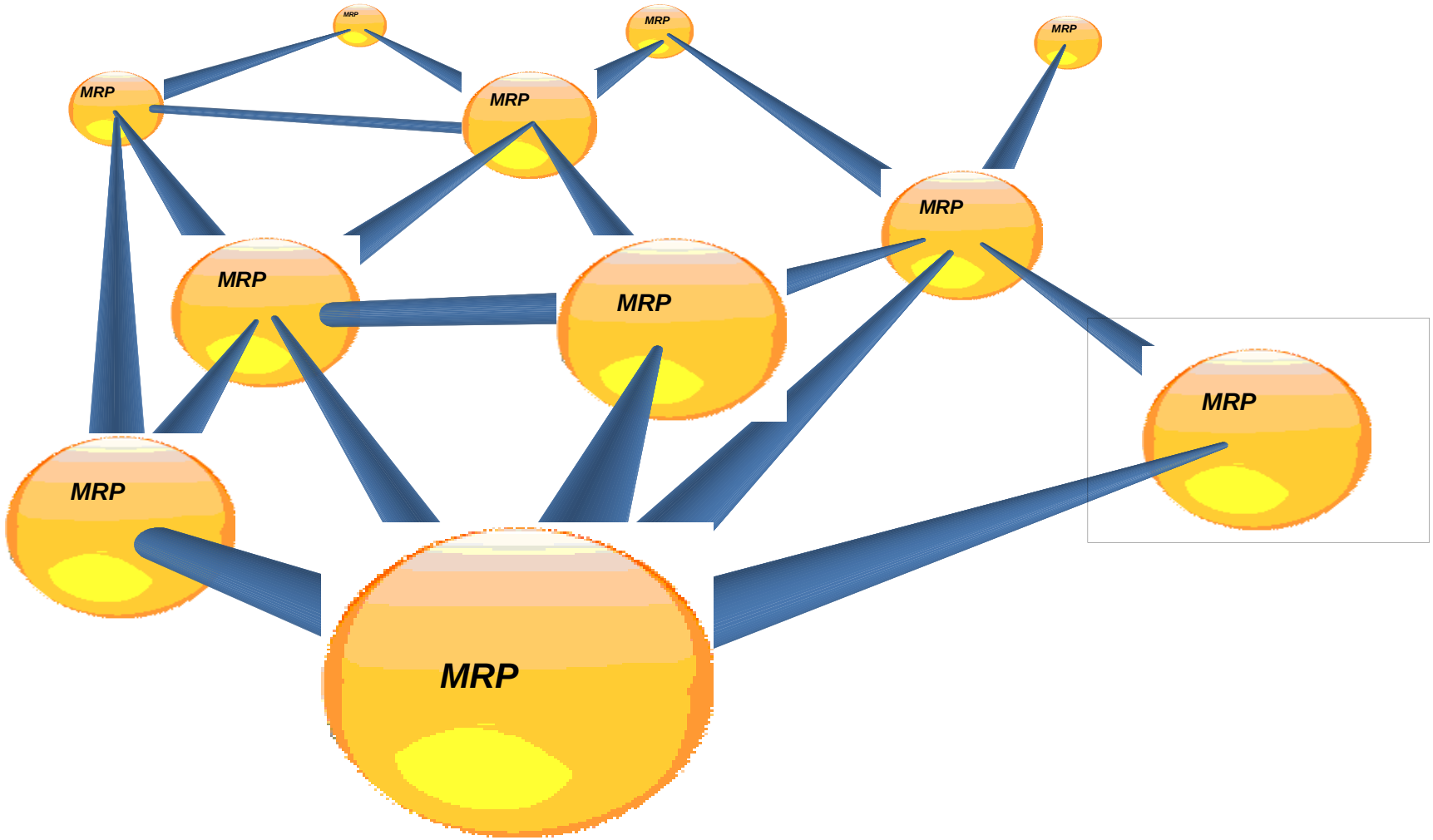
- Rising forecast error
- Shorter product life cycles
- Shorter customer tolerance times
- More product and packaging complexity
- Pressure for leaner inventories
- More regulatory requirements
- SKU proliferation
- Long lead time materials

Worldwide there are more complex planning and supply scenarios than ever – the past is NOT an predictor for the future

We Have a Choice

Keep Doing What We Have Always Done or…….Make a Fundamental Change

Complex Supply Chains Networks Today



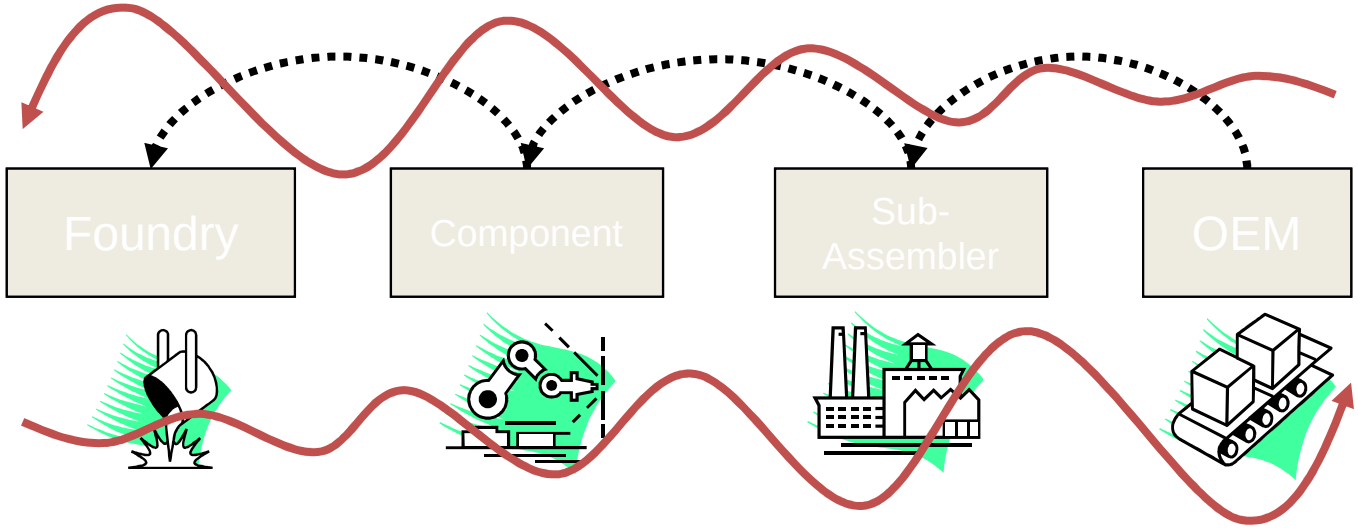
Variability – Planning Enemy #1

- In a perfect world…..
- The accumulation and impact of variability is the enemy of flow
- Variability can be systematically minimized and managed but not eliminated

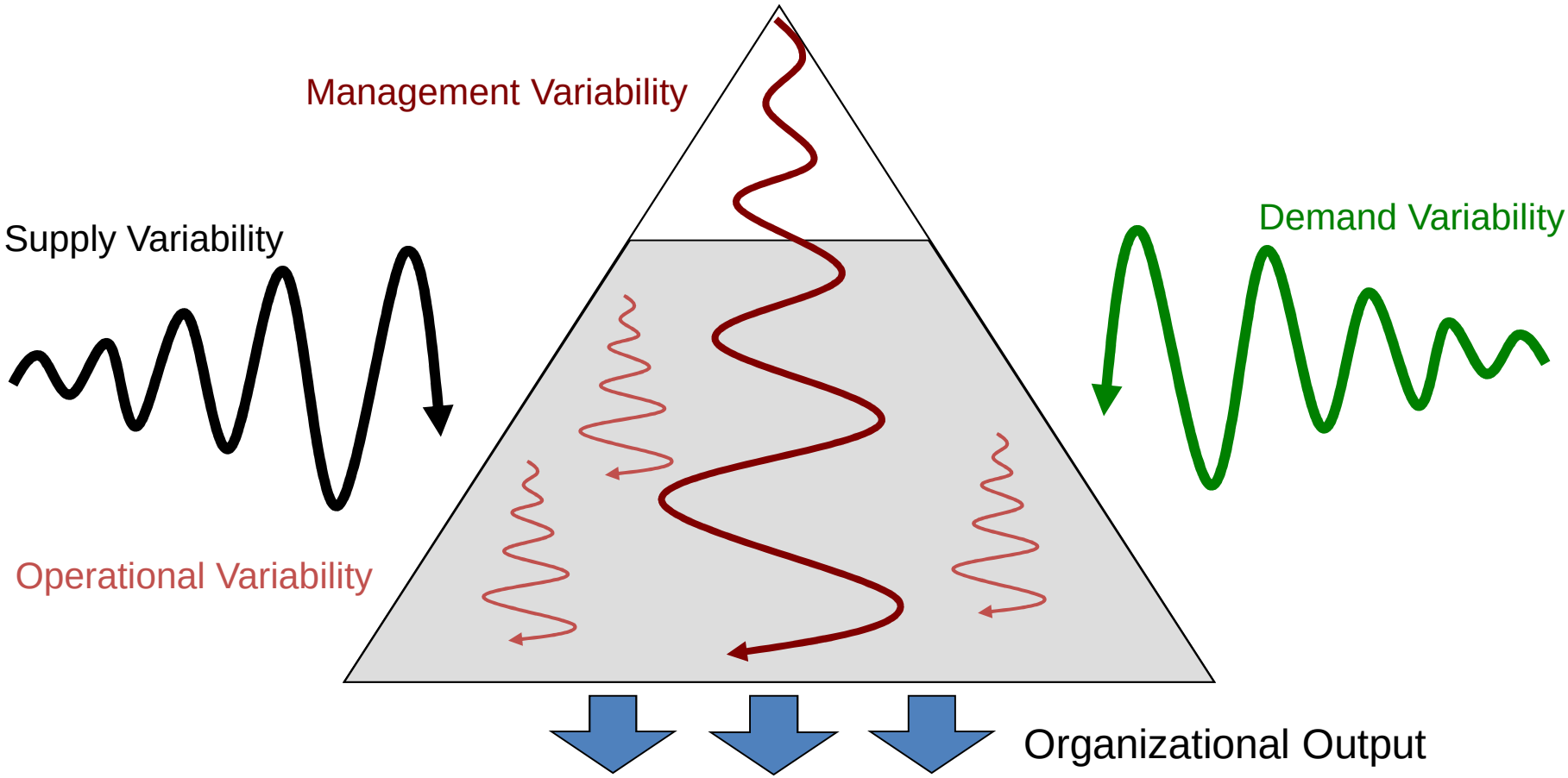
The Effects of Variability – Supply Chain

The more parts – the worse the effect!

