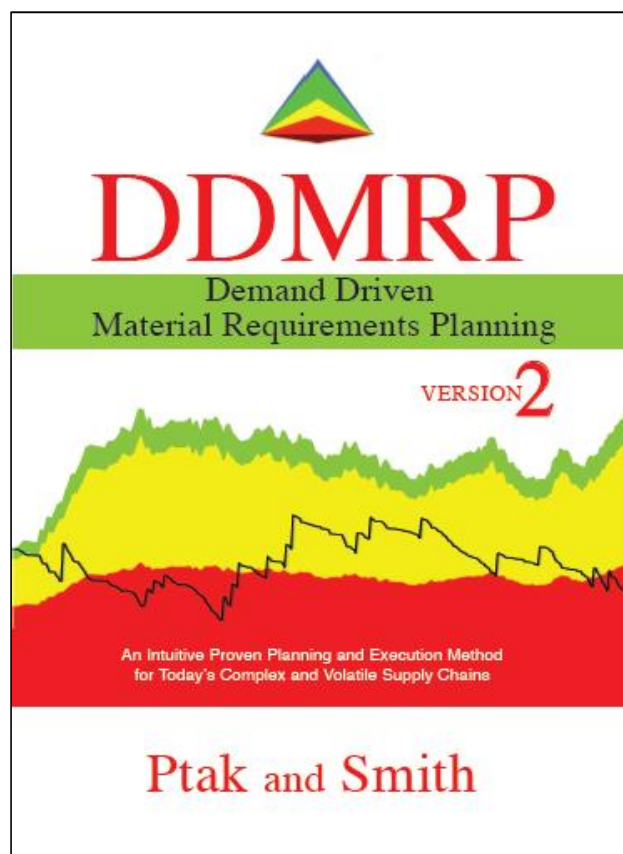


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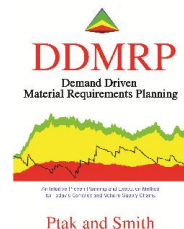
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Figure and Graphics Download Pack (Chapters 9-13)

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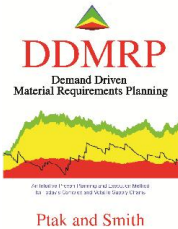


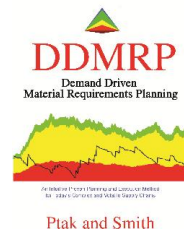


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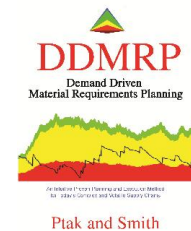
Attend the Demand Driven Planner Program

Demand Driven Material Requirements Planning is the official text book of the Demand Driven Planner (DDP) Program.



The [Demand Driven Planner \(DDP\) program](#) is designed for planning, purchasing and supply chain personnel responsible for implementing and maintaining a DDMRP implementation. Designed by the leading authorities on DDMRP at the Demand Driven Institute, the Demand Driven Planner program is comprised of 13 modules of in-depth DDMRP education. The DDP Program is THE official preparatory course for DDI's [Demand Driven Planner Professional \(DDPP\)TM](#) exam.





Chapter 9

Demand Driven Planning



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Figure 9-1

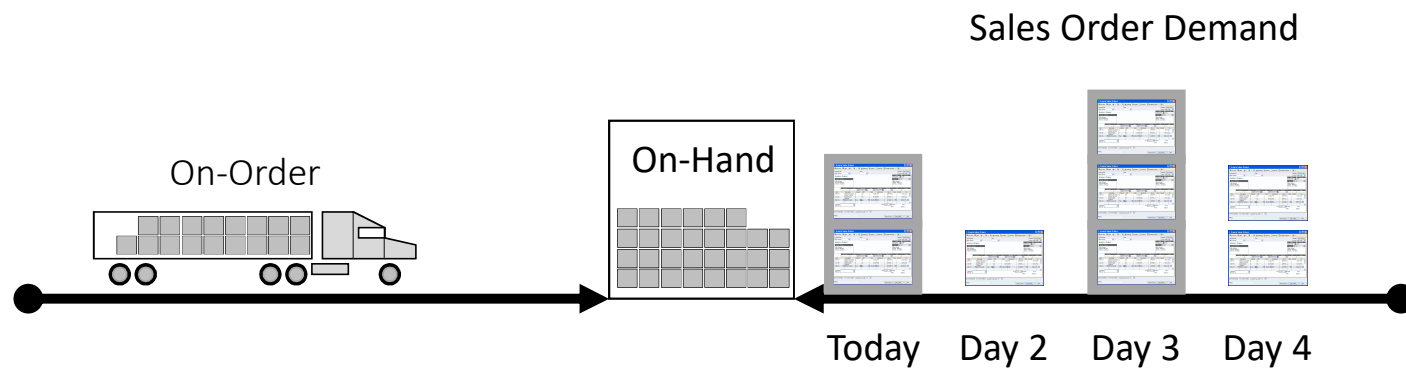


Figure 9-2

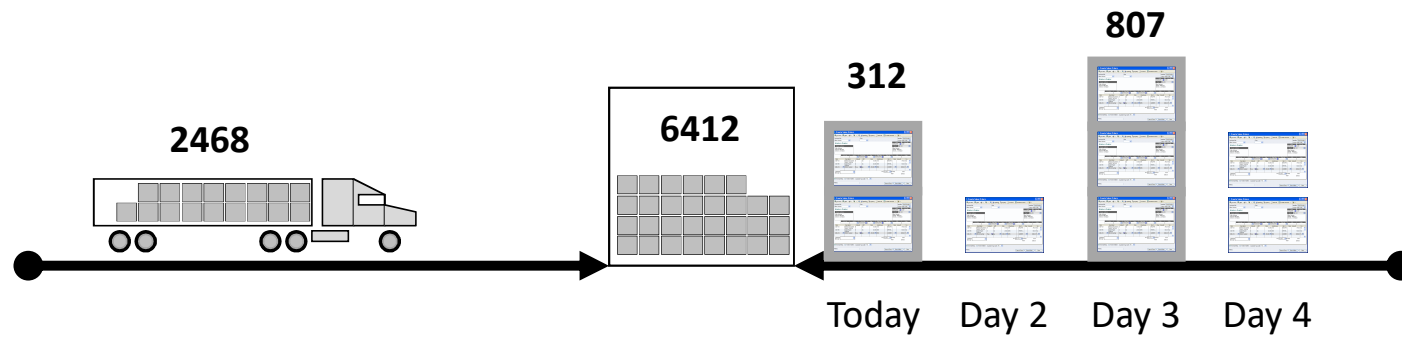


Figure 9-3

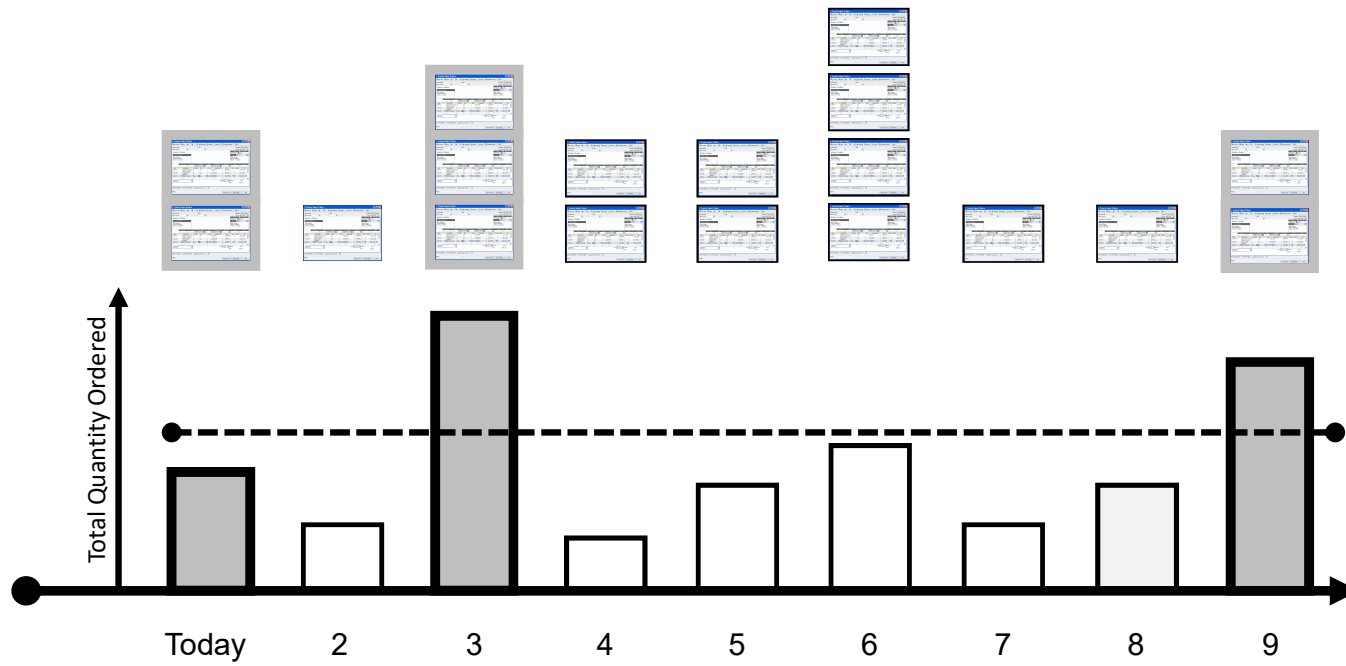


Figure 9-4

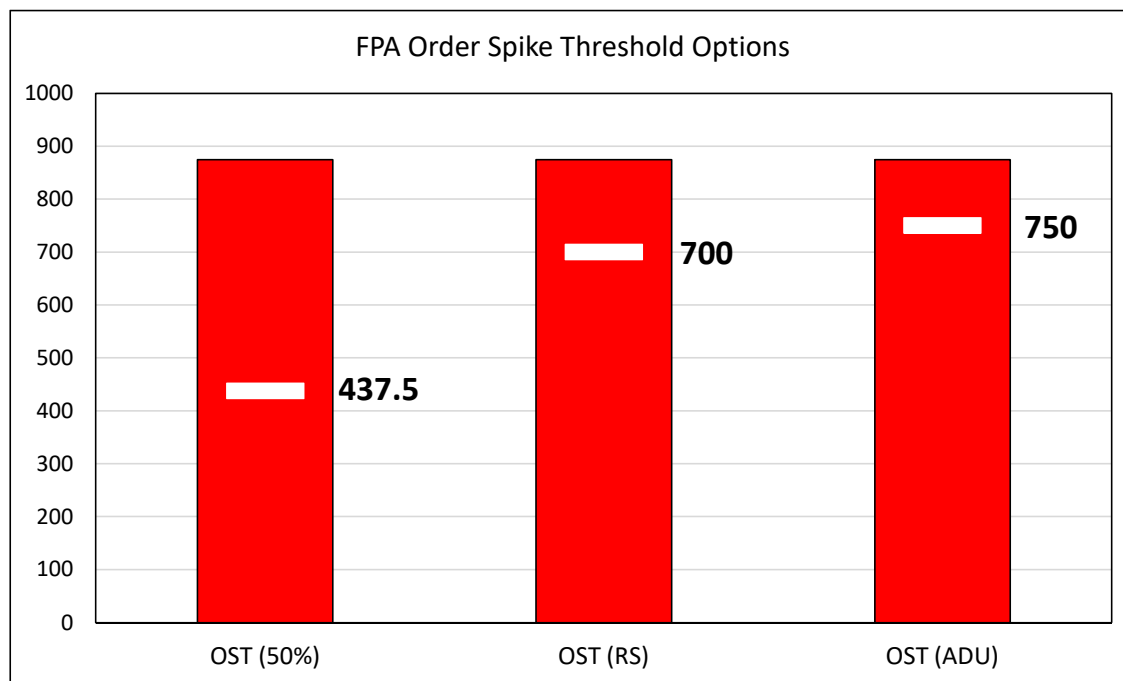


Figure 9-5

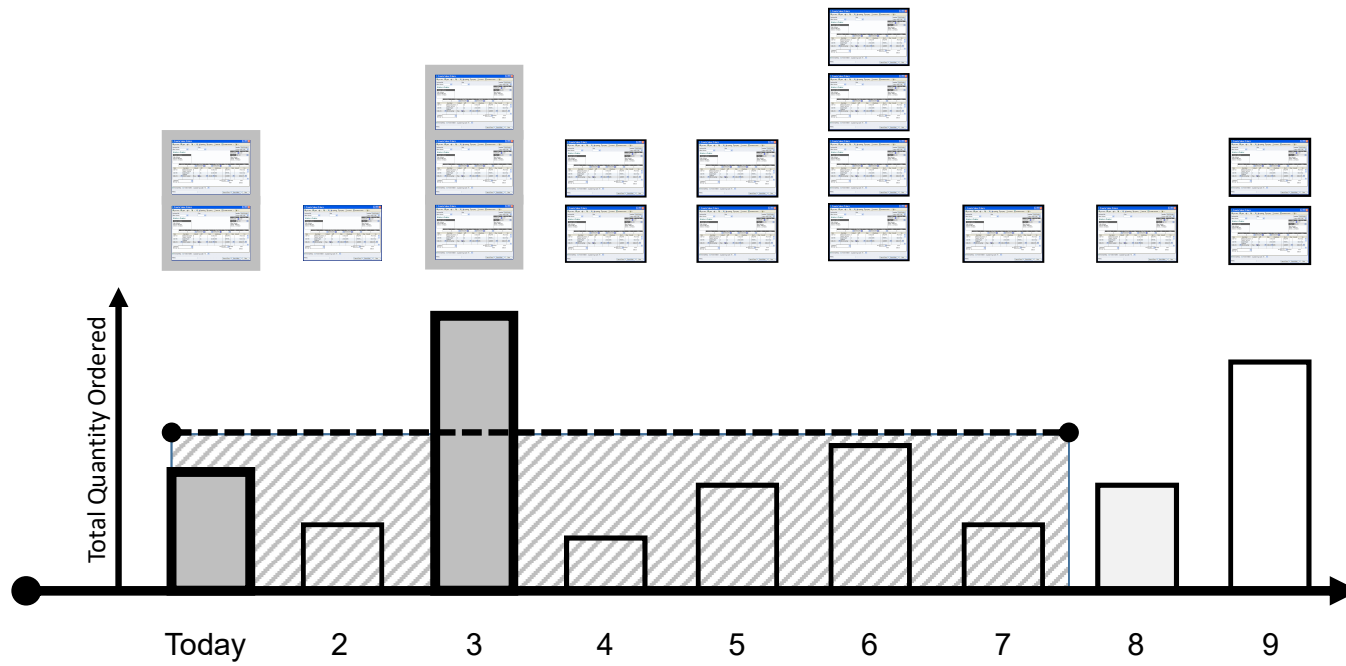


Figure 9-6

Part # EXAMPLE Order Spike Horizon = 6 days Order Spike Threshold = 100 Today's Date: 06/21			
	Demand	Quantity	Due Date
	SO# 1234	35	06/21
	SO# 1235	40	06/21
	SO# 1236	40	06/22
	SO# 1237 – SPIKE!	70	06/23
	SO# 1238 – SPIKE!	50	06/23
	SO# 1239 – SPIKE!	60	06/23
	SO# 1240	10	06/24
	SO# 1241	25	06/24
	SO# 1242	60	06/25
	SO# 1243	10	06/25
	SO# 1244	10	06/26
	SO# 1245	15	06/26
	SO# 1246	50	06/26
	SO# 1247	20	06/26
	SO# 1248	40	06/27
	SO# 1249 (OUTSIDE HORIZON)	70	06/28
	SO# 1250 – SPIKE! (OUTSIDE HORIZON)	80	06/29
	SO# 1251 – SPIKE! (OUTSIDE HORIZON)	60	06/29