Bull-Whip Effect: “An extreme change in the supply position upstream in a supply chain generated by a small change in demand downstream in the supply chain. Inventory can quickly move from being backordered to being excess. This is caused by the serial nature of communicating orders up the chain with the inherent transportation delays of moving product down the chain.” (APICS Dictionary, 12th Edition)

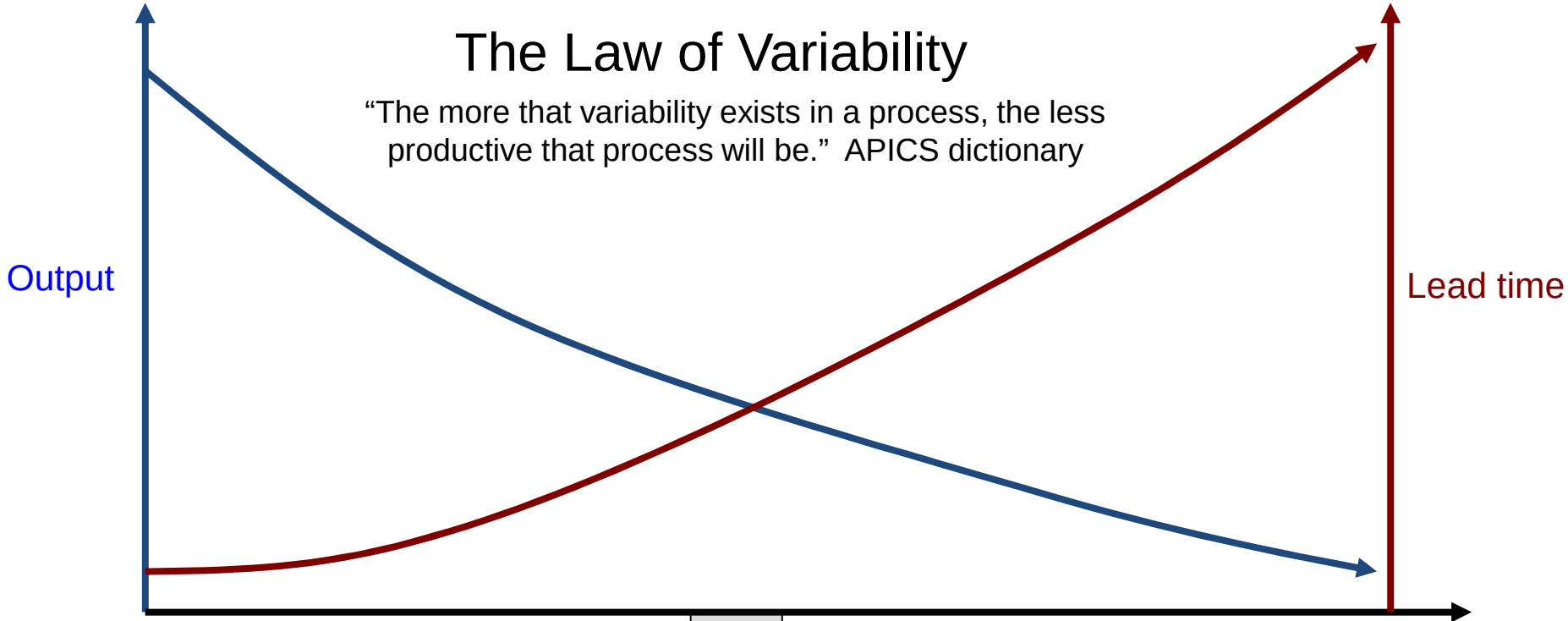


Sources of Variability

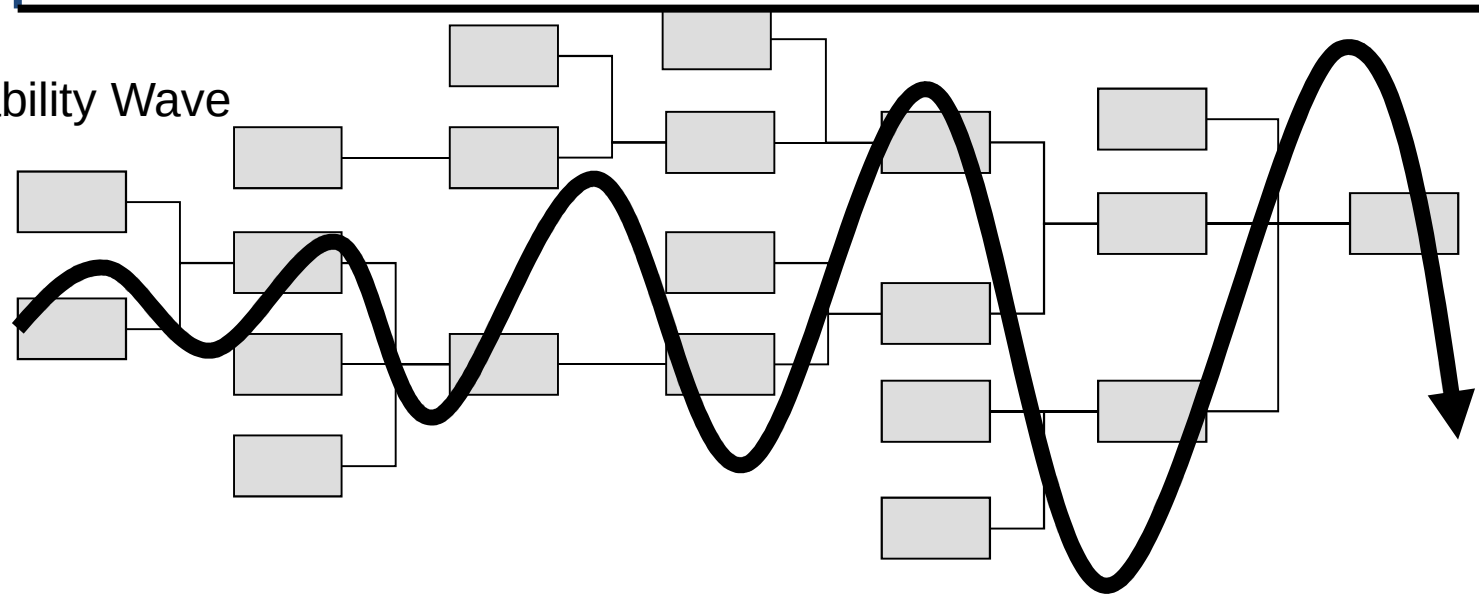


The Law of Variability

"The more that variability exists in a process, the less productive that process will be." APICS dictionary



Variability Wave

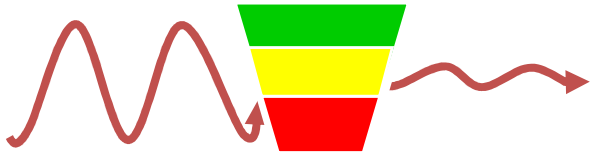


Mitigating Variability

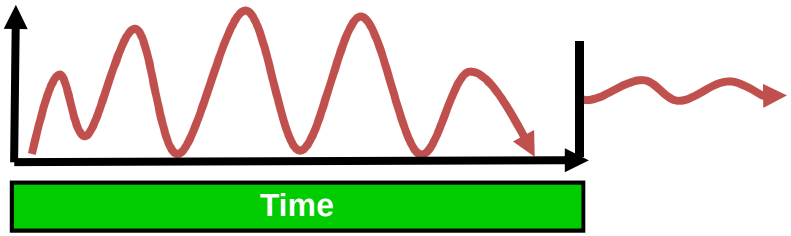
- Stop variation from being passed
- First “decouple” the wave
- Then “buffer” the “decoupling point”

Types of Buffers to Combat Variation

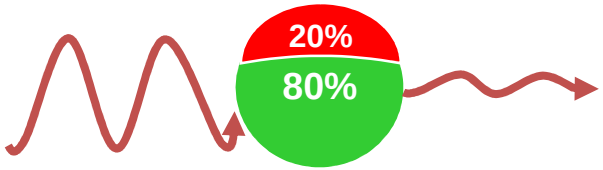
Stock



Time



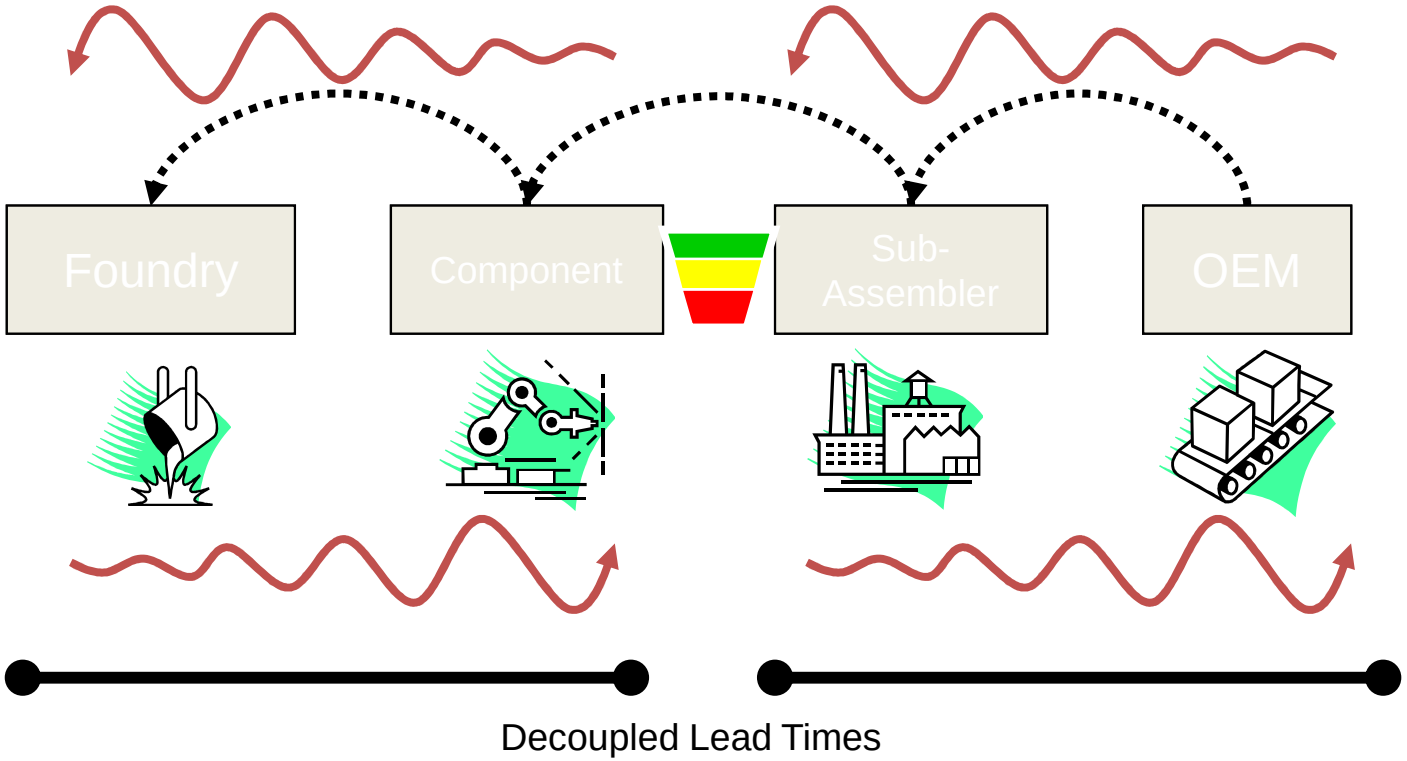
Capacity



Where to Focus First – Capacity or Materials?

- World capacity now exceeds demand
- Highly efficient resources without materials are idle resources
- Highly efficient resources with the wrong materials build unnecessary inventory
- Material synchronization issue is now primary

The Effects of Stock Buffering

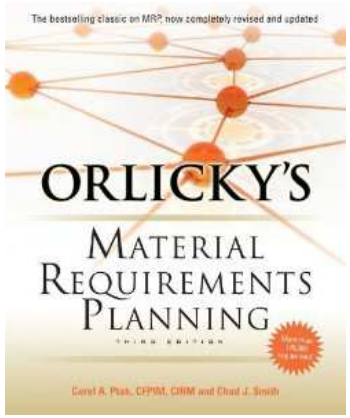


What does being Demand Driven mean?

- Does not mean
  - Make to order everything
  - Simple pull
  - Inventory everywhere
- Does mean
  - Sensing changing customer demand, then adapting planning and production while pulling from suppliers – all in real time!

What is Demand Driven MRP?