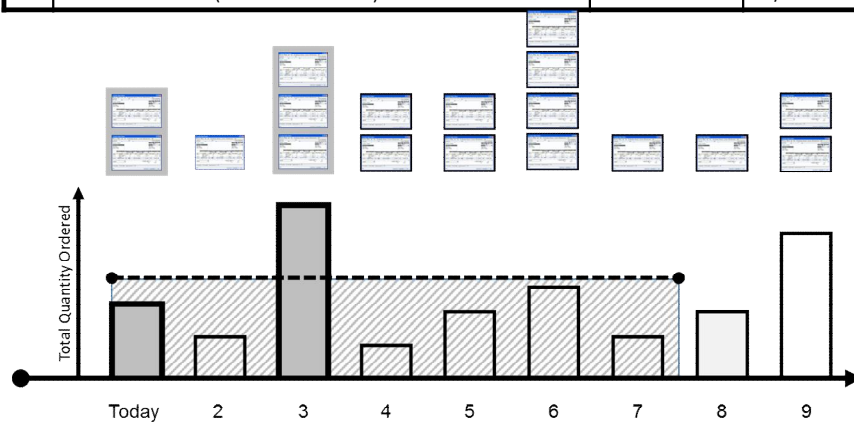


Figure 9-7

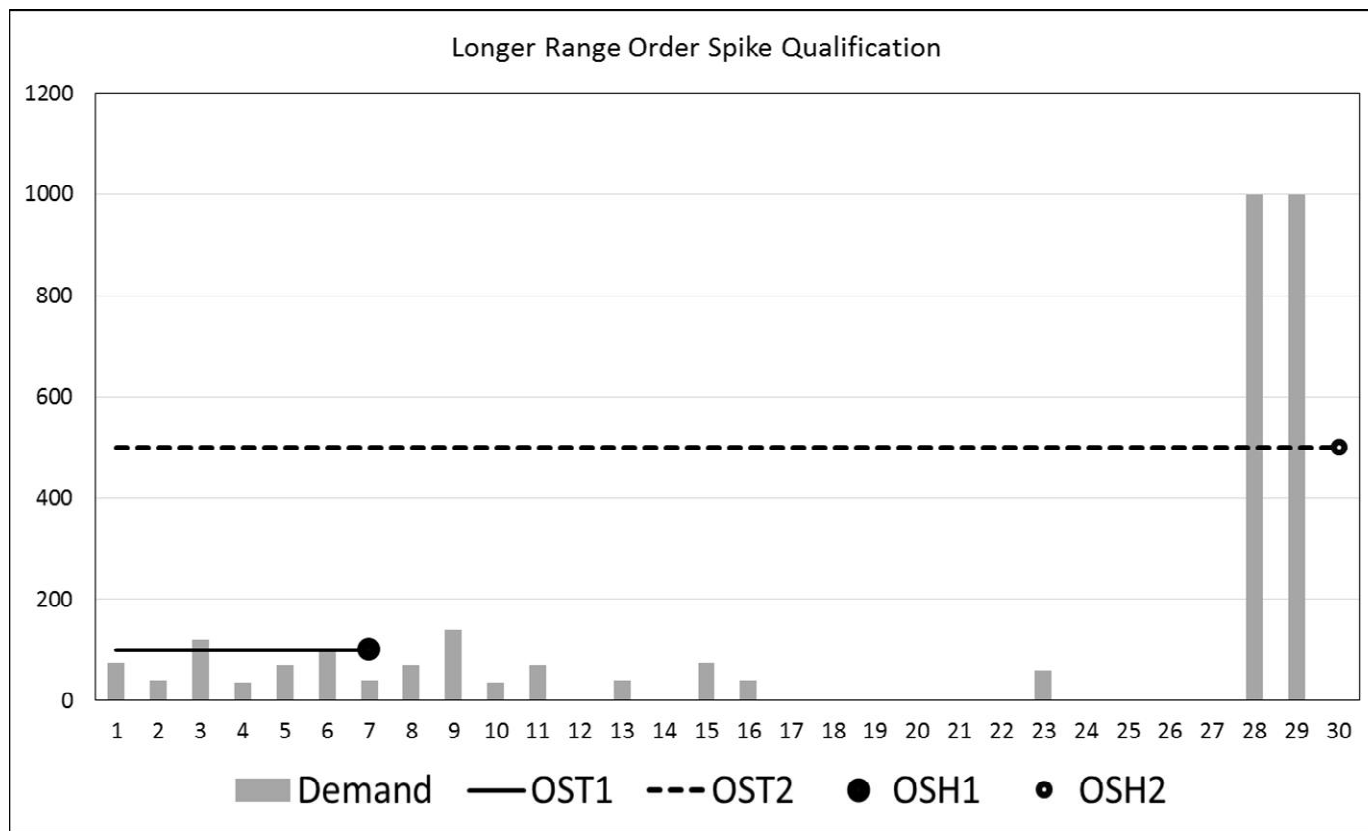


Figure 9-8

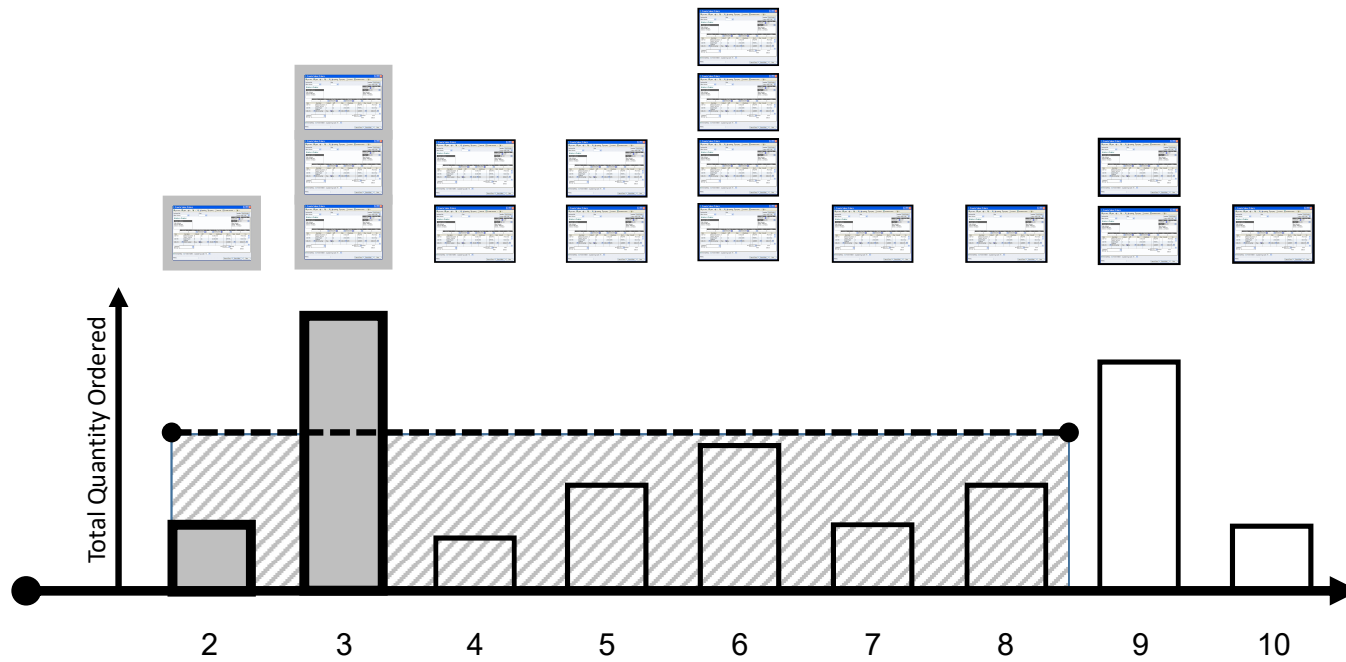


Figure 9-9

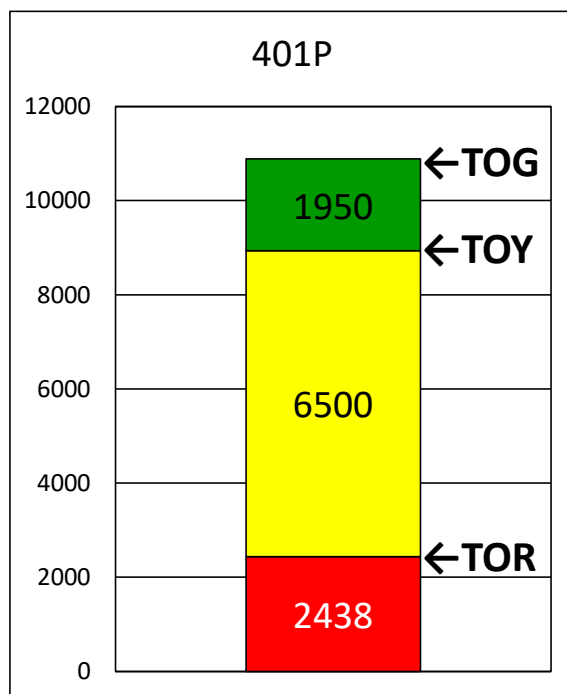


Figure 9-10

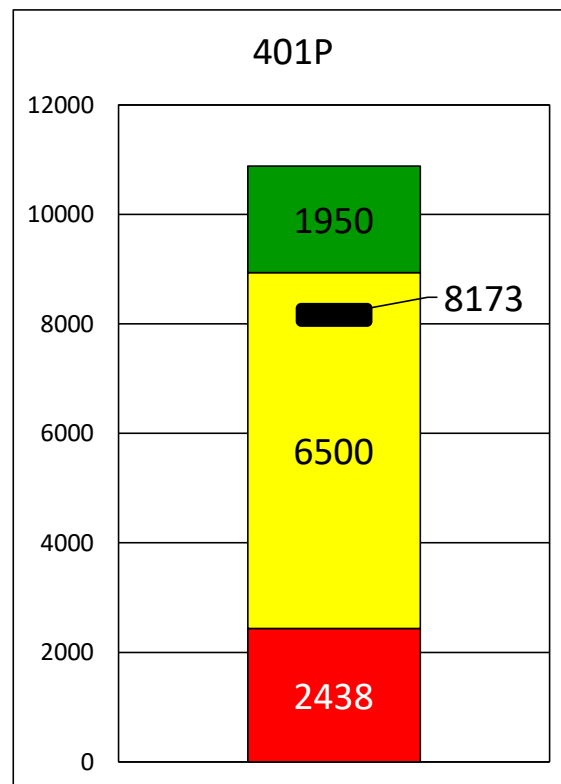
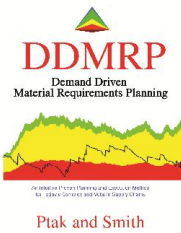




Figure 9-11



Today's Date: 15-July											
Part#	Planning Priority	On-Hand	On-Order	Qualified Demand	Net Flow Position	Order Recommendation	Request Date	Top RED	Top YELLOW	Top GREEN	Lead Time
401P	YELLOW 75.1%	2652	6233	712	8173	2715	25-Jul	2438	8938	10888	10

Figure 9-12

Today's Date: 15-July

Part#	Planning Priority	On-Hand	On-Order	Qualified Demand	Net Flow Position	Order Recommendation	Request Date	Top RED	Top YELLOW	Top GREEN	Lead Time
406P	RED 19.8%	401	506	263	644	2606	4-Aug	750	2750	3250	20
403P	YELLOW 43.4%	1412	981	412	1981	2579	23-Jul	1200	3600	4560	8
402P	YELLOW 69.0%	601	753	112	1242	558	24-Jul	540	1440	1800	9
405P	YELLOW 74.0%	3400	4251	581	7070	2486	24-Jul	1756	7606	9556	9
401P	YELLOW 75.1%	2652	6233	712	8173	2715	25-Jul	2438	8938	10888	10
404P	GREEN 97.6%	1951	1560	291	3220	0		1050	2550	3300	6

Figure 9-13

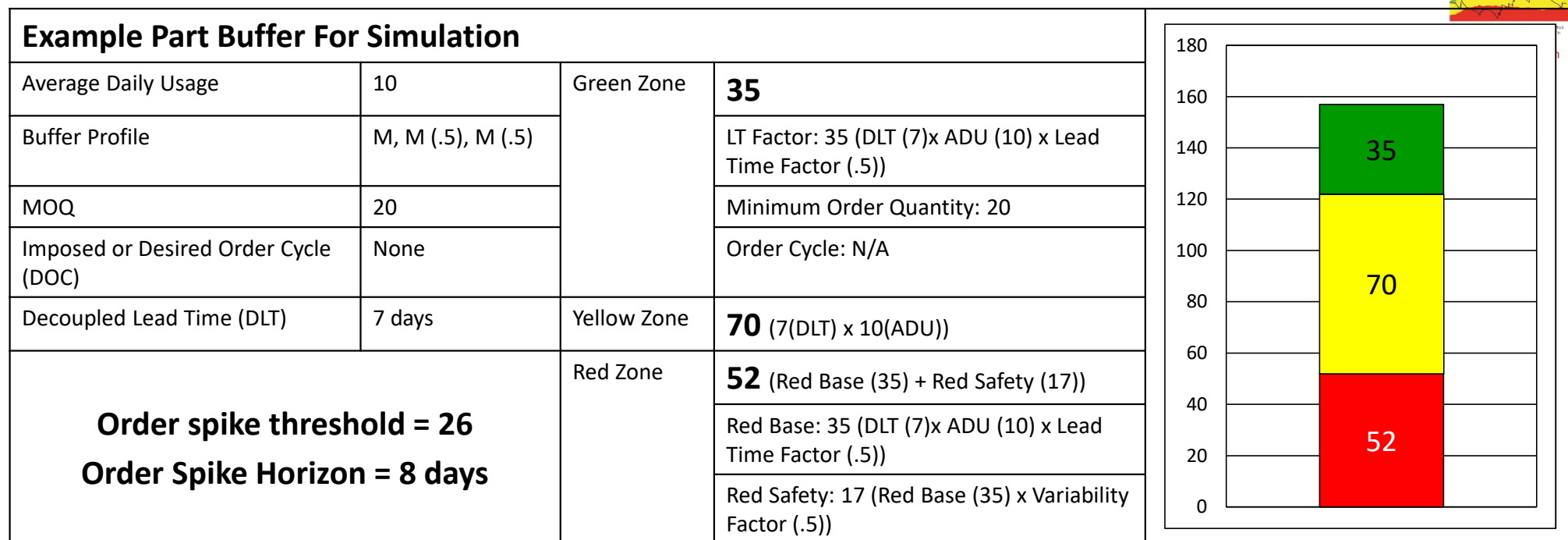
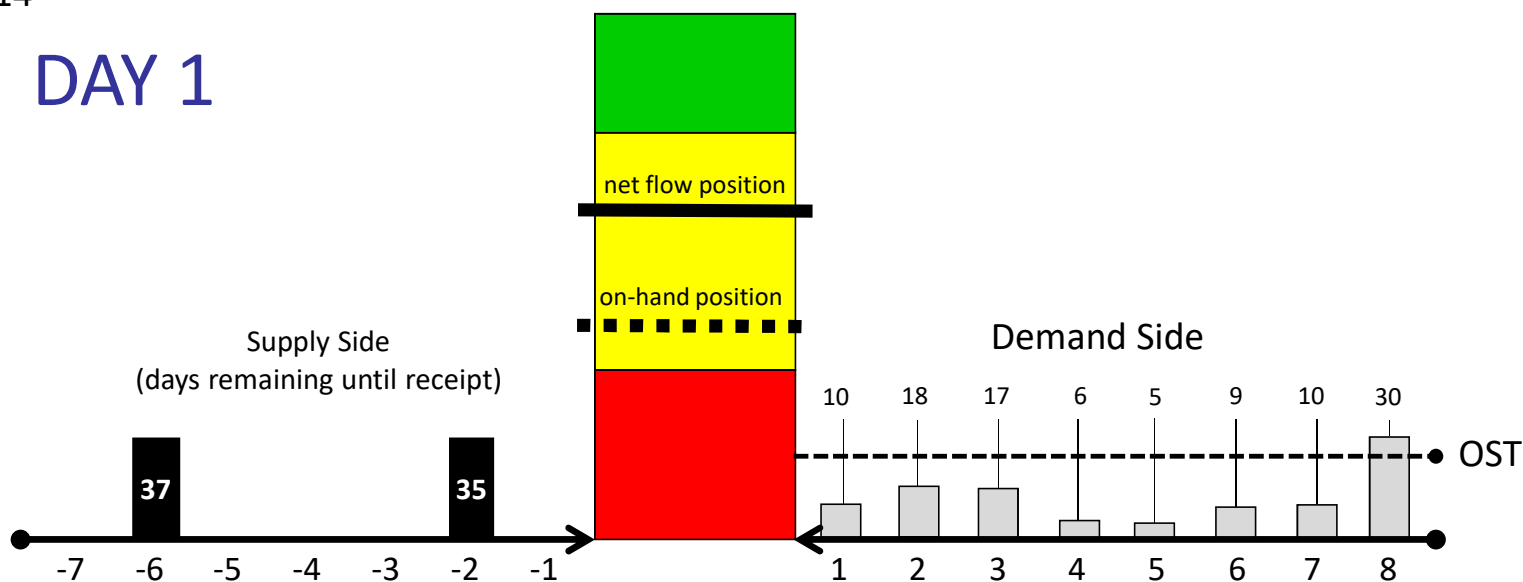


Figure 9-14

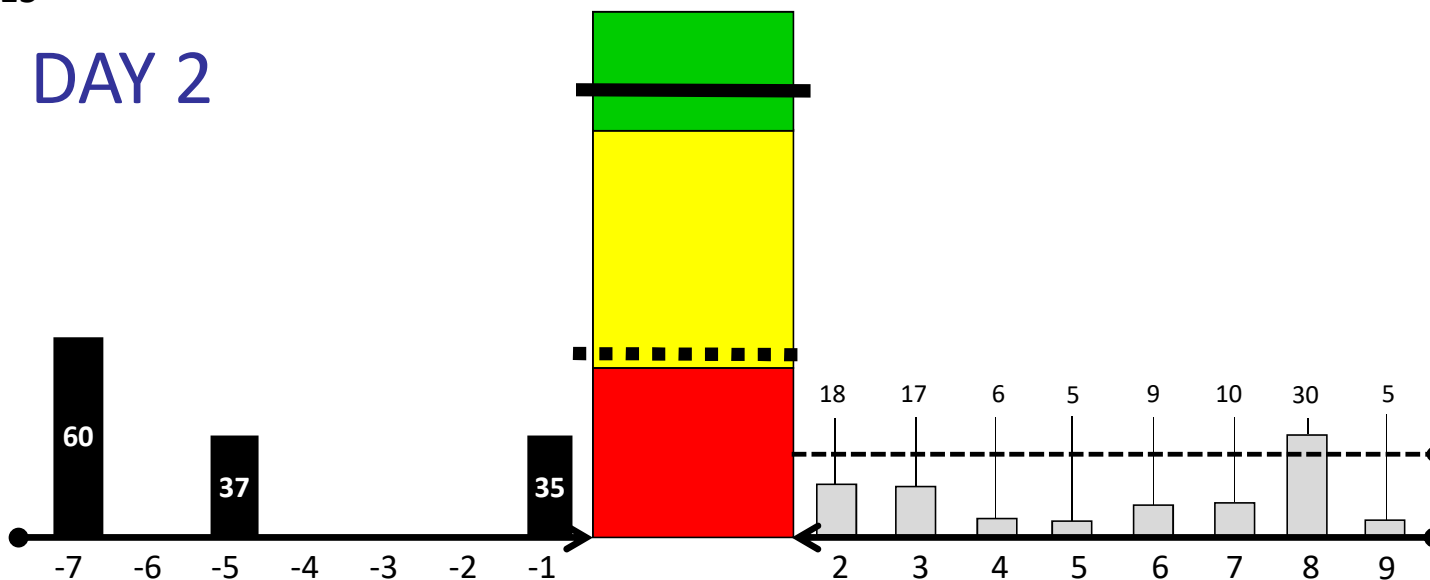
DAY 1



Part#	Planning Priority	On-Hand	On-Order	Qualified Demand	Net Flow Position	Order Amount	Request Date	Top RED	Top YELLOW	Top GREEN	Lead Time
EXAMPLE	YELLOW 61.8%	65	72	40	97	60	Day 8	52	122	157	7

Figure 9-15

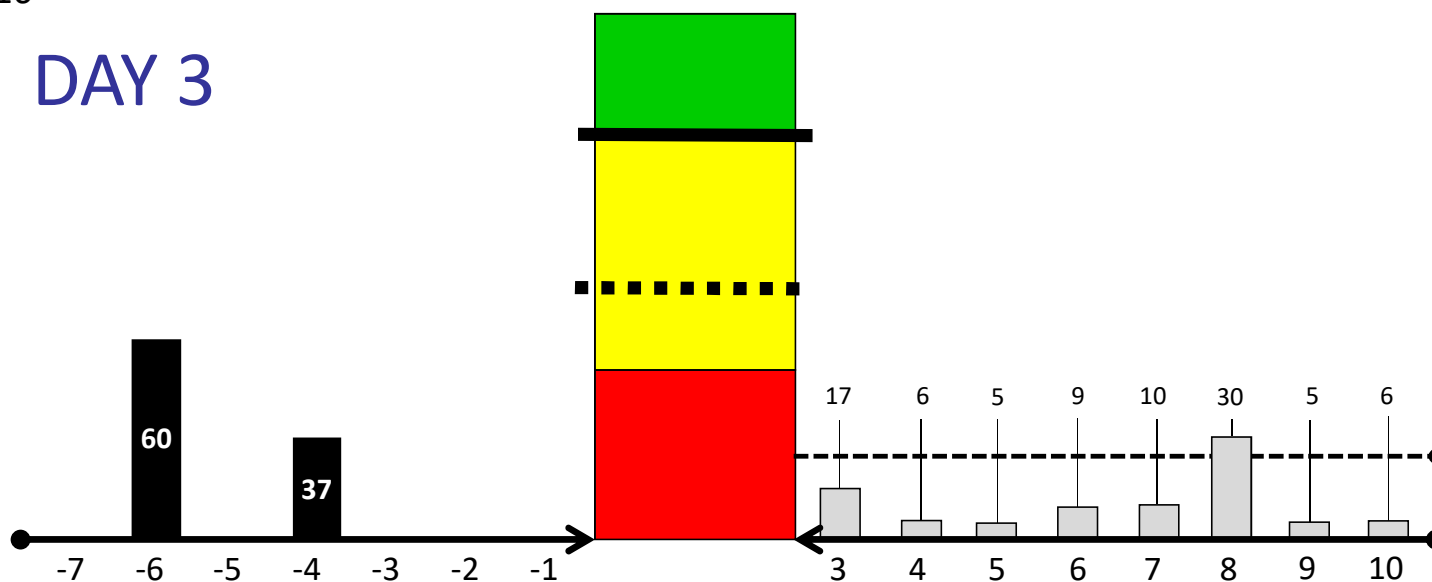
DAY 2



Part#	Planning Priority	On-Hand	On-Order	Qualified Demand	Net Flow Position	Order Amount	Request Date	Top RED	Top YELLOW	Top GREEN	Lead Time
EXAMPLE	GREEN 88.5%	55	132	48	139	0		52	122	157	7

Figure 9-16

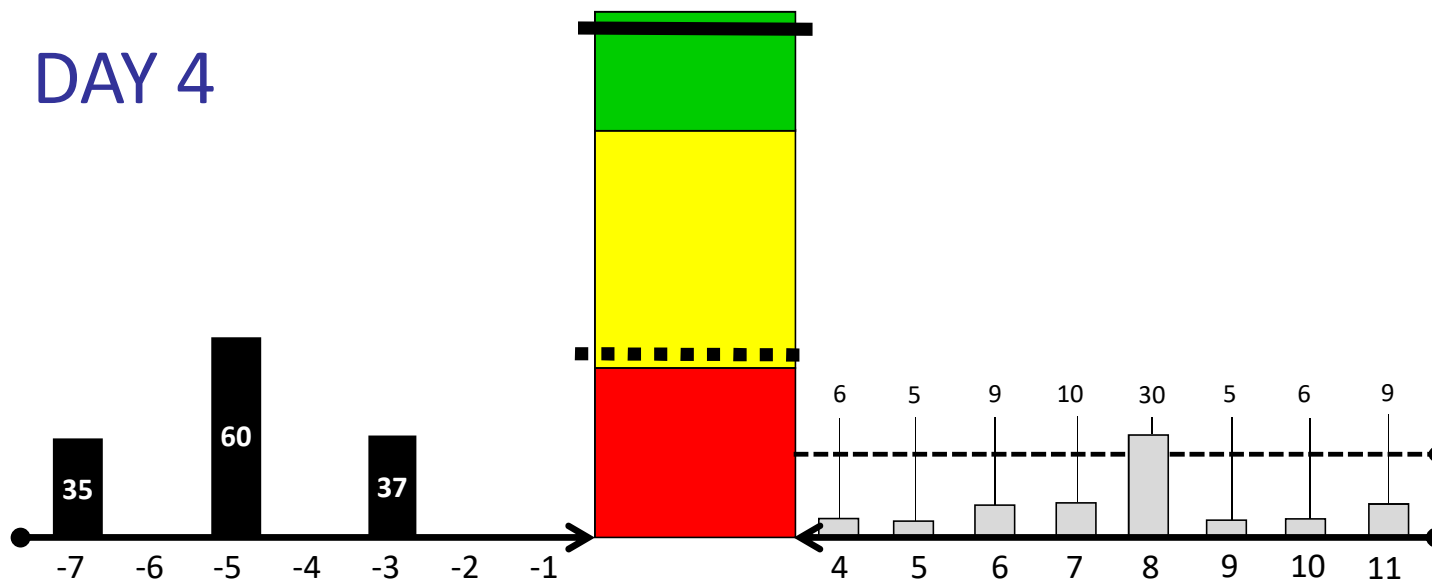
DAY 3



Part#	Planning Priority	On-Hand	On-Order	Qualified Demand	Net Flow Position	Order Amount	Request Date	Top RED	Top YELLOW	Top GREEN	Lead Time
EXAMPLE	YELLOW 77.7%	72	97	47	122	35	Day 10	52	122	157	7

Figure 9-17

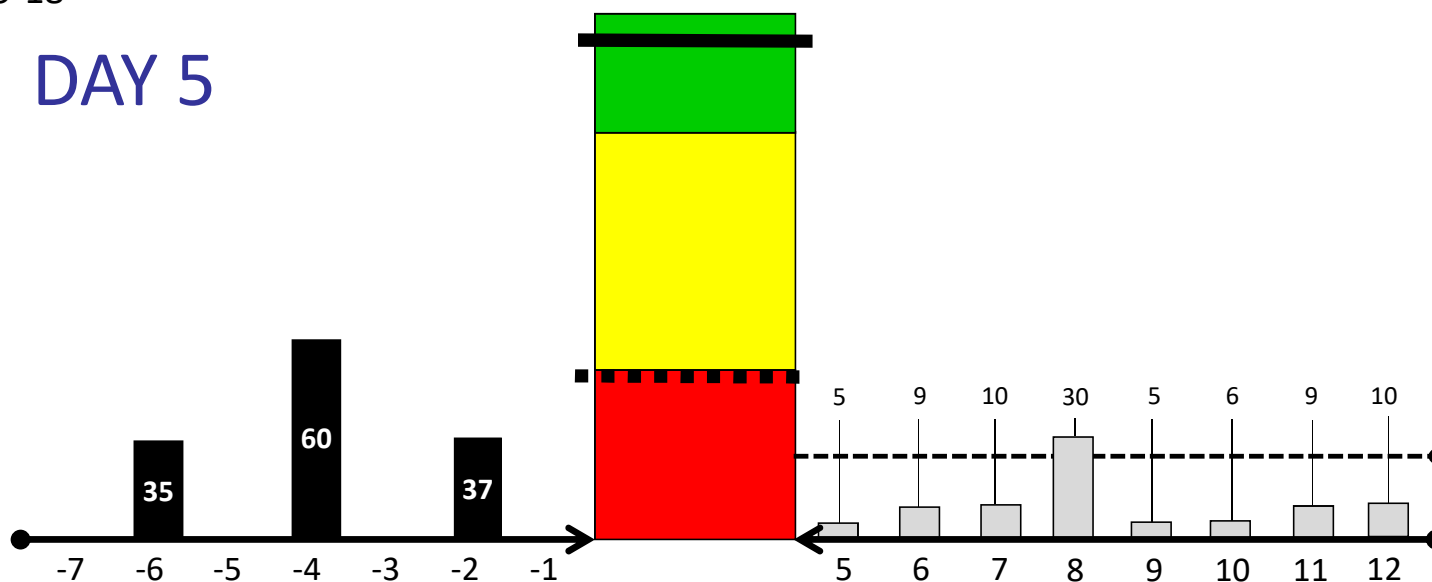
DAY 4



Part#	Planning Priority	On-Hand	On-Order	Qualified Demand	Net Flow Position	Order Amount	Request Date	Top RED	Top YELLOW	Top GREEN	Lead Time
EXAMPLE	GREEN 96.2%	55	132	36	151	0		52	122	157	7