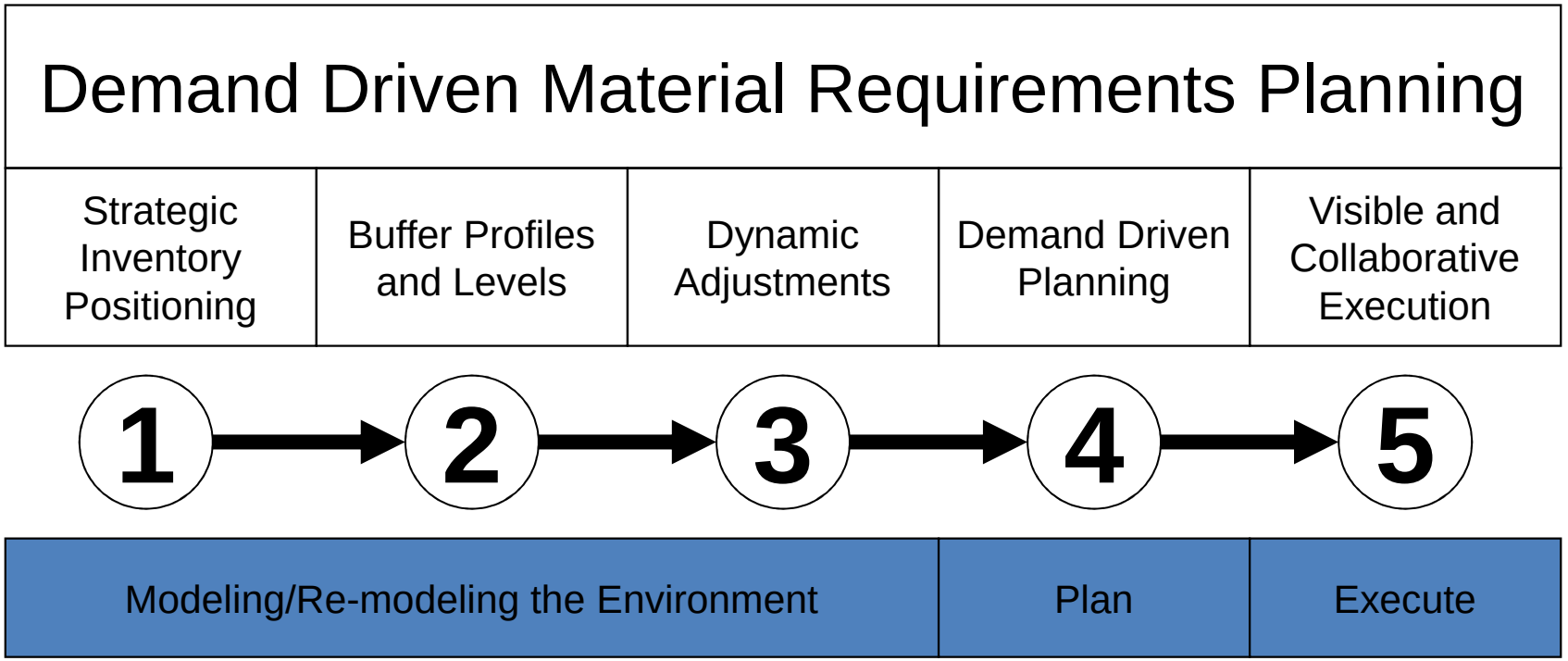
A multi-echelon materials and inventory planning and execution solution that enables a company to become demand driven.



Demand Driven MRP (DDMRP)

- Material Requirements Planning (MRP)
- Distribution Requirements Planning (DRP)
- Lean
- Theory of Constraints
- Six Sigma
- Innovation

The Five Components of DDMRP



Strategic Inventory Positioning

Where?

(Position)

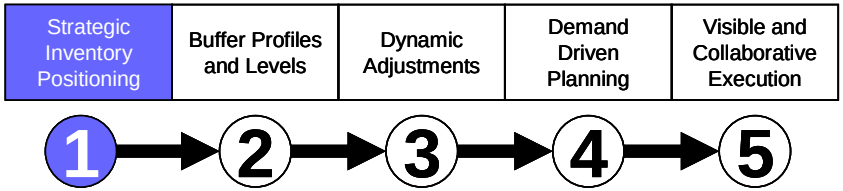
BEFORE

How Much?

(Quantity)

When?

(Timing)



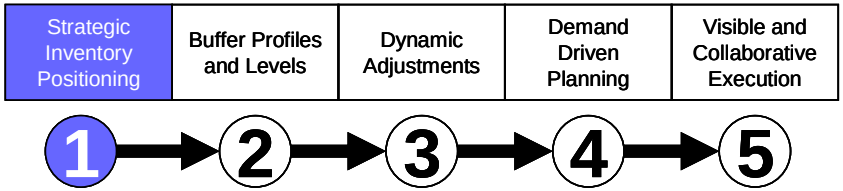
Position and Pull

Failure to properly position inventory is a huge source of waste for most manufacturing and supply chain companies.

Answering “Where?”

6 Factors

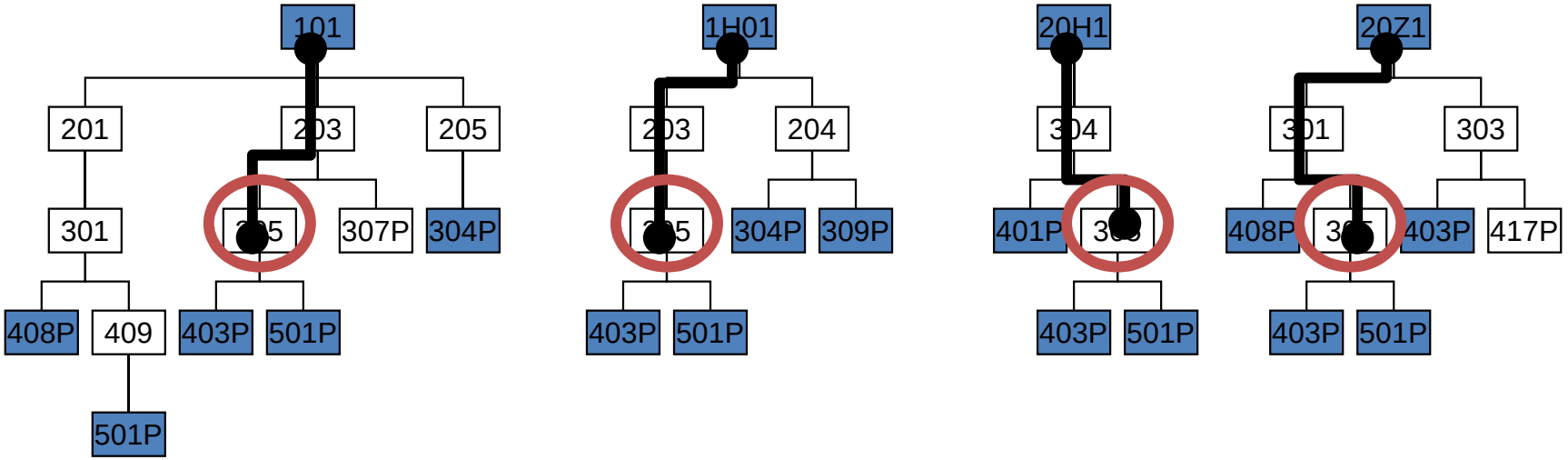
1. Customer Tolerance Time
2. Market Potential Lead Time
3. Supply and Demand Variability
4. Inventory Flexibility and Matrix BOM
5. Supply and Distribution Net Structure
6. Critical Resource Considerations

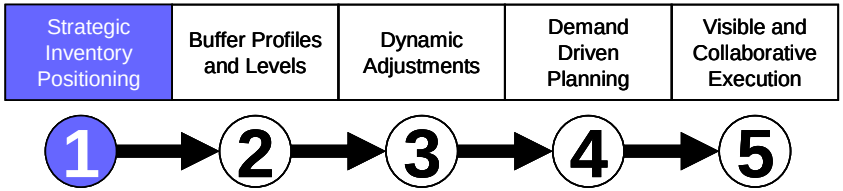


ASR LT + Matrix BOM

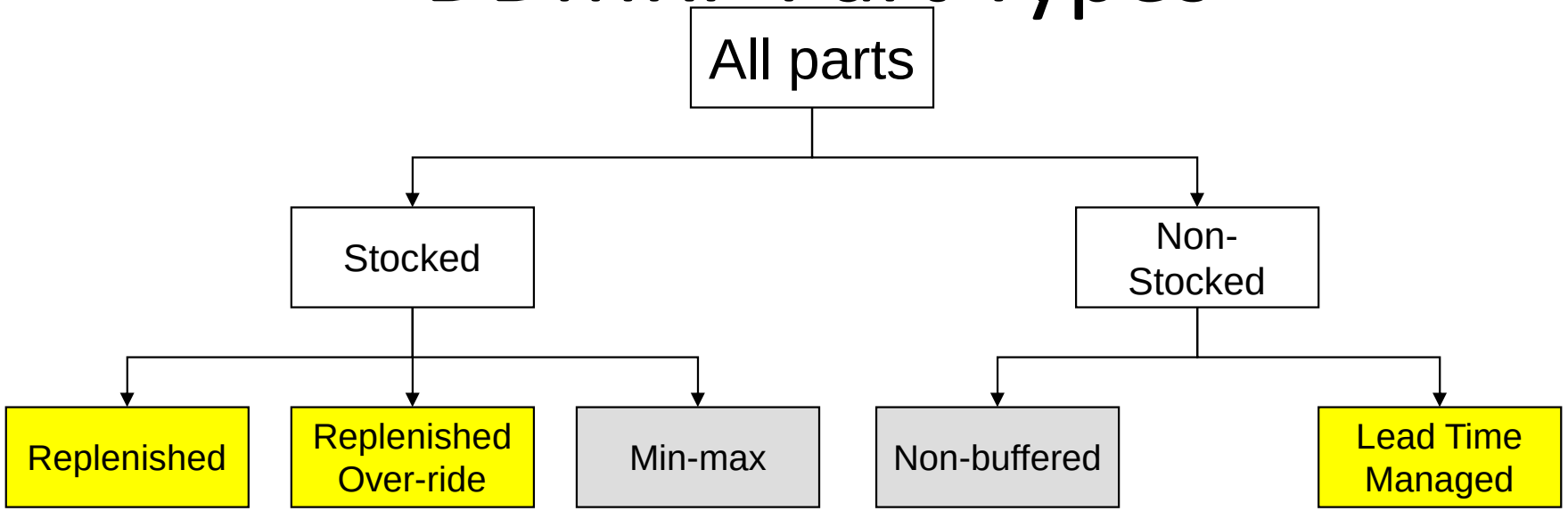
ASR Lead Time = The longest unprotected sequence in the BOM

Matrix Bill of Material depicts relationships between ALL component and parent items





DDMRP Part Types



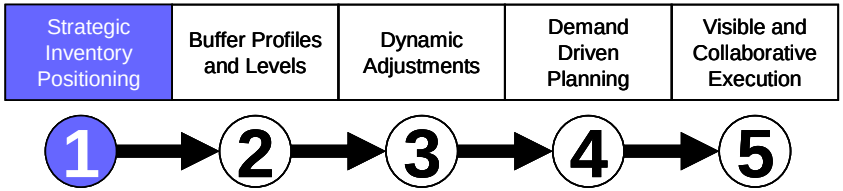
Typically ≈ 20% of Purchased Parts are strategic

Typically ≈ 10% of Manufactured Parts are strategic

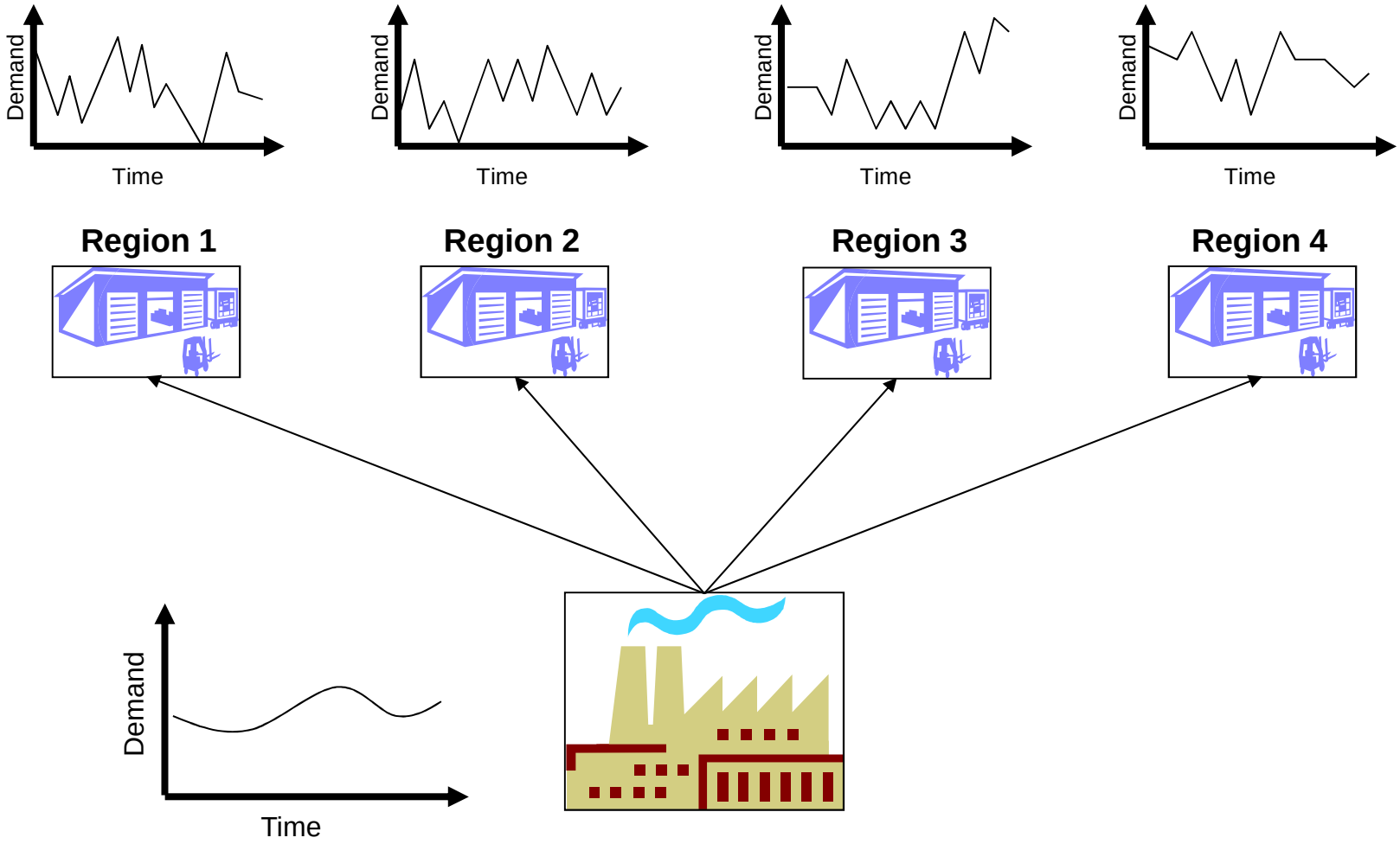
Typically most Distributed Stock is strategic

= strategically positioned and managed part

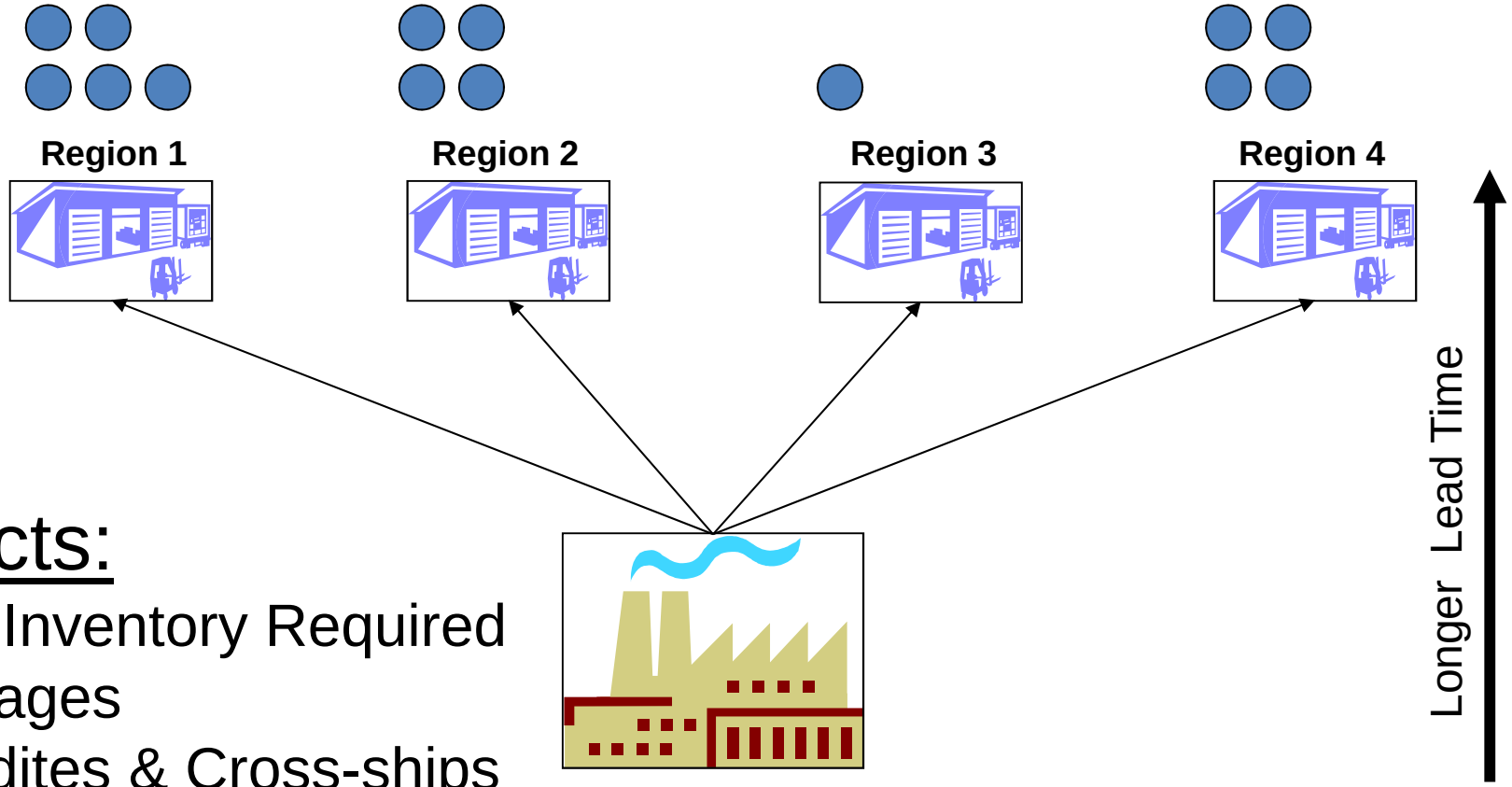
= non-strategic part



Distribution Net Positioning



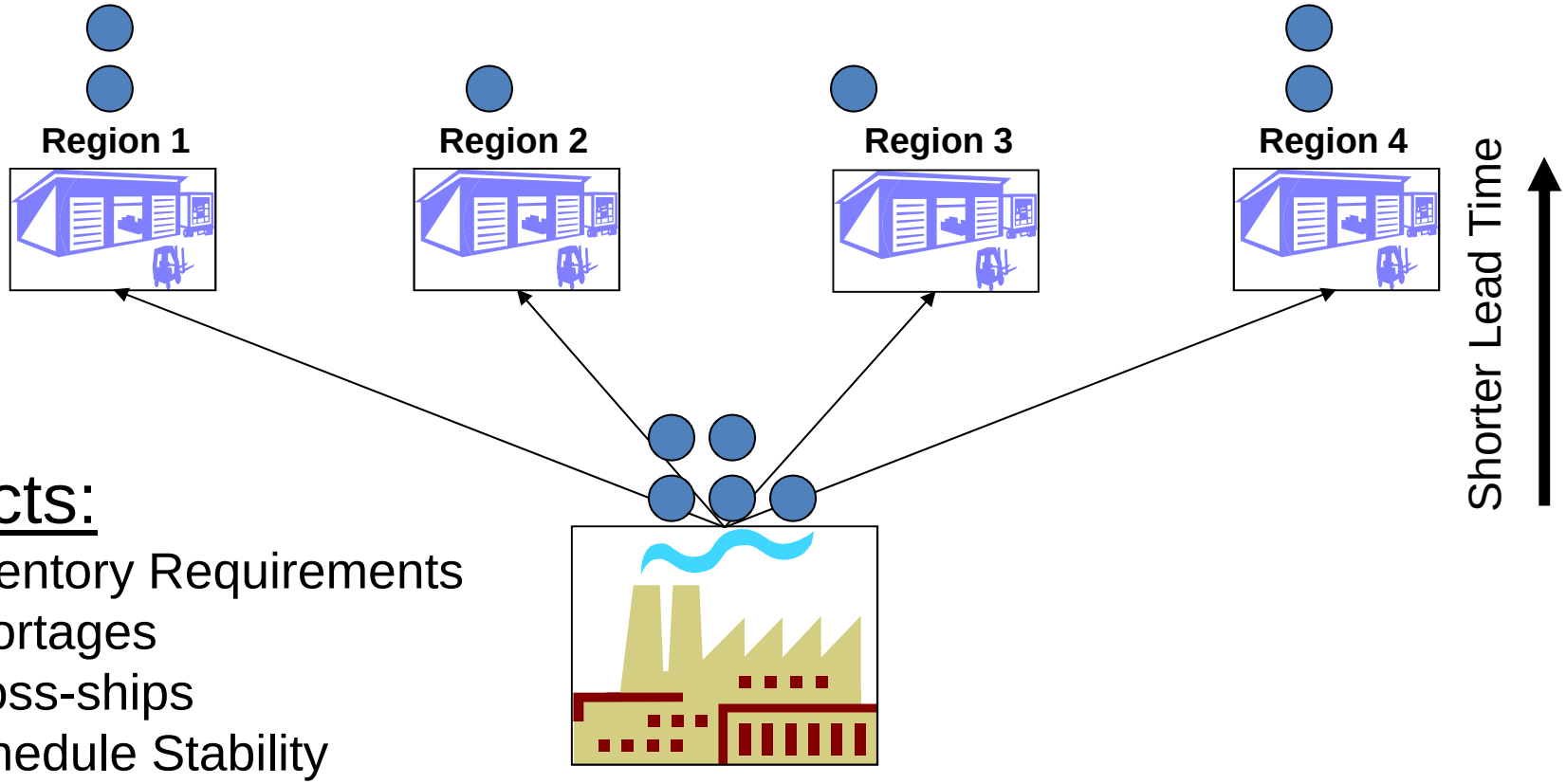
Push and Promote Positioning



Effects:

More Inventory Required
Shortages
Expedites & Cross-ships

Demand Driven DRP Positioning



Effects:

- ▼ Inventory Requirements
- ▼ Shortages
- ▼ Cross-ships
- ▲ Schedule Stability

Different Hub and Spoke Configurations

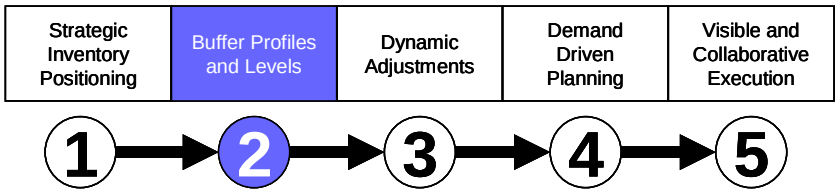
- Hub at Source
- Hub/RC Combo
- Multi-Hub
- The Hybrid

Buffer Profiles and Levels

Group Trait Inputs + Individual Part/SKU Inputs

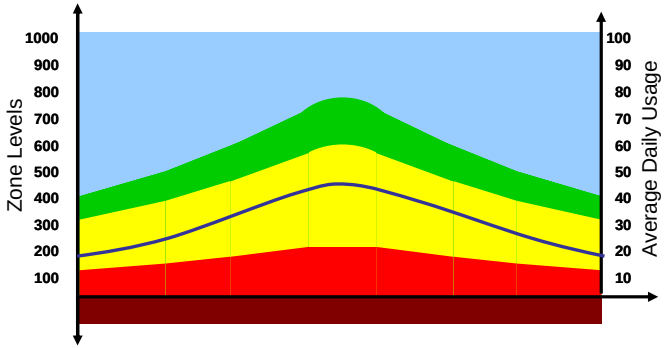
Lead Time Category
Make, Buy or Distributed
Variability Category
Significant Order Multiples