Figure 9-18

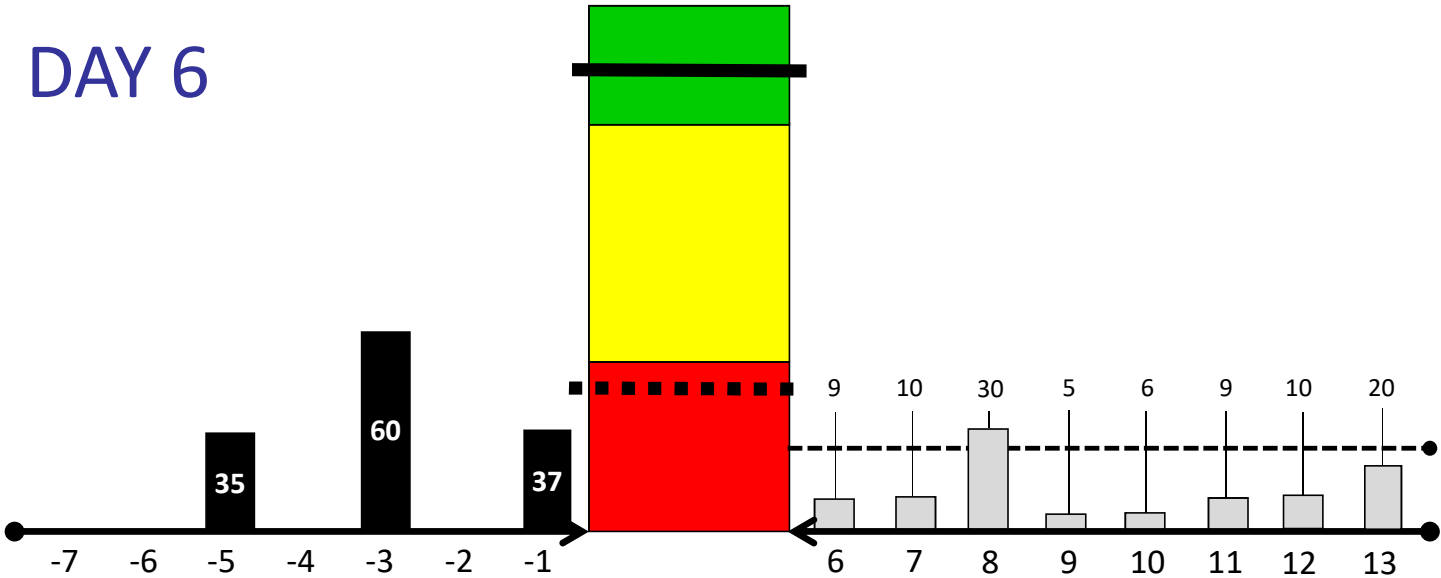
DAY 5



Part#	Planning Priority	On-Hand	On-Order	Qualified Demand	Net Flow Position	Order Amount	Request Date	Top RED	Top YELLOW	Top GREEN	Lead Time
EXAMPLE	GREEN 93%	49	132	35	146	0		52	122	157	7

Figure 9-19

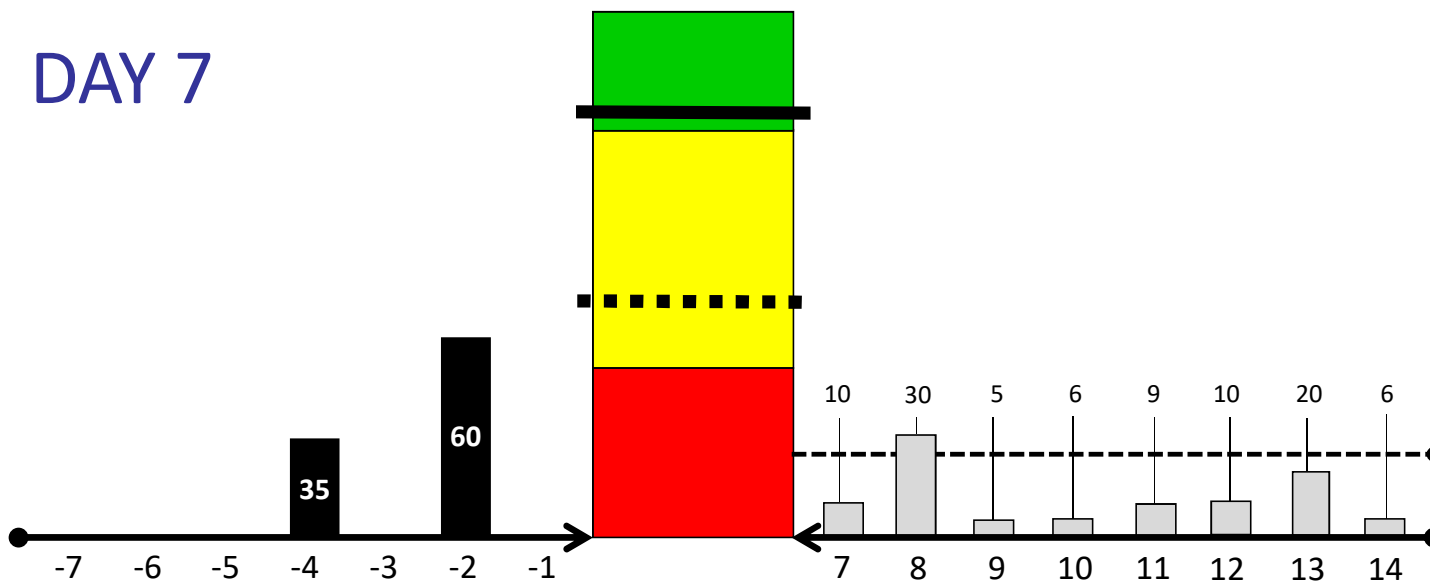
DAY 6



Part#	Planning Priority	On-Hand	On-Order	Qualified Demand	Net Flow Position	Order Amount	Request Date	Top RED	Top YELLOW	Top GREEN	Lead Time
EXAMPLE	GREEN 87.3%	44	132	39	137	0		52	122	157	7

Figure 9-20

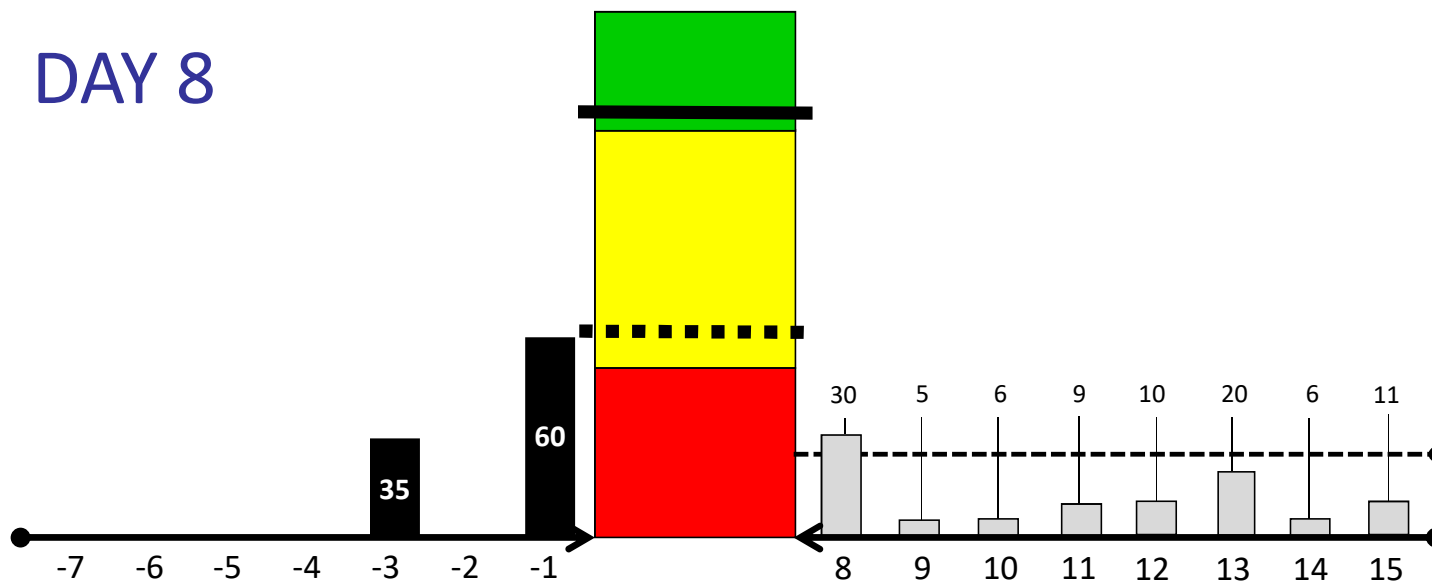
DAY 7



Part#	Planning Priority	On-Hand	On-Order	Qualified Demand	Net Flow Position	Order Amount	Request Date	Top RED	Top YELLOW	Top GREEN	Lead Time
EXAMPLE	GREEN 80.9%	72	95	40	127	0		52	122	157	7

Figure 9-21

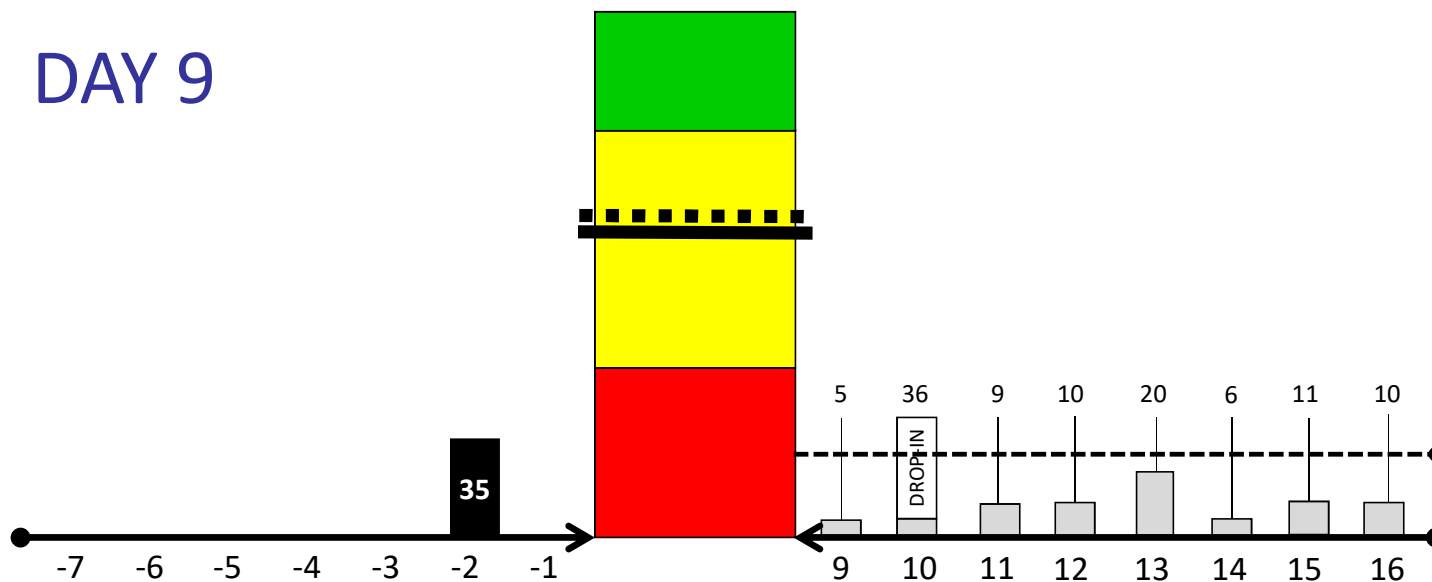
DAY 8



Part#	Planning Priority	On-Hand	On-Order	Qualified Demand	Net Flow Position	Order Amount	Request Date	Top RED	Top YELLOW	Top GREEN	Lead Time
EXAMPLE	GREEN 80.9%	62	95	30	127	0		52	122	157	7

Figure 9-22

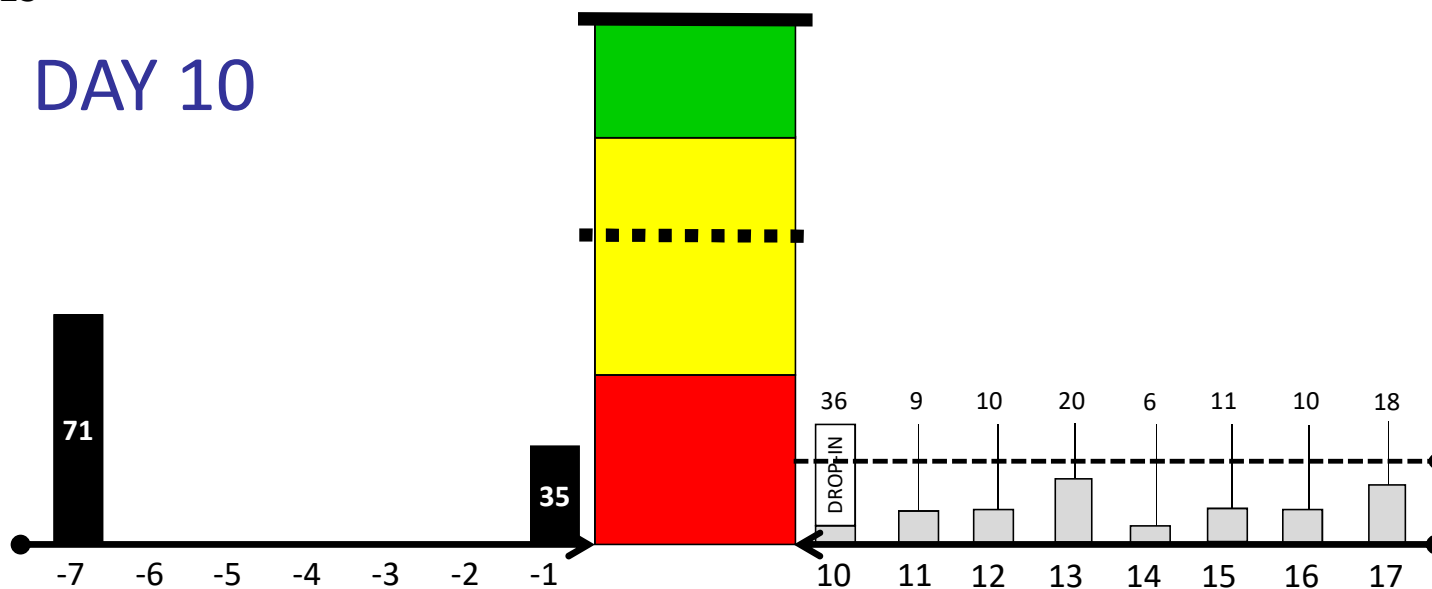
DAY 9



Part#	Planning Priority	On-Hand	On-Order	Qualified Demand	Net Flow Position	Order Amount	Request Date	Top RED	Top YELLOW	Top GREEN	Lead Time
EXAMPLE	YELLOW 54.8%	92	35	41	86	71	Day 16	52	122	157	7