Average Daily Usage
Appropriate Discrete Lead Time
Ordering Policy (min, max, multiple)
Location (distributed parts)

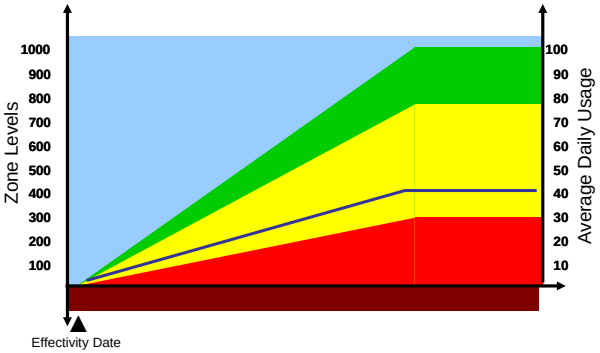


Dynamic Adjustments

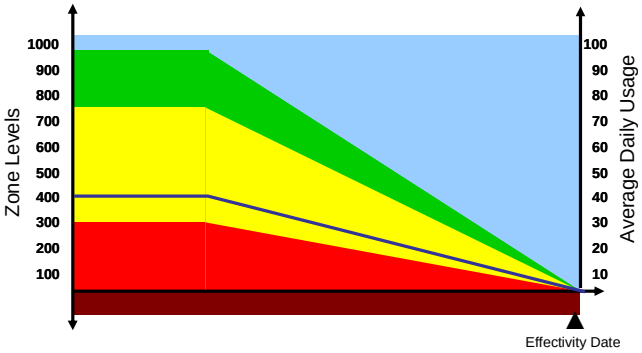
Seasonality



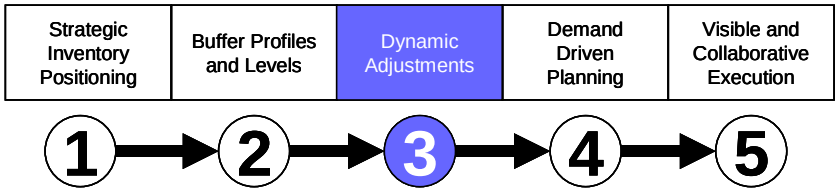
Ramp Up



Ramp Down



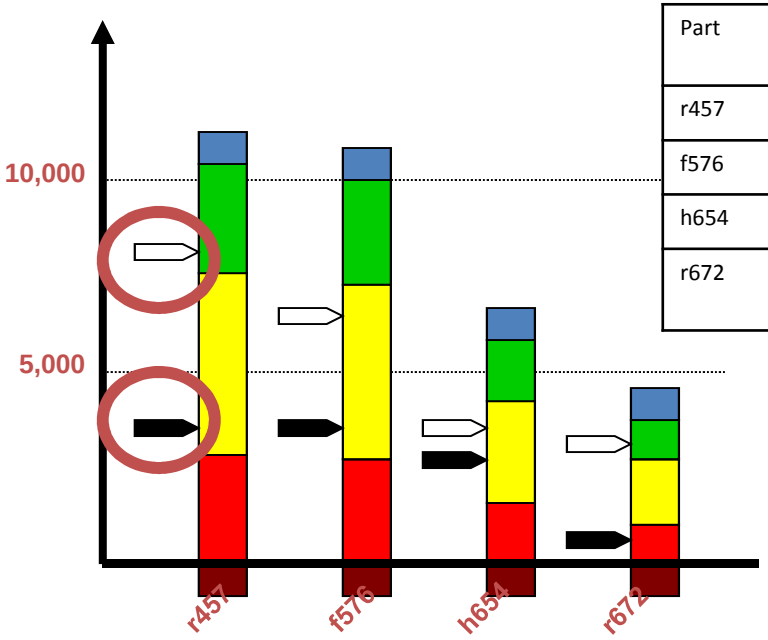
Planned Adjustments



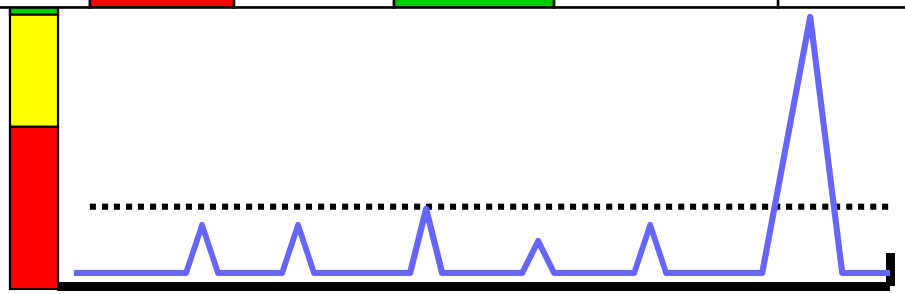
Demand Driven Planning

Supply generation is based what zone the available stock equation places the part

Available stock = on-hand + on-order – SALES ORDER demand (past due, due today and qualified spikes)

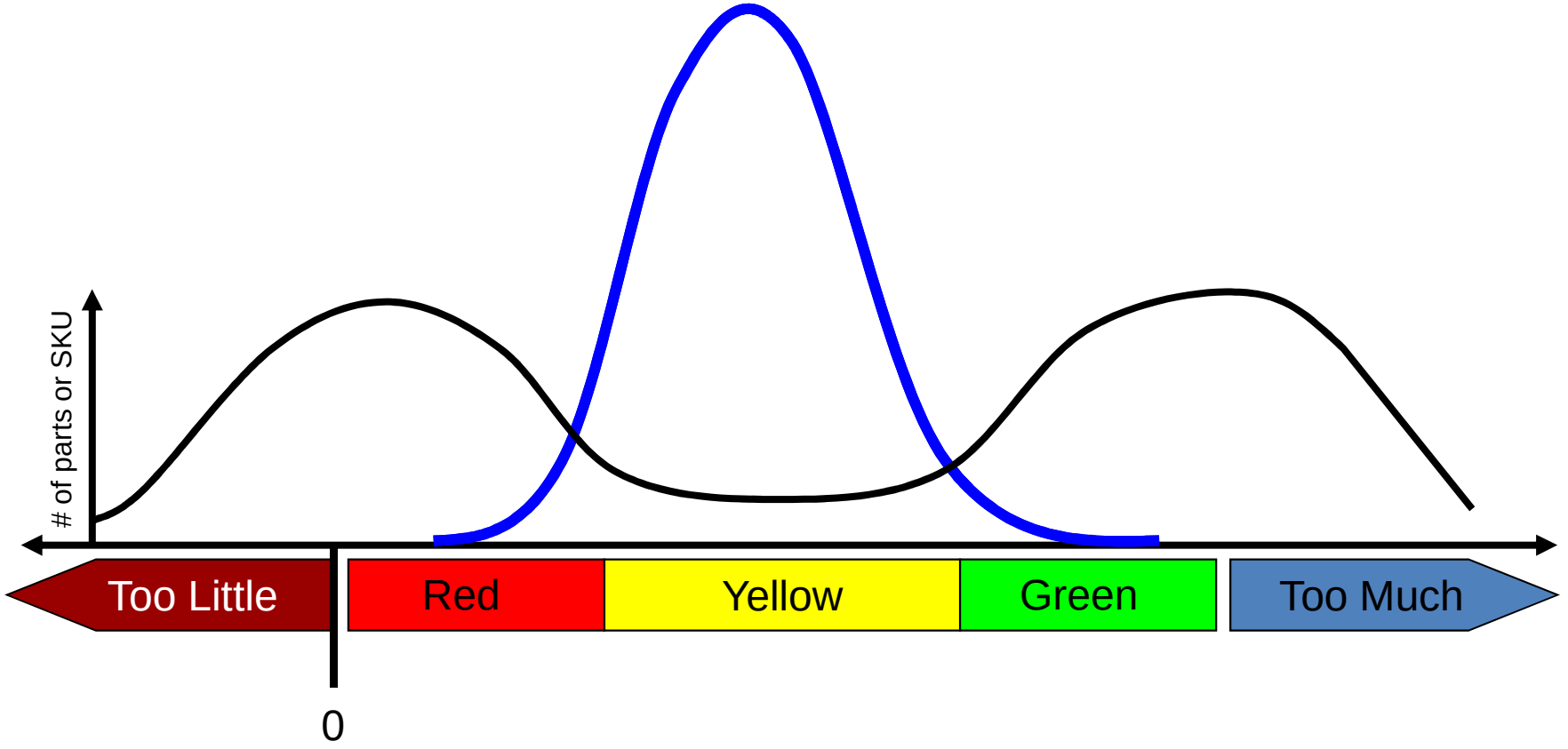


Part	Open Supply	On-hand	Demand	Available Stock	Recommended Supply Qty	Action
r457	5453	4012	1200	8265	0	No Action
f576	3358	4054	540	6872	3128	Place New Order
h654	530	3721	213	4038	2162	Place New Order
r672	2743	1732	623	3852	0	Expedite Open Supply (Execution)