Figure 9-23

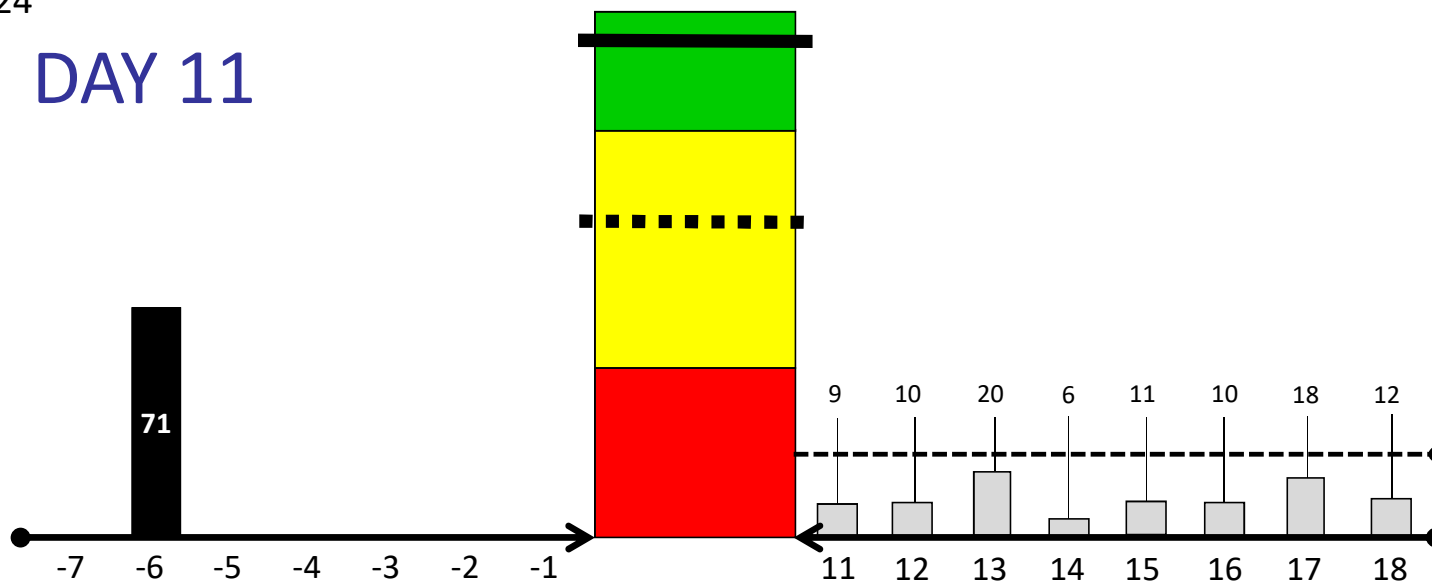
DAY 10



Part#	Planning Priority	On-Hand	On-Order	Qualified Demand	Net Flow Position	Order Amount	Request Date	Top RED	Top YELLOW	Top GREEN	Lead Time
EXAMPLE	GREEN 100%	87	106	36	157	0		52	122	157	7

Figure 9-24

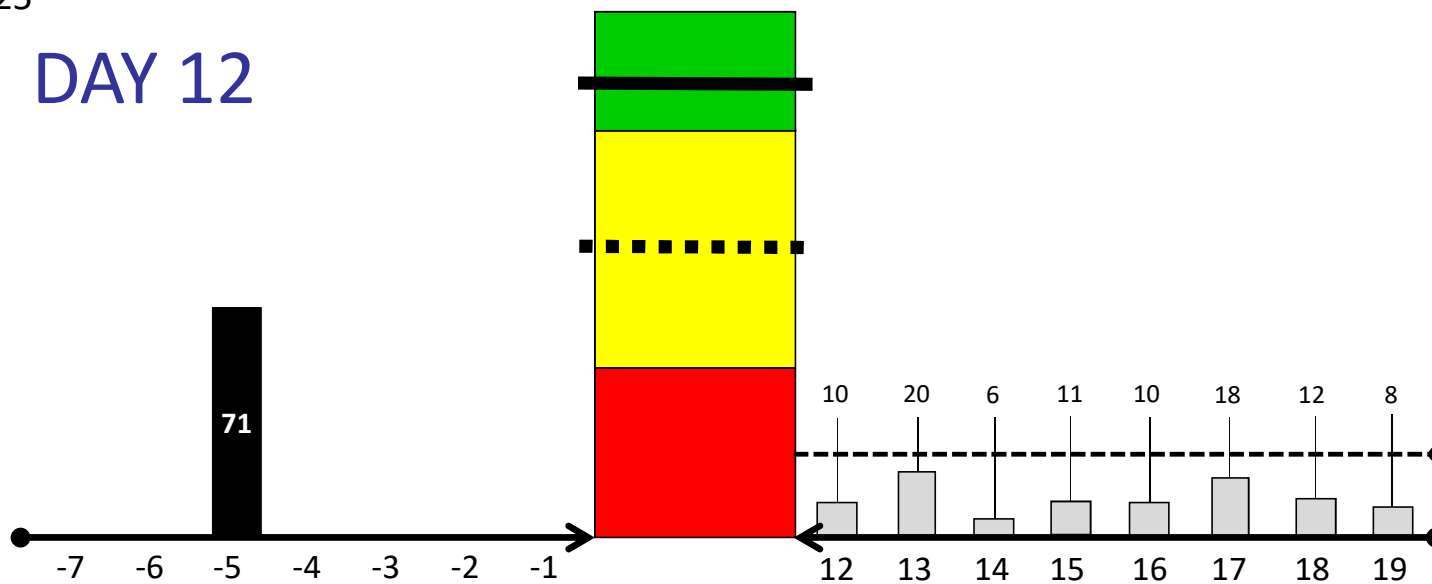
DAY 11



Part#	Planning Priority	On-Hand	On-Order	Qualified Demand	Net Flow Position	Order Amount	Request Date	Top RED	Top YELLOW	Top GREEN	Lead Time
EXAMPLE	GREEN 94.3%	86	71	9	148	0		52	122	157	7

Figure 9-25

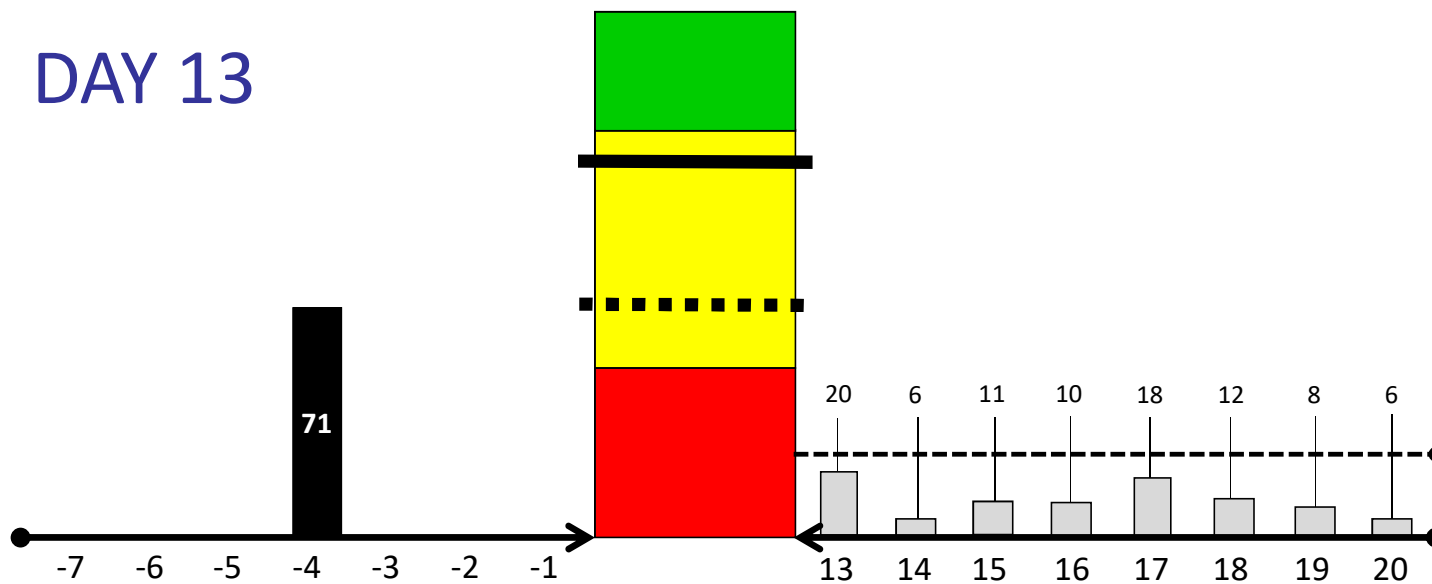
DAY 12



Part#	Planning Priority	On-Hand	On-Order	Qualified Demand	Net Flow Position	Order Amount	Request Date	Top RED	Top YELLOW	Top GREEN	Lead Time
EXAMPLE	GREEN 87.9%	77	71	10	138	0		52	122	157	7

Figure 9-26

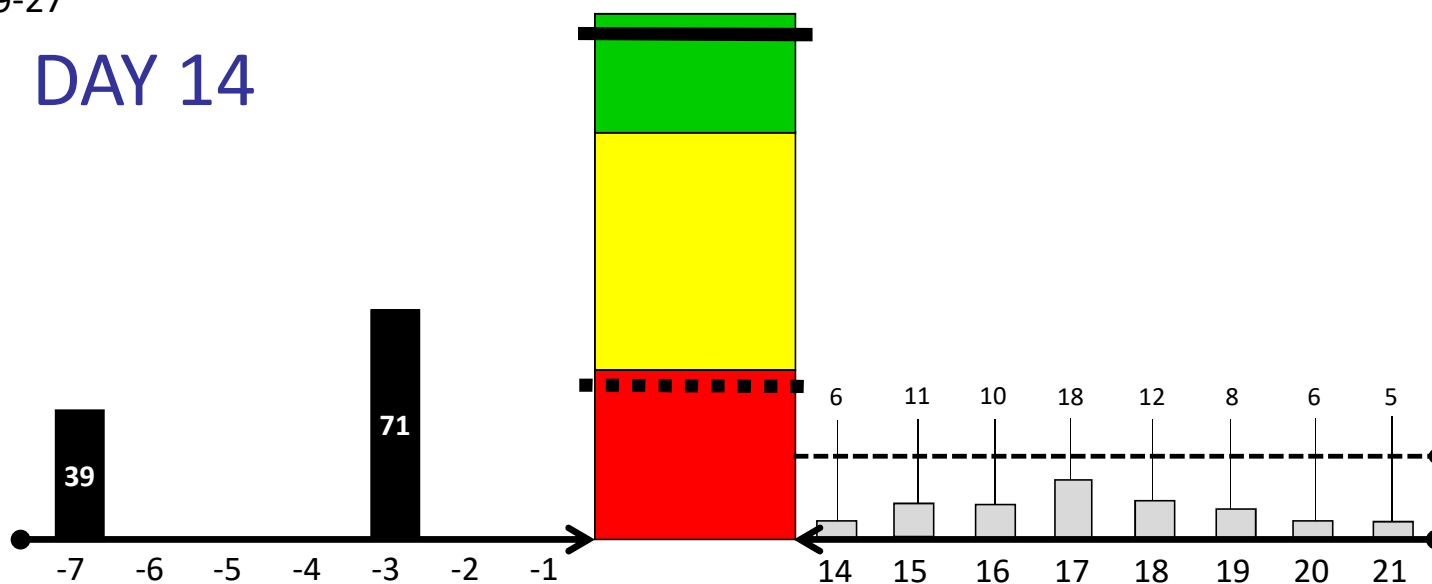
DAY 13



Part#	Planning Priority	On-Hand	On-Order	Qualified Demand	Net Flow Position	Order Amount	Request Date	Top RED	Top YELLOW	Top GREEN	Lead Time
EXAMPLE	YELLOW 75.2%	67	71	20	118	39	Day 20	52	122	157	7

Figure 9-27

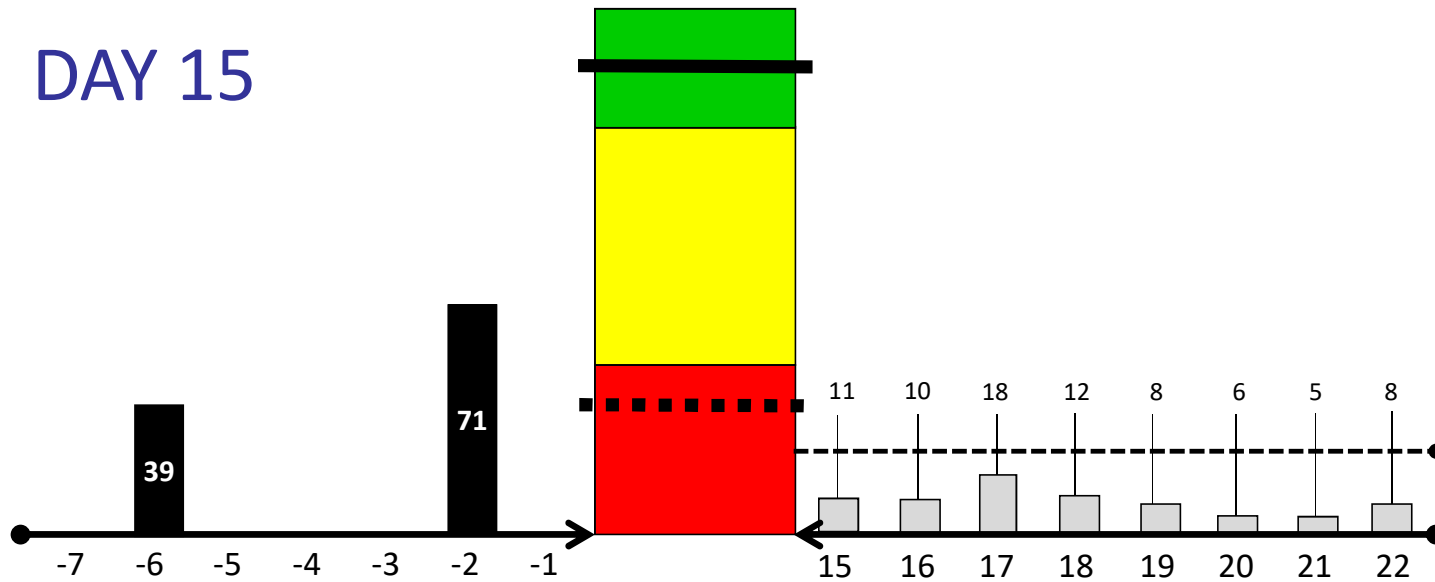
DAY 14



Part#	Planning Priority	On-Hand	On-Order	Qualified Demand	Net Flow Position	Order Amount	Request Date	Top RED	Top YELLOW	Top GREEN	Lead Time
EXAMPLE	GREEN 96.2%	47	110	6	151	0		52	122	157	7