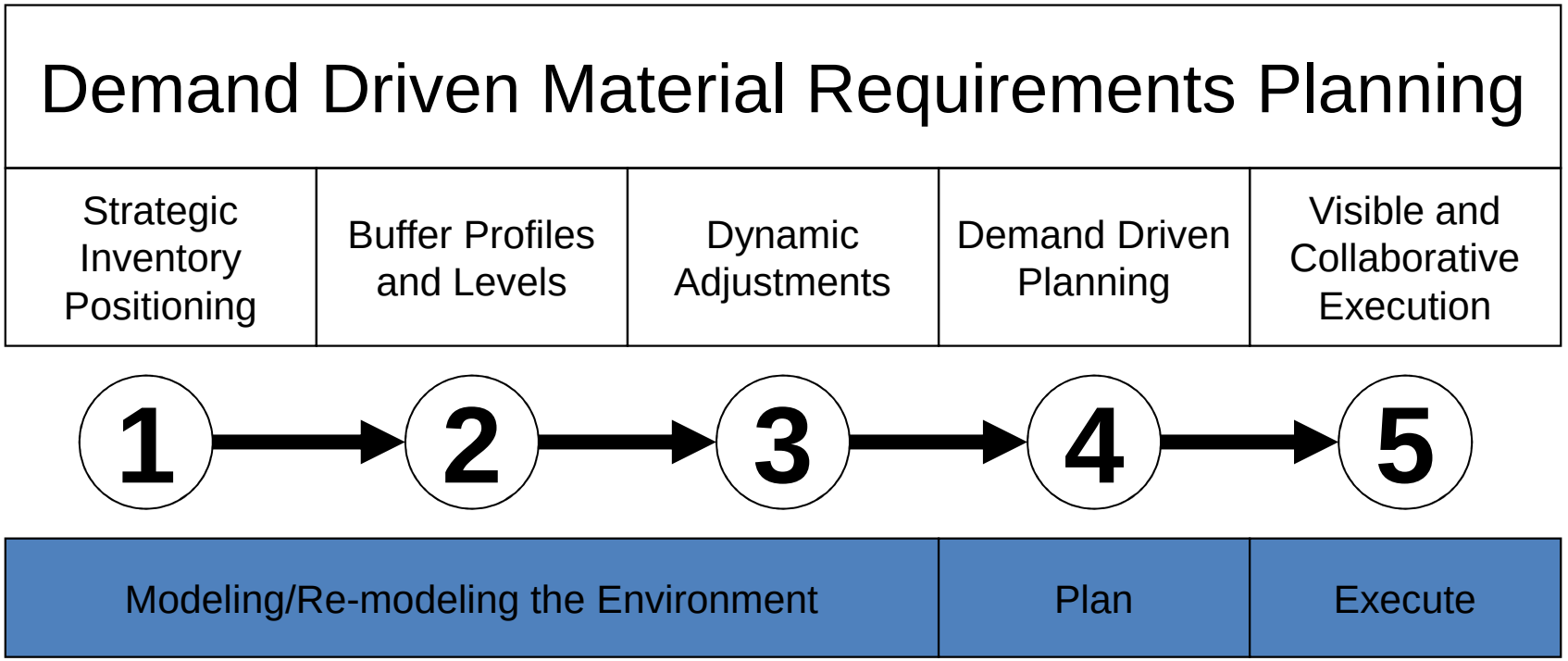


Order Spike Horizon

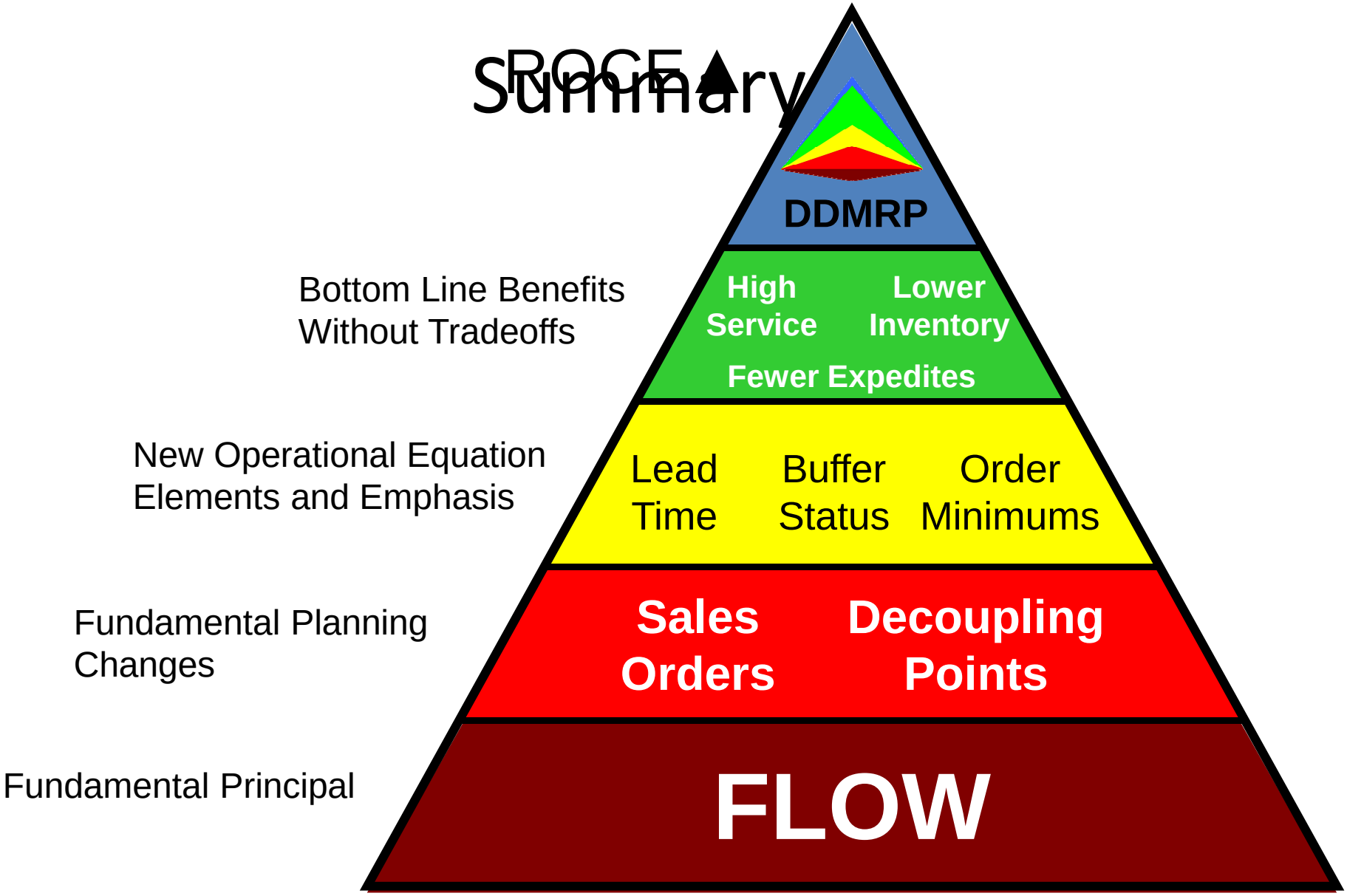
The Power of DDMRP



The Five Components of DDMRP



Summary


DDMRP
Bottom Line Benefits
Without Tradeoffs
High Service
Lower Inventory
Fewer Expedites
New Operational Equation
Elements and Emphasis
Lead Time
Buffer Status
Order Minimums
Fundamental Planning
Changes
Sales Orders
Decoupling Points
Fundamental Principal
FLOW

BERNARD CONTROLS

Invest in Confidence

BERNARD CONTROLS
Pilote DDMRP

02/02/2014

1. Présentation de Bernard Controls
2. Supply chain de Gonesse
3. Projet pilote DDMRP

Spécialiste des servomoteurs électriques

- BERNARD CONTROLS conçoit &fabrique des servomoteurs électriques et des systèmes de contrôle pour l'automatisation des vannes industrielles

Invest in Expertise

Partenaire efficace des marchés très exigeants

Power Generation

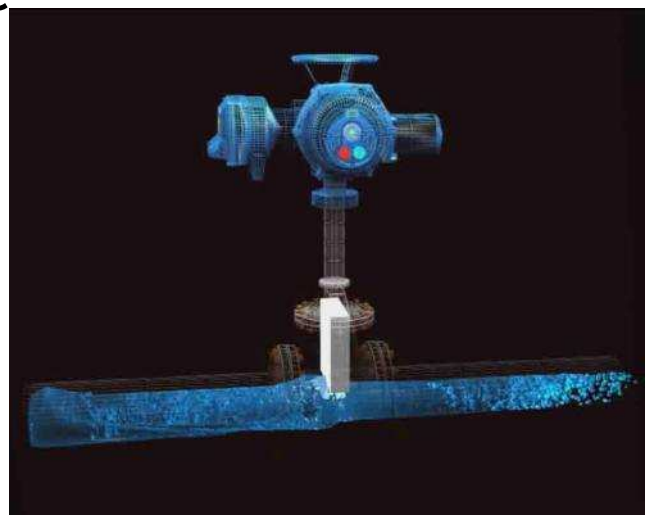
Water treatment

Building Automation,
HVAC, Marine

Oil & Gas

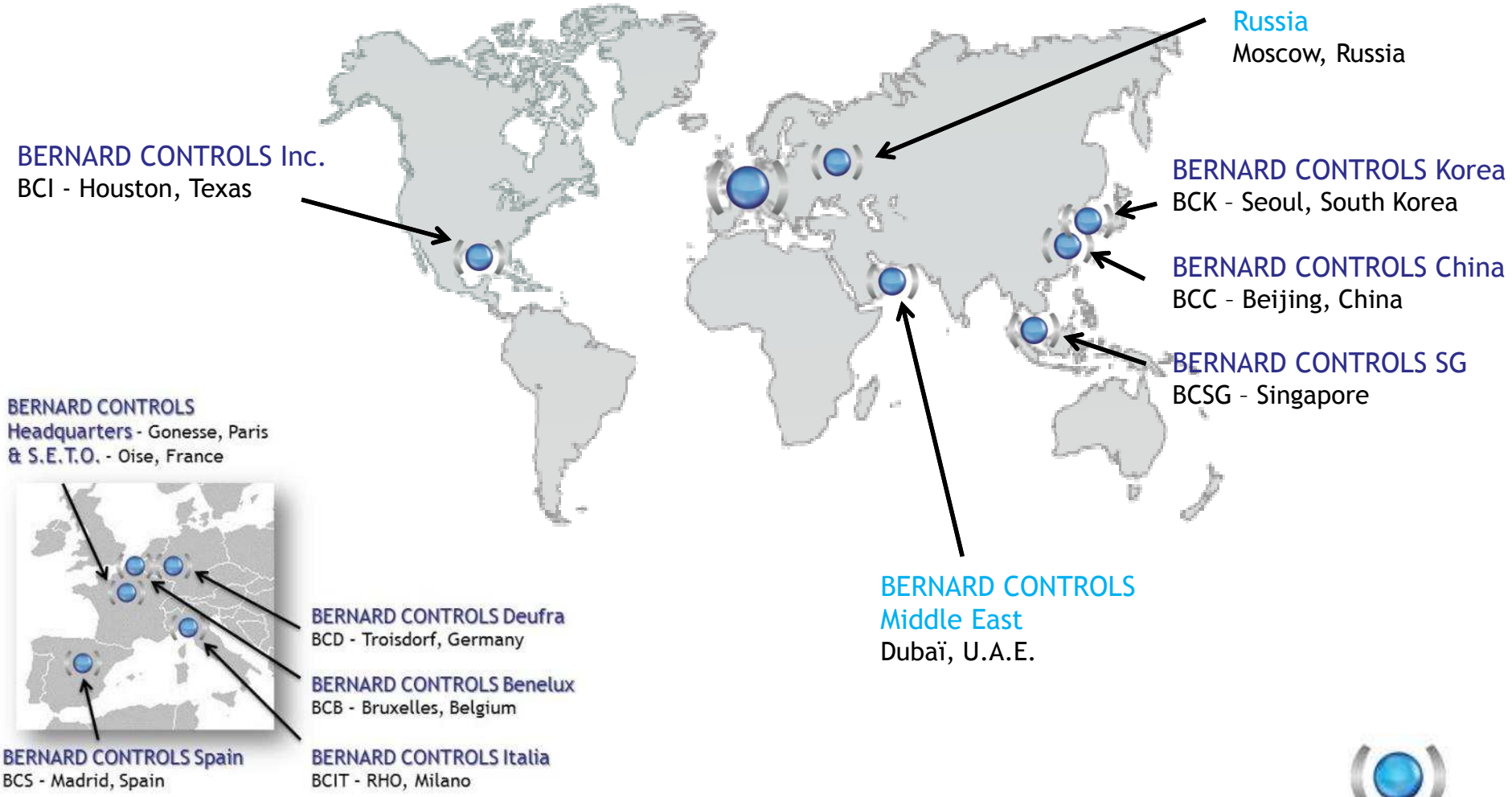
Facts & Figures

- PME internationale & indépendante
- 50M € de chiffre d'affaire
- 415 employés dans le monde
- 40 000 servomoteurs produits par an
- dont 70% exporté hors de France
- 75 années d'expérience



Worldwide Group

BERNARD CONTROLS gathers **9** Subsidiaries & **2** Regional Offices…



Worldwide Group

… and more than 50 distributors/agents throughout the world

Austria, **IPU ING PAUL UNGER**
Brazil, **JCN**
Bulgaria, **SIMATEX Ltd**
Canada, **C.G.INDUSTRIAL SPECIALTIES**
Canada, **VL MOTION**
China, **STAR GLORY TECHNOLOGIES Limited**
Czech Republic, **FLUIDTECHNIK BOHEMIA s.r.o.**
Denmark, **ARMATEC A/S**
Egypt, **ATEB**
Finland, **TALLBERG Tech OY**
Greece, **PI&MS Entreprises Ltd**
Hungary, **APAGYI TRADEIMPEX KFT**
India, **CHEMTROLS**
Indonesia, **PT Agape Trikarsa Libratama**
Indonesia, **PT DBS Solusi Engineering**
Iran, **ASIA INSTRUMENTS**
Israel, **Shelef Engineering**
Kuwait, **CANAR TRADING**
Latvia, **CONTI Chemical Company SIA**
Lithuania, **UAB OGMANDIJA**
Malaya, **ACTUATION & CONTROLS ENGINEER**
Mexico, **TECFLU**