Figure 9-28

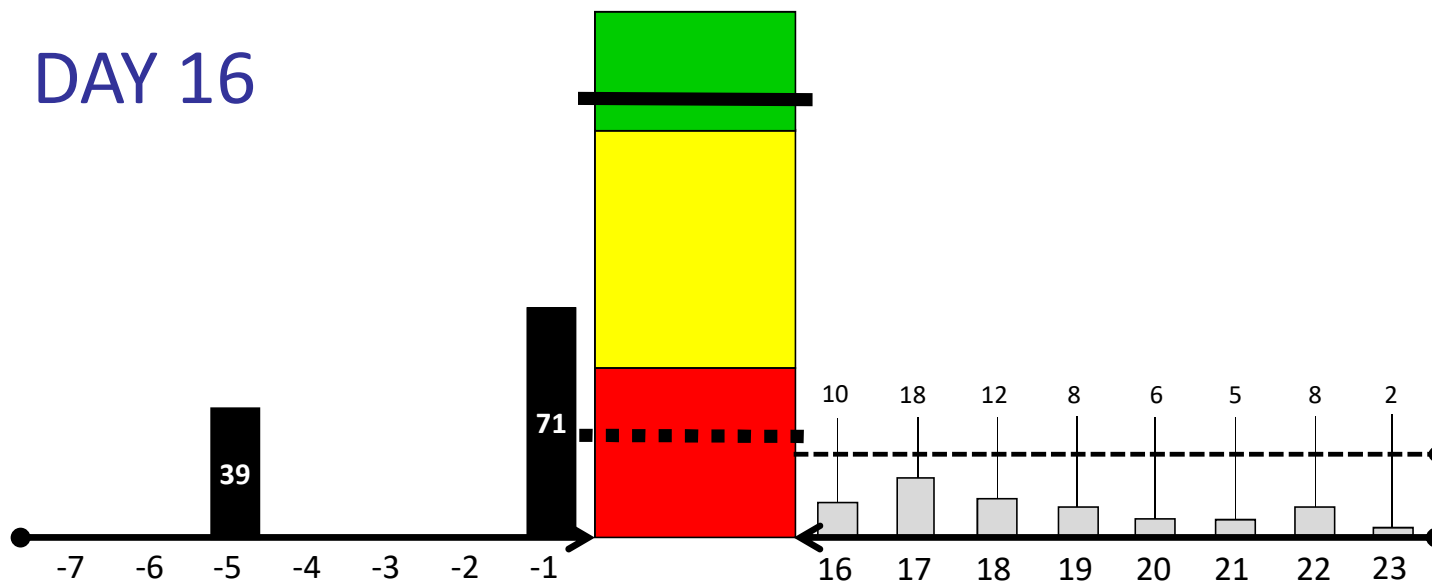
DAY 15



Part#	Planning Priority	On-Hand	On-Order	Qualified Demand	Net Flow Position	Order Amount	Request Date	Top RED	Top YELLOW	Top GREEN	Lead Time
EXAMPLE	GREEN 89.2%	41	110	11	140	0		52	122	157	7

Figure 9-29

DAY 16



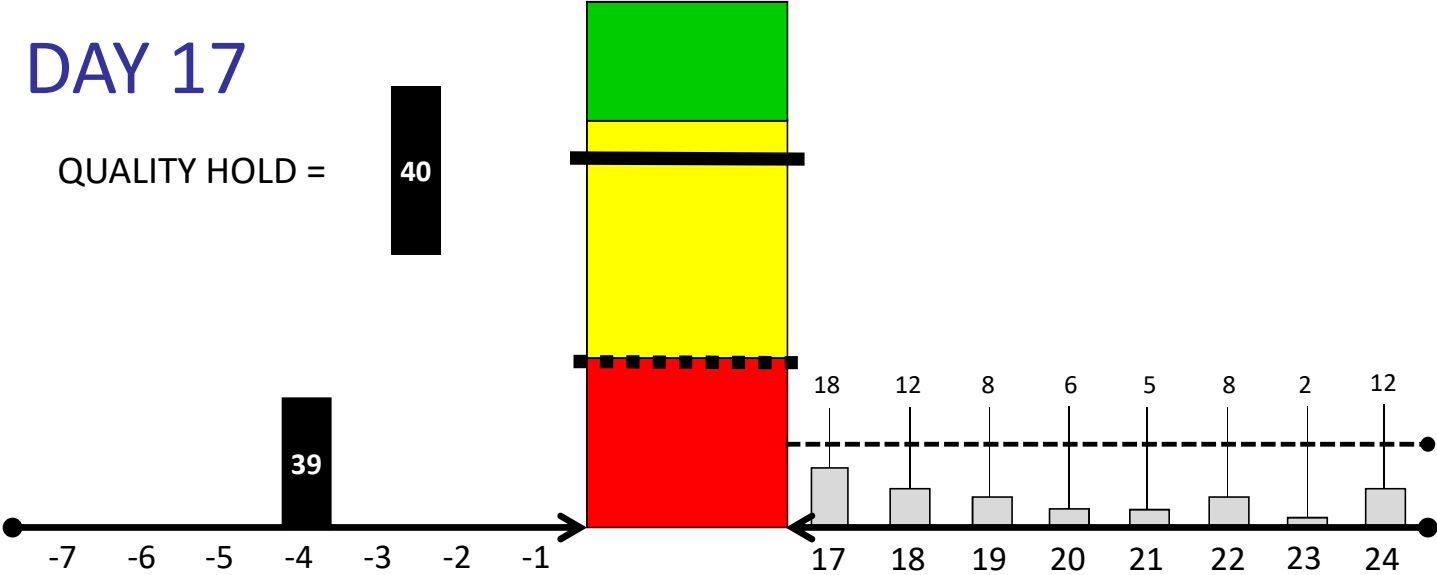
Part#	Planning Priority	On-Hand	On-Order	Qualified Demand	Net Flow Position	Order Amount	Request Date	Top RED	Top YELLOW	Top GREEN	Lead Time
EXAMPLE	GREEN 82.8%	30	110	10	130	0		52	122	157	7

Figure 9-30

DAY 17

QUALITY HOLD =

40



Part#	Planning Priority	On-Hand	On-Order	Qualified Demand	Net Flow Position	Order Amount	Request Date	Top RED	Top YELLOW	Top GREEN	Lead Time
EXAMPLE	YELLOW 71.3%	51	79	18	112	45	Day 24	52	122	157	7

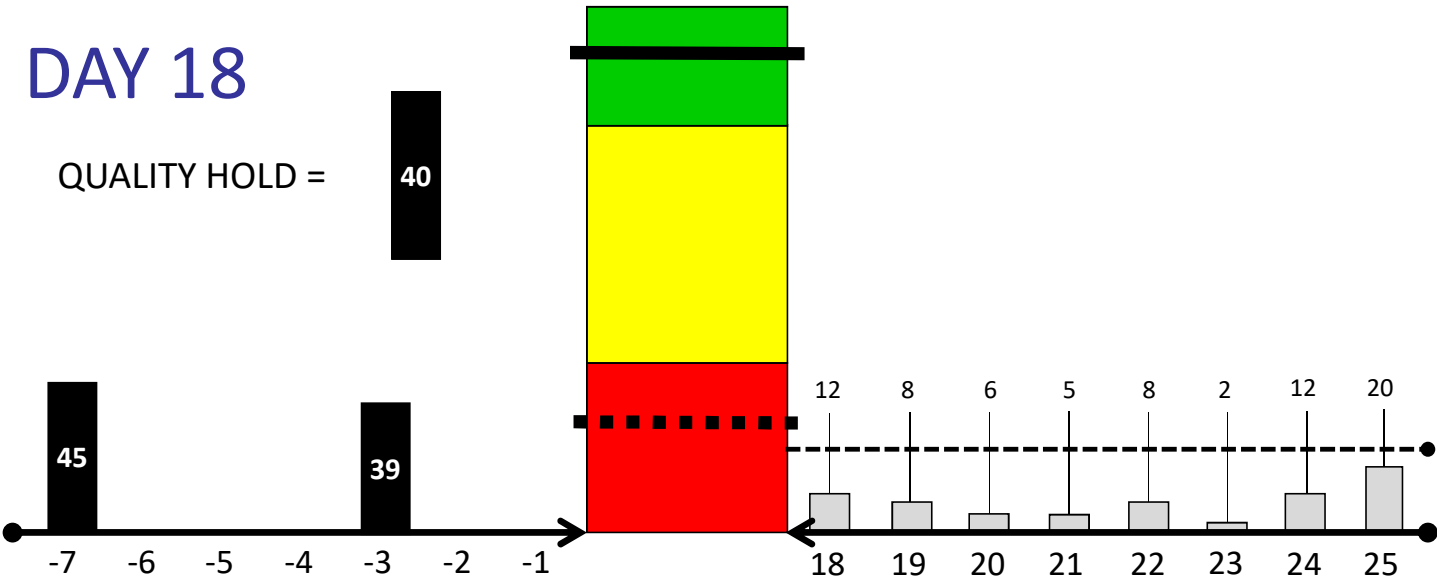
QUALITY HOLD

Figure 9-31

DAY 18

QUALITY HOLD =

40



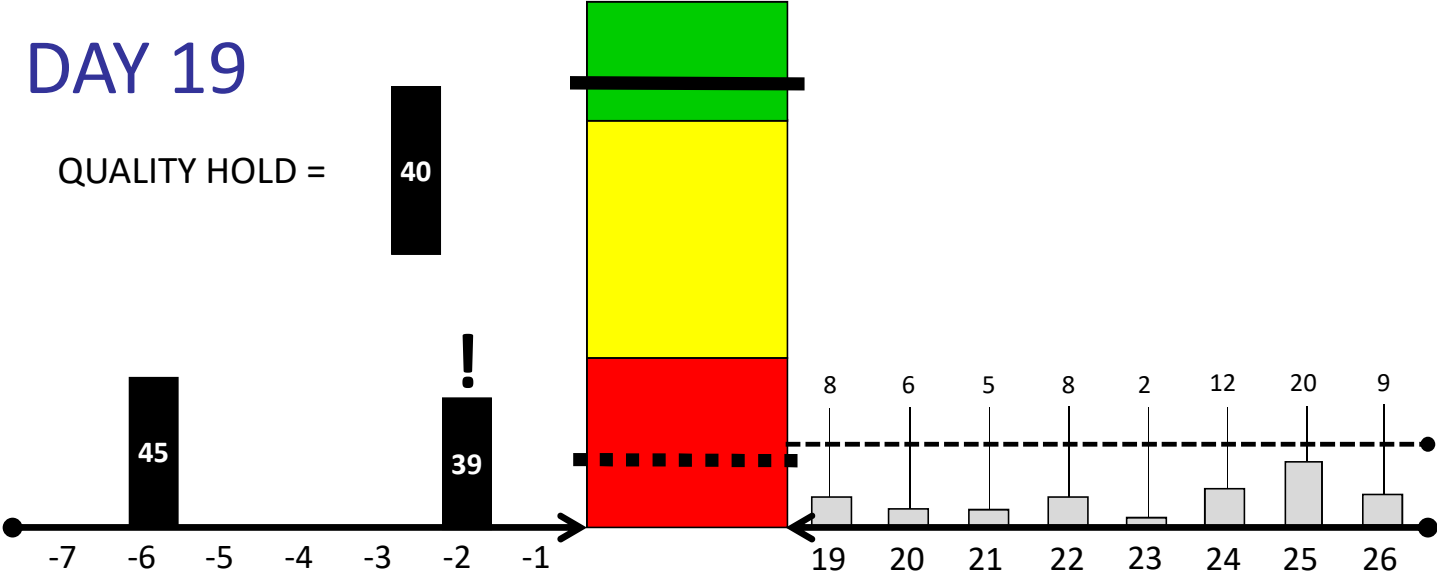
Part#	Planning Priority	On-Hand	On-Order	Qualified Demand	Net Flow Position	Order Amount	Request Date	Top RED	Top YELLOW	Top GREEN	Lead Time
EXAMPLE	GREEN 92.4%	33	124	12	145	0		52	122	157	7

QUALITY HOLD

Figure 9-32

DAY 19

QUALITY HOLD =



Part#	Planning Priority	On-Hand	On-Order	Qualified Demand	Net Flow Position	Order Amount	Request Date	Top RED	Top YELLOW	Top GREEN	Lead Time
EXAMPLE	GREEN 87.3%	21	124	8	137	0		52	122	157	7

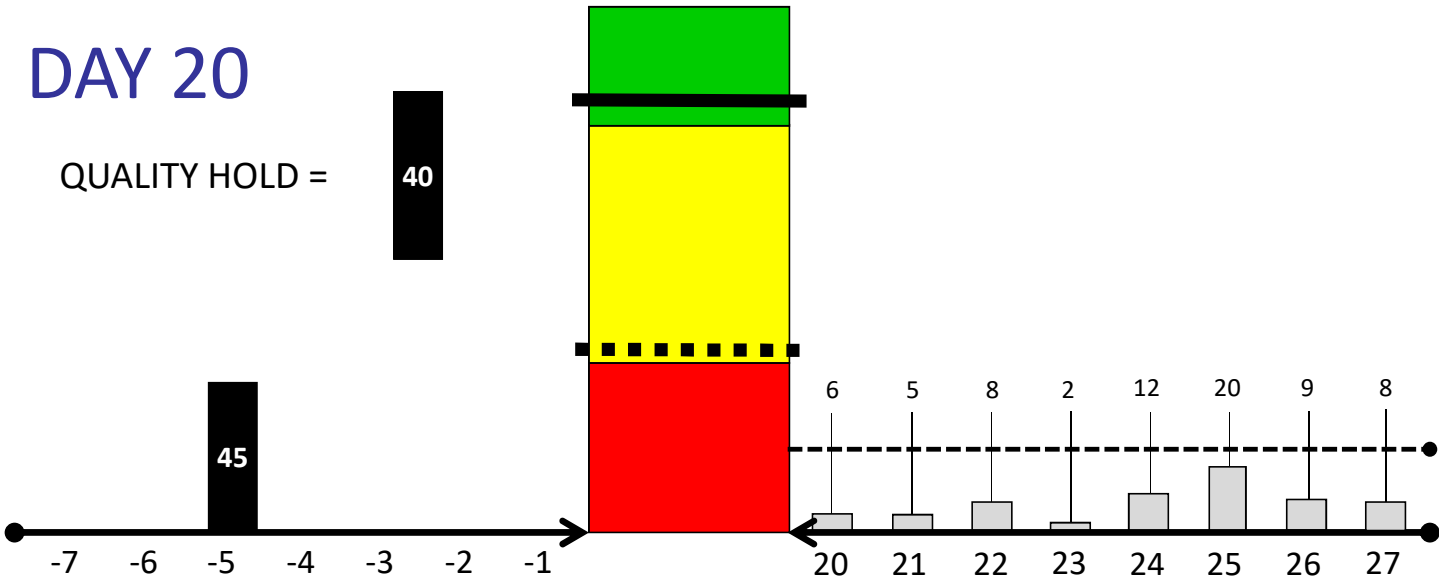
EXPEDITE SHIPMENT FOR 39!