Morocco, **AQUATEL**
New Zealand, **MRC TRANSMARK**
Norway, **KSB LINDFLATEN AS**
Peru, **INDUSTRIAL CONTROLS**
Poland, **ARNAP**
Poland, **MARCO**
Portugal, **PINHOL, GOMES & GOMES LDA**
Qatar, **JAIDAH GROUP**

Romania, **SYSCOM 18 SRL**
Romania, **STRING SRL**
Russia, **A.E.T**
Russia, **AMOTEK**
Russia, **NEOTEH**
Russia, **PROEKT 5**
Russia, **SINEKO**
Russia, **TYAZHPROMKOMPLEKT**

Saudi Arabia, **SAND WORLD**
South Africa, **A-Q-RATE AUTOMATION**
South Korea, **YOO SHIN E&I Co. Ltd**
South Korea, **RENTEC CO Ltd**
Switzerland, **MATOKEM AG**
Taiwan, **Thai Castle Corp.**
Thailand, **FLOMATIC LTD**
Thailand, **EOT Euro-Oriental Trading Co. Ltd**
Turkey, **OTKONSAS**
Ukrenia, **NEOKAN**
U.A.E., **EMIRATES HOLDINGS**
U.A.E., **TECHNOFLOW LLC**
United Kingdom, **ZOEDALE Plc**
USA, **PROCESS MECHANICAL SYSTEMS, Inc**
USA, **CIB CORPORATION**
USA, **FLOW CONTROL SYSTEMS**
USA, **KING MECHANICAL SPECIALTY**
USA, **ECCO GREGORY**
USA, **CPI CONTROLS - RI**
USA, **CONSOLIDATED CONTROLS**
Vietnam, **ELISS**

…

BERNARD CONTROLS Production Facilities

BC Head Offices & Factory – Gonesse (Paris) FRANCE

BC China Offices & Factory – Beijing CHINA

S.E.T.O. Factory – Grandvilliers (Oise) FRANCE

1. Présentation de Bernard Controls
2. Supply chain de Gonesse
3. Projet pilote DDMRP

Une supply chain en cours de maturité




- Une gamme étendue et une personnalisation unitaire
- Fabrication et assemblage à la commande
- ERP : Dynamics AX depuis 2007






Problèmes actuellement rencontrés

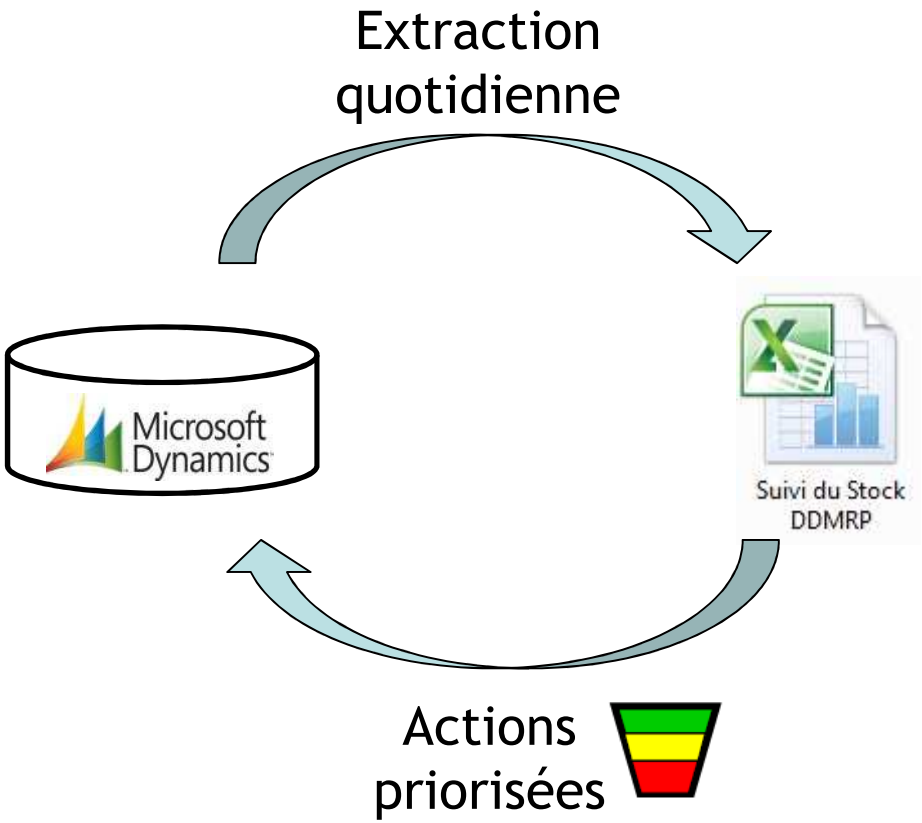
- 5,4 mois de couverture stock
- 8 435 références de composants
- Environ 3% de rupture en fabrication
- Manque critique de fiabilité des prévisions
- 2 950 messages d'action avec le MRP

1. Présentation de Bernard Controls
2. Supply chain de Gonesse
3. Projet pilote DDMRP

Pilote DDMRP sur la gamme AS

- **Focalisation sur la gamme AS**
  - Représentant 20% des commandes
  - Nombre moyen de références composant : 211
  - Livraison à temps : 82% en 2013 pour la gamme AS
- **DDMRP**
  - Refonte globale du positionnement du stock
  - Objectif Livraison à temps : 95% en 2014 pour la gamme AS

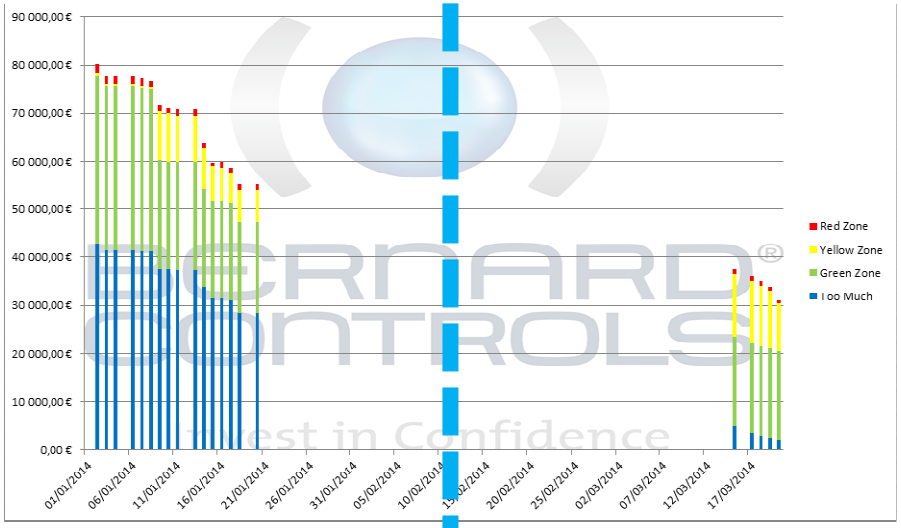
Mise en place simple avec Excel



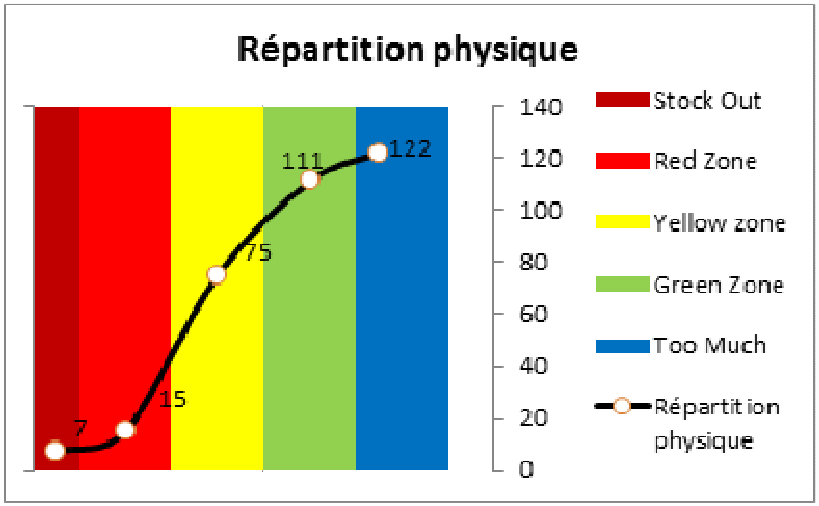
Référence	Désignation	Horizon de calcul	Stock physique au matin	Stock Physique	Stock Disponible	OF à lancer	Action à réaliser
7112122	J2910-11 BOUCHON 2*M20 STD	27/02/2014	49	49	313	0	Relancer+Diminuer
7112721	E4189-110 CARTER AS 4M20	28/02/2014	486	126	451	0	Décaler+Diminuer
7310082	H2187-02 SECTEUR AS 1/45	07/02/2014	827	541	1041	0	Décaler+Diminuer
7310106	H2187-81 SECTEUR AS80 1/31	07/02/2014	349	702	702	0	Décaler+Diminuer
7310178	J2614-02 ROUE CRABOT 9/52	28/02/2014	14	-78	172	225	Relancer+Augmenter
7511431	H2216-31 VIS AS 1/45 8/23	28/02/2014	1812	1496	1496	0	
7511432	H2216-32 VIS AS50/80 1/31 8/23	28/02/2014	657	497	1476	0	Décaler+Diminuer

- Janvier : test process & formation
- Février : 70 références
- Avril : déploiement global AS

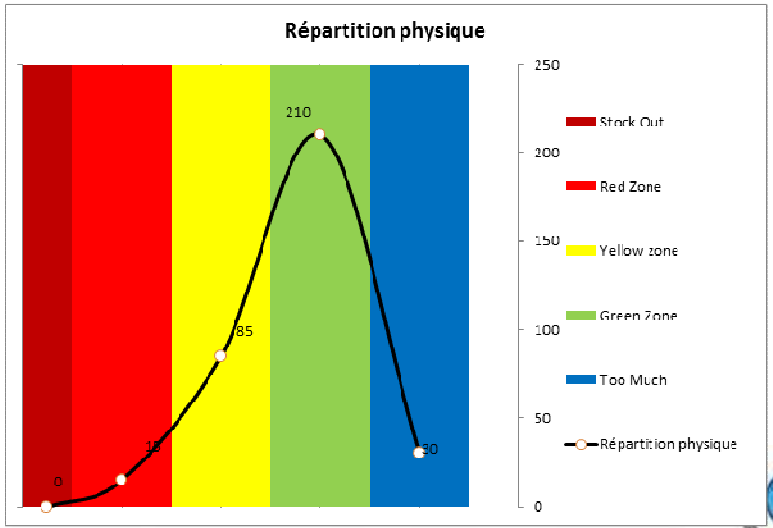
Pilotage visuel du stock



Stock actuel



Stock cible, gain 30%



Merci pour votre attention

Conclusion

Paul Cordié CDDP

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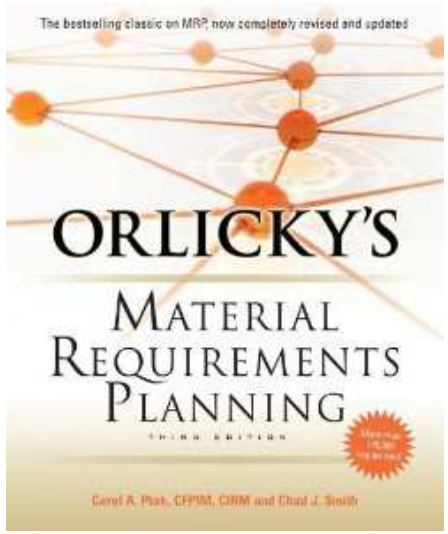
What is Demand Driven MRP?