Figure 9-33

DAY 20

QUALITY HOLD =

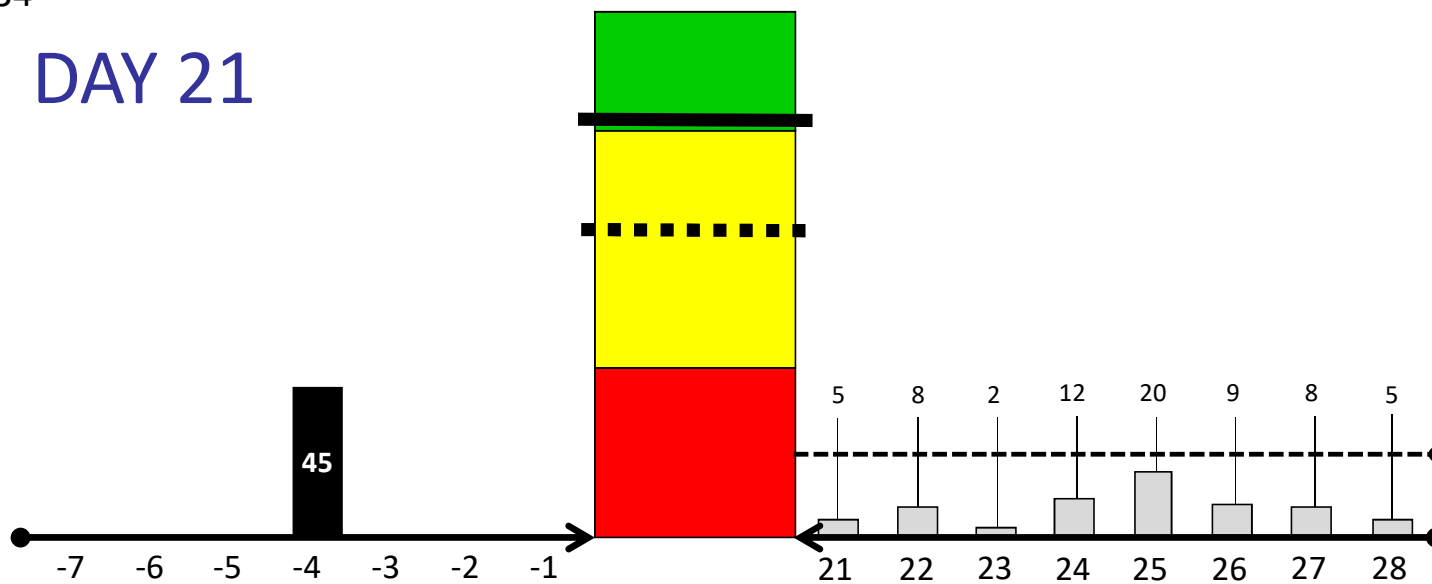
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Part#	Planning Priority	On-Hand	On-Order	Qualified Demand	Net Flow Position	Order Amount	Request Date	Top RED	Top YELLOW	Top GREEN	Lead Time
EXAMPLE	GREEN 83.4%	52	85	6	131	0		52	122	157	7

Figure 9-34

DAY 21



Part#	Planning Priority	On-Hand	On-Order	Qualified Demand	Net Flow Position	Order Amount	Request Date	Top RED	Top YELLOW	Top GREEN	Lead Time
EXAMPLE	GREEN 80.3%	86	45	5	126	0		52	122	157	7

Figure 9-35

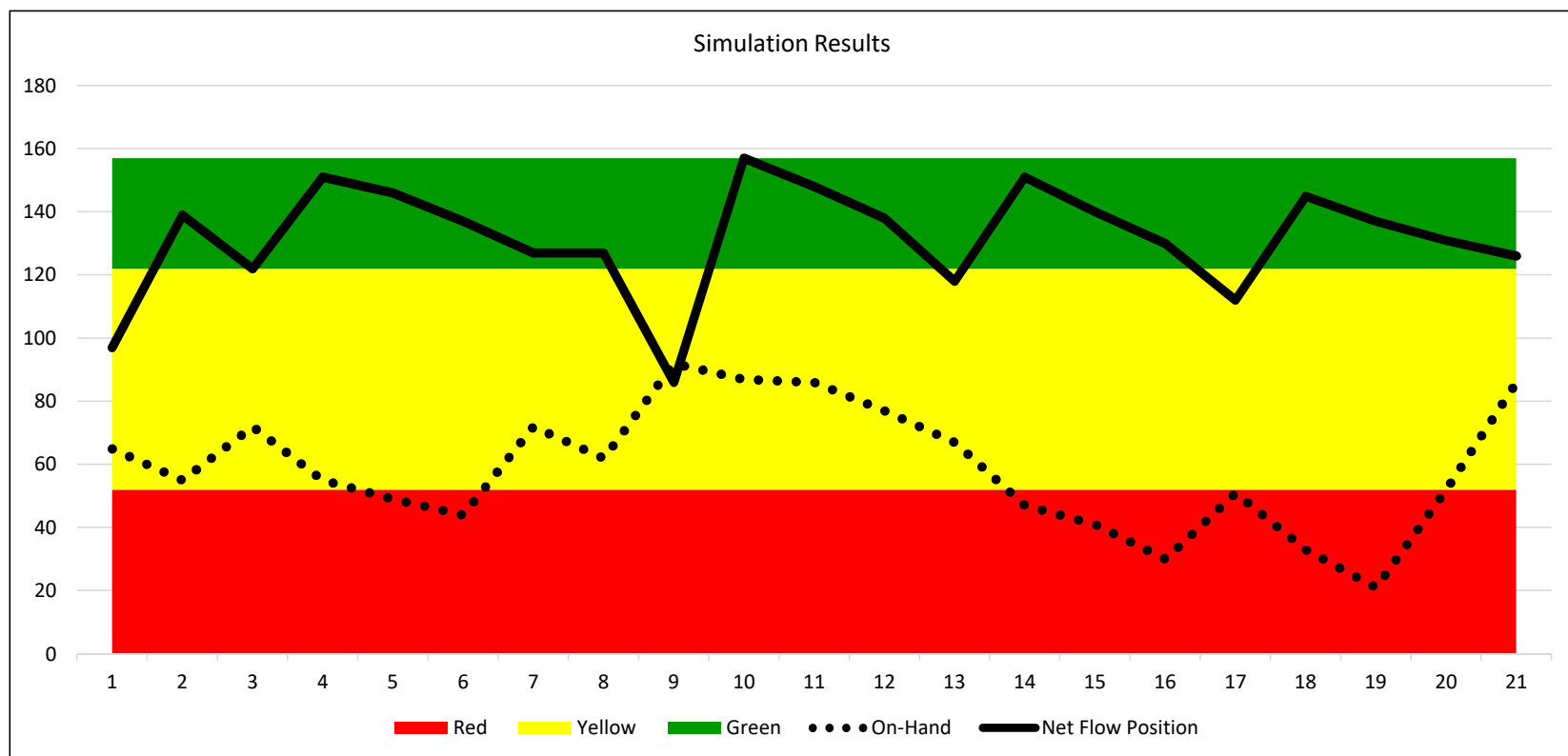
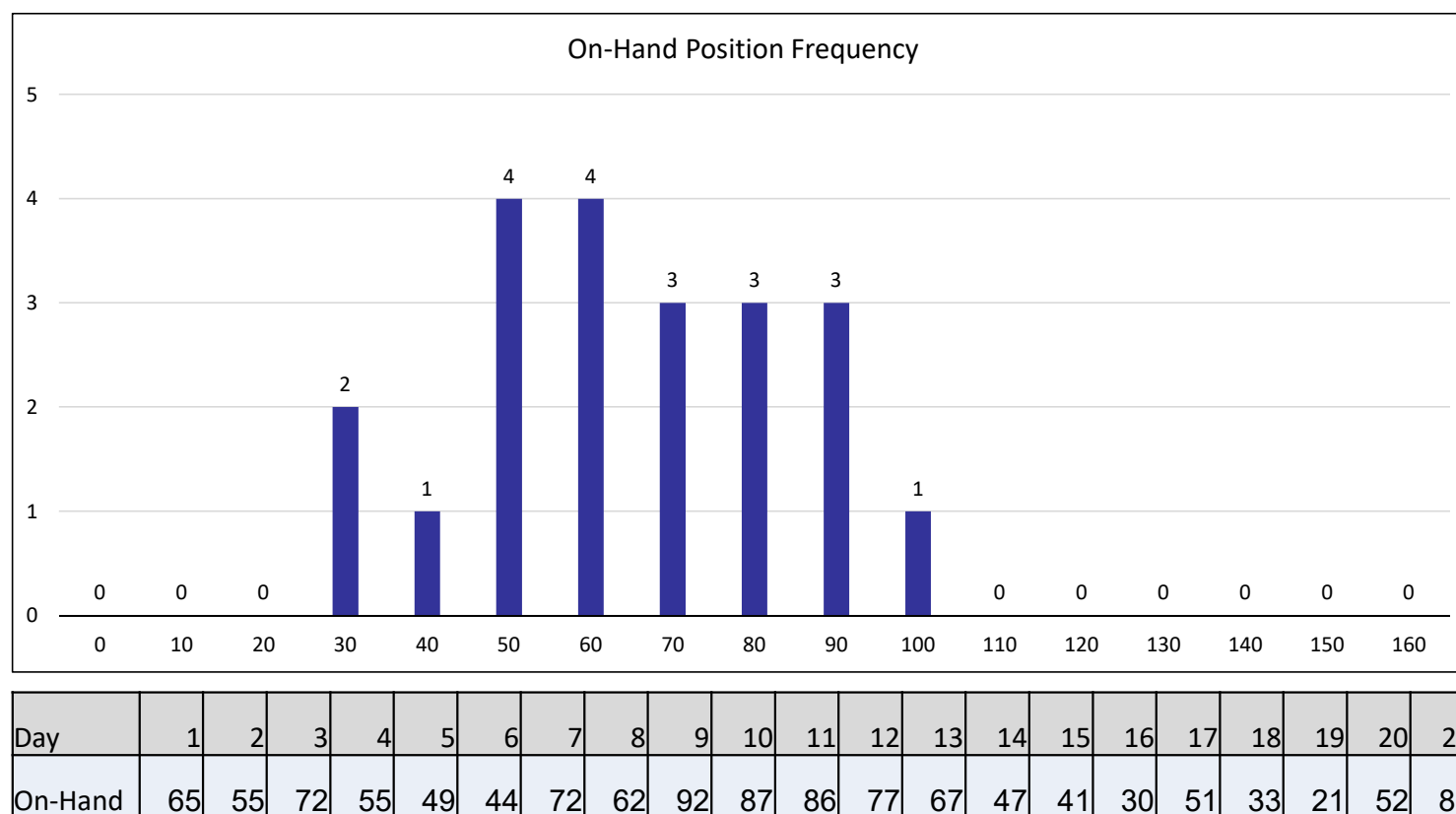


Figure 9-36



AVG = 59.24

Figure 9-37

Example Part Buffer For Average On-Hand Calculation			
Average Daily Usage	10	Green Zone	60
Buffer Profile	M, S (.33), H (.66)		LT Factor: 60 (DLT (18) x ADU (10) x Lead Time Factor (.33))
MOQ	None		Minimum Order Quantity: N/A
Imposed or Desired Order Cycle (DOC)	None		Order Cycle: N/A
Decoupled Lead Time (DLT)	18 days	Yellow Zone	180 (18(DLT) x 10(ADU))
		Red Zone	100 (Red Base (60) + Red Safety (40))
			Red Base: 60 (DLT (18)x ADU (10) x Lead Time Factor (.33))
			Red Safety: 40 (Red Base (60) x Variability Factor (.66))

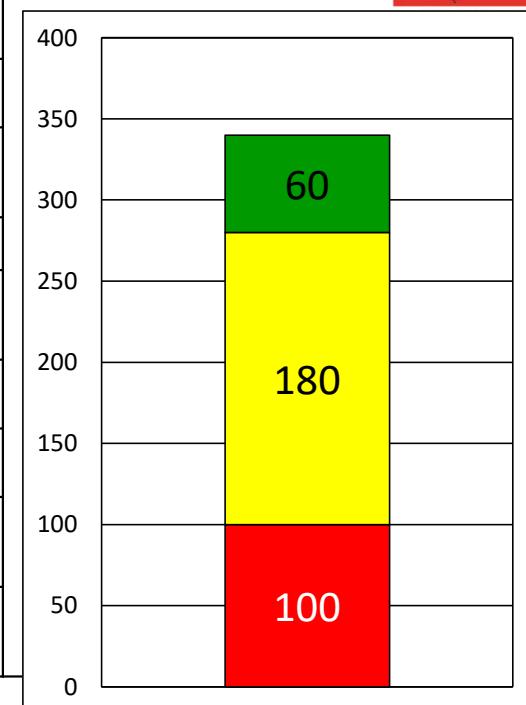
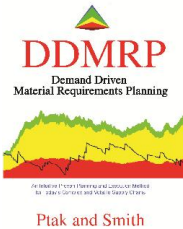




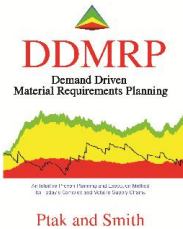
Figure 9-38



Part#	Planning Priority	On-Hand	On-Order	Qualified Demand	Net Flow Position	Order Amount	Request Date	Top RED	Top YELLOW	Top GREEN	Lead Time
ON-HAND EXAMPLE	YELLOW 82.4%	110	180	10	280	60	Day 7	100	280	340	18



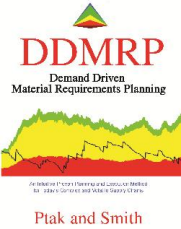
Figure 9-39



DAY	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1
Order						60						60						60



Figure 9-40



DAY	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1
Order	60						60						60					