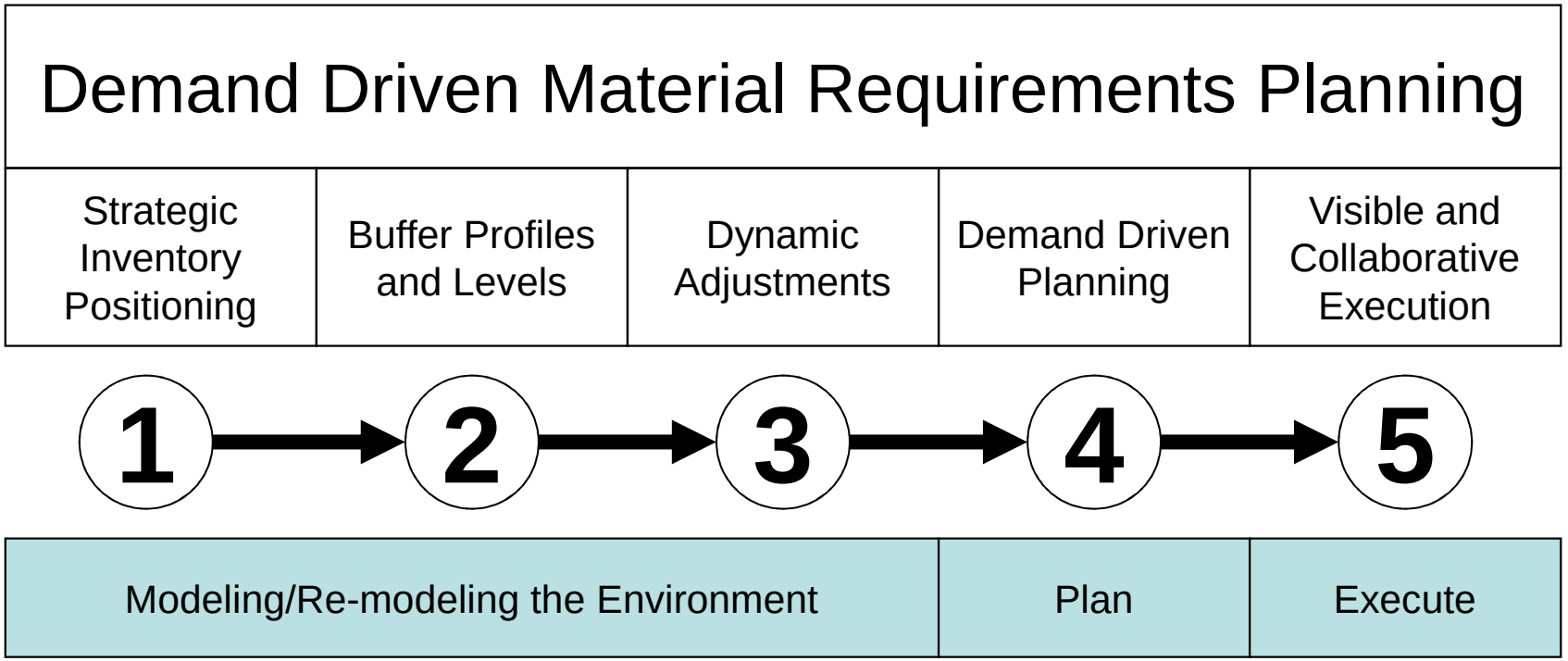
A multi-echelon materials and inventory planning and execution solution.



Demand Driven MRP (DDMRP)

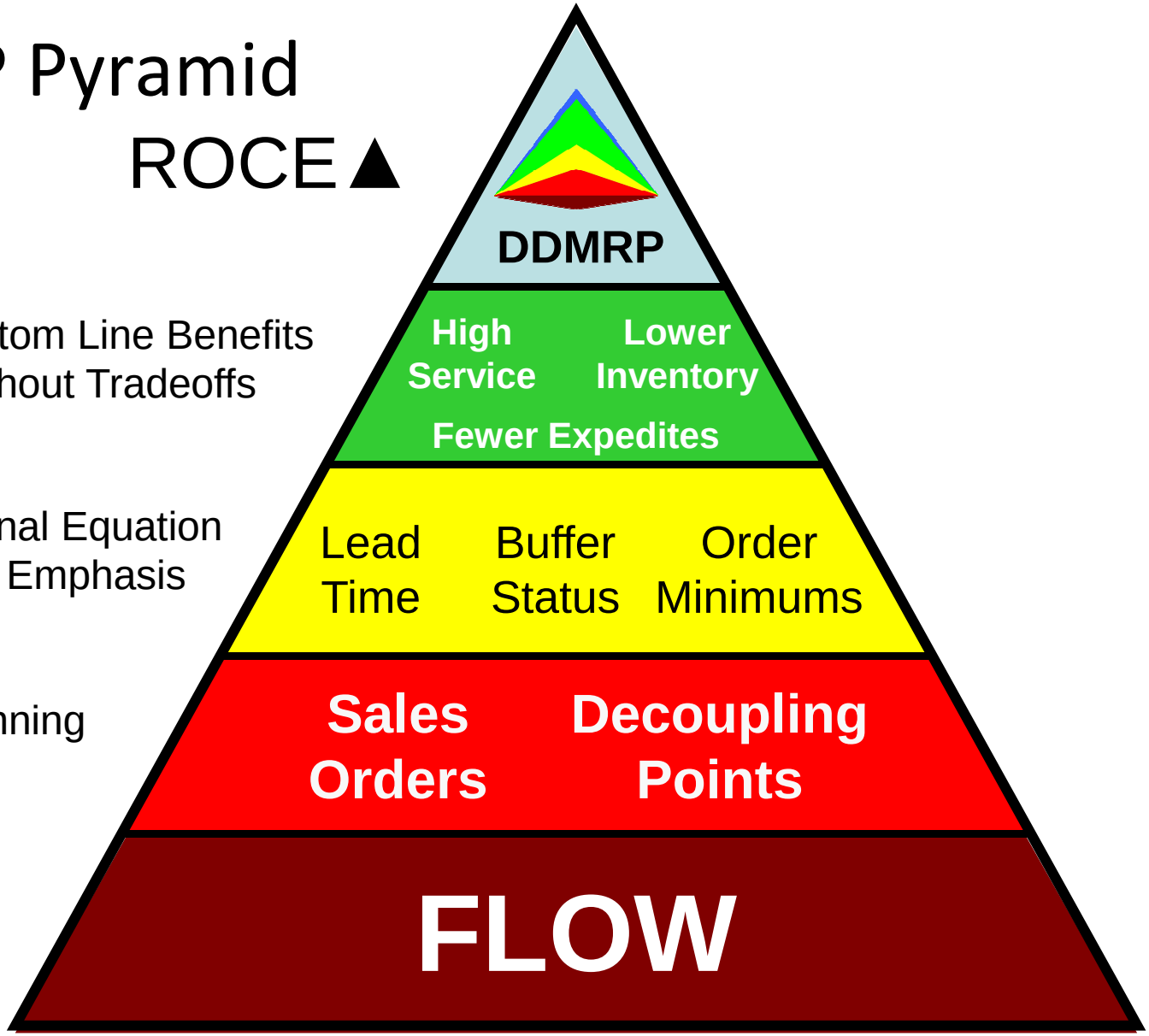
- Material Requirements Planning (MRP)
- Distribution Requirements Planning (DRP)
- Lean
- Theory of Constraints
- Six Sigma
- Innovation

The Five Components of DDMRP



The DDMRP Pyramid

ROCE▲



Bottom Line Benefits
Without Tradeoffs

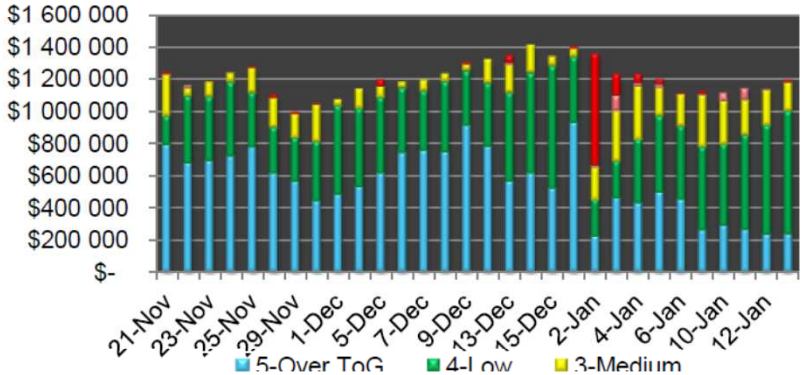
New Operational Equation
Elements and Emphasis

Fundamental Planning
Changes

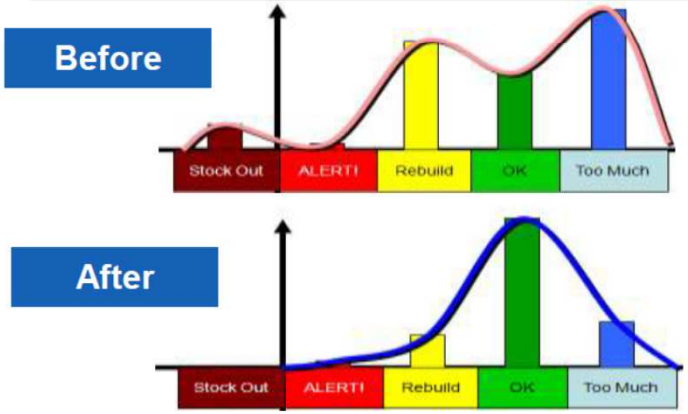
Fundamental Principal

FMCG Example

300 Materials are buffered without increase in RPW inventory. Lead-times de-coupled



Dampened the bull whip, now operating more effectively, and inventory optimized



Replenishment lead time has been reduced 82% to 9 days from 50 days, becoming Responsive with 18% less Raw and Pack inventory

Finished Goods down 45% with 99.7% Service

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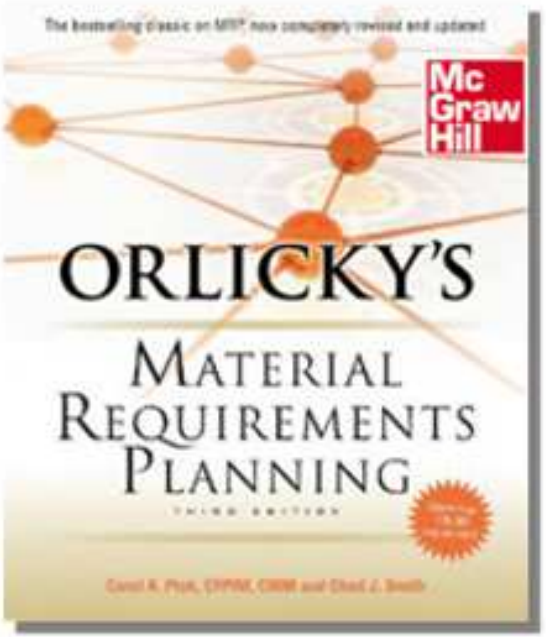
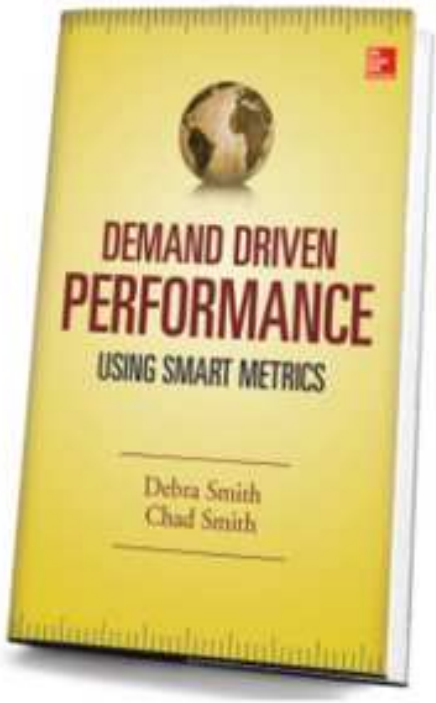
ISCEA

CPIM DE FRANCE

FAPICS Association Française de Management des Opérations de la Chaîne Logistique





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