Figure 9-41

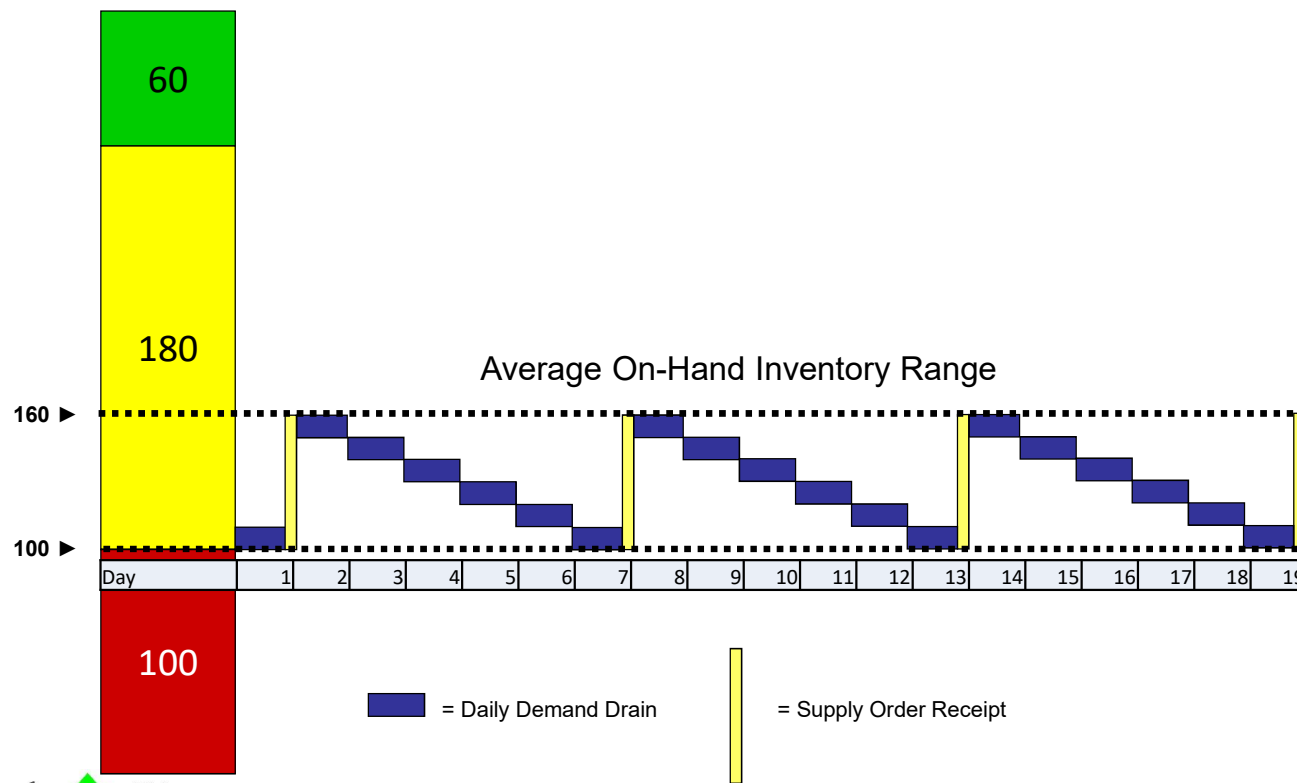


Figure 9-42

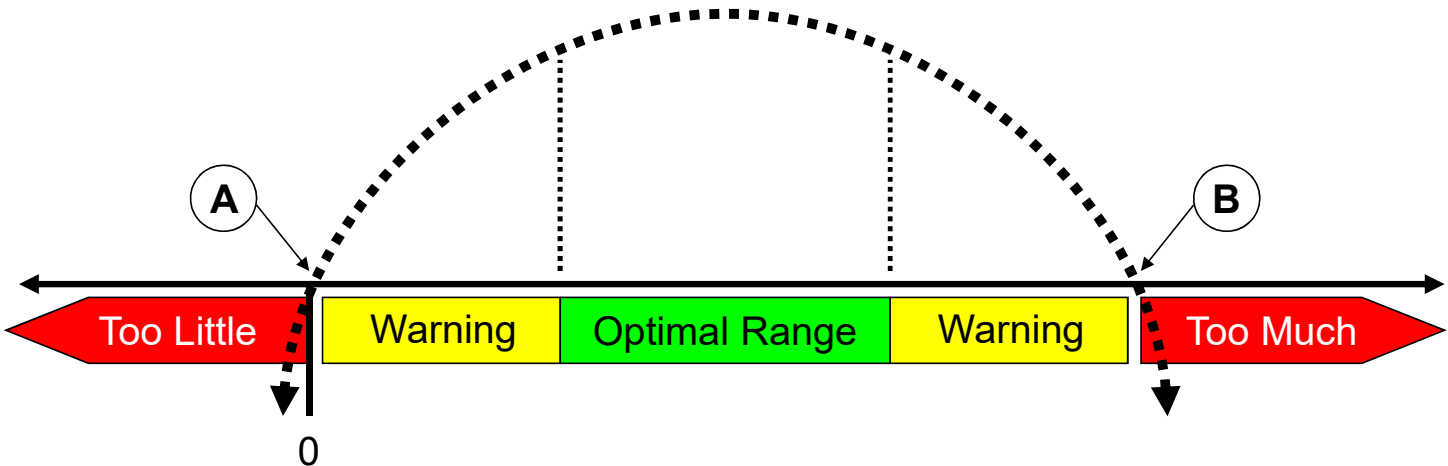


Figure 9-43

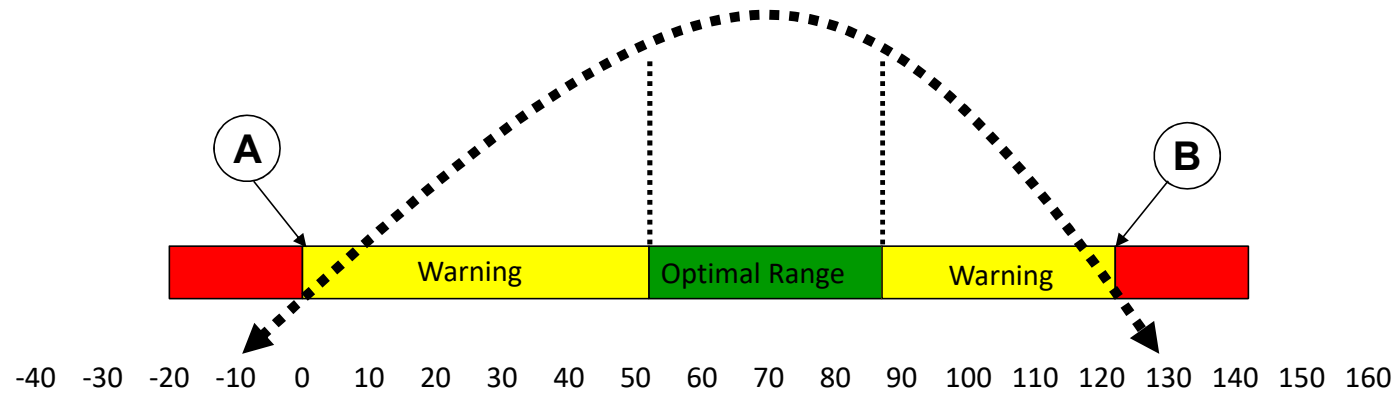


Figure 9-44

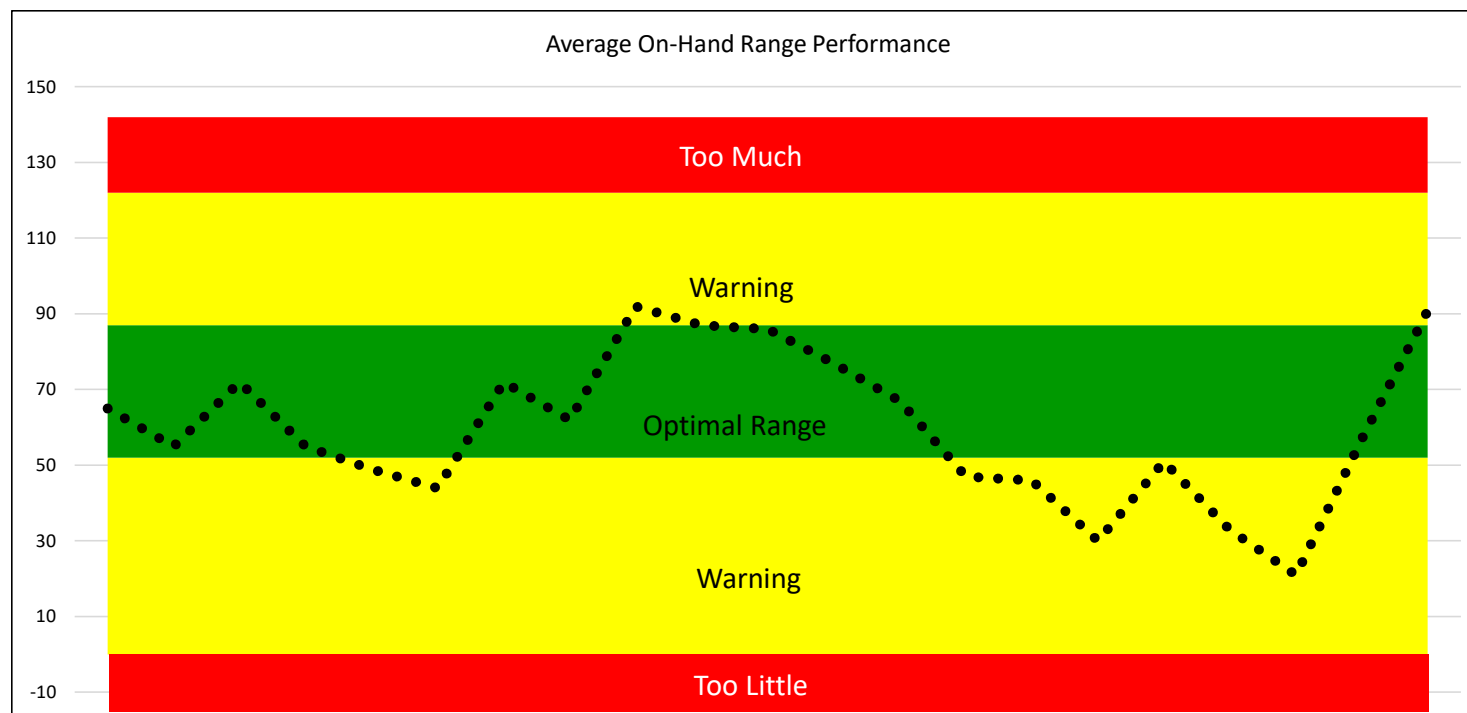


Figure 9-45

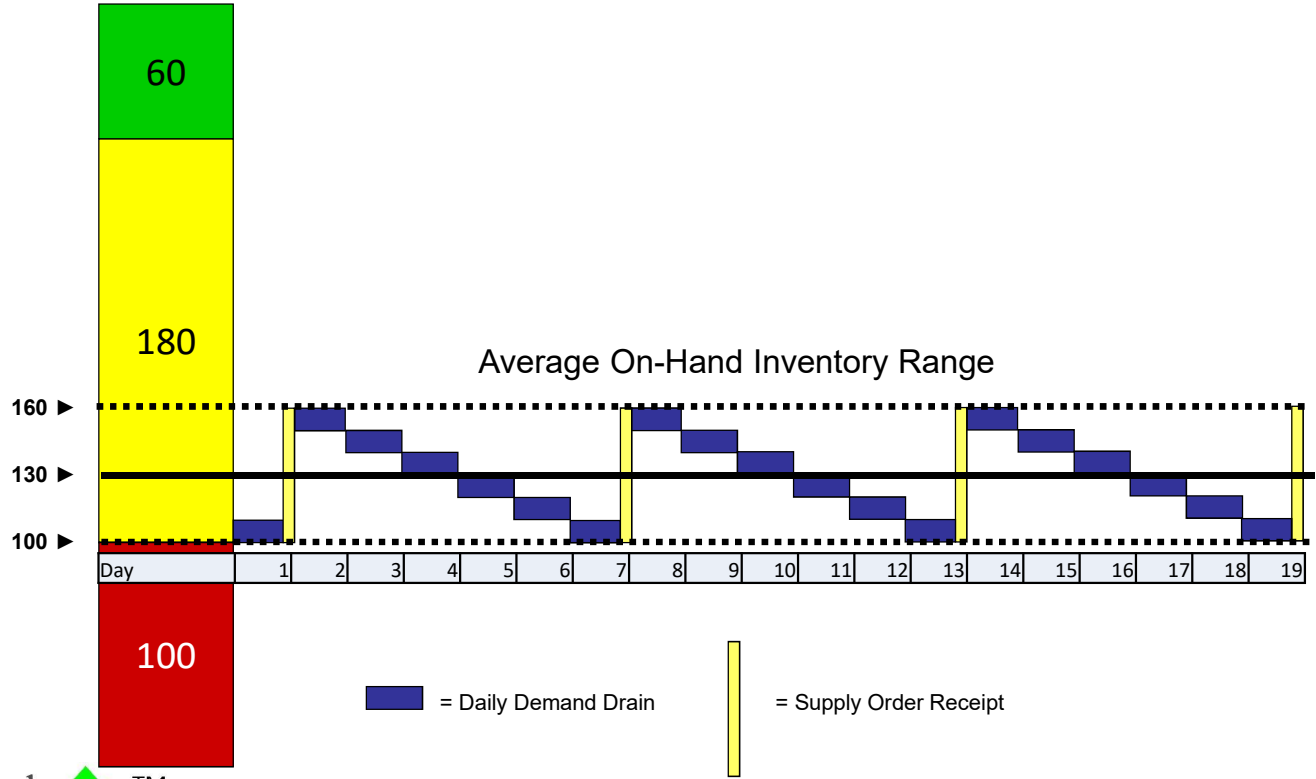
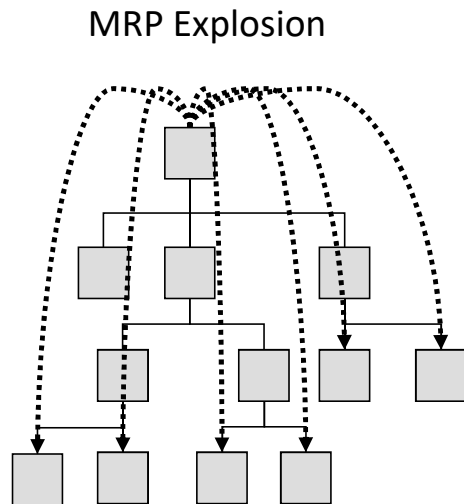


Figure 9-46



DDMRP Decoupled Explosion

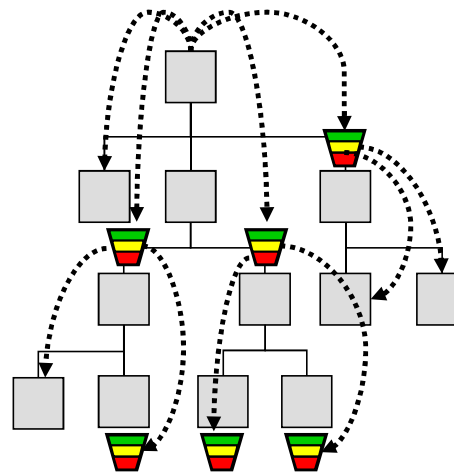
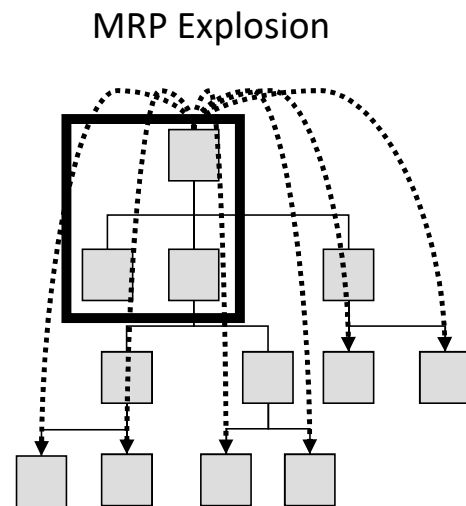


Figure 9-47



DDMRP Decoupled Explosion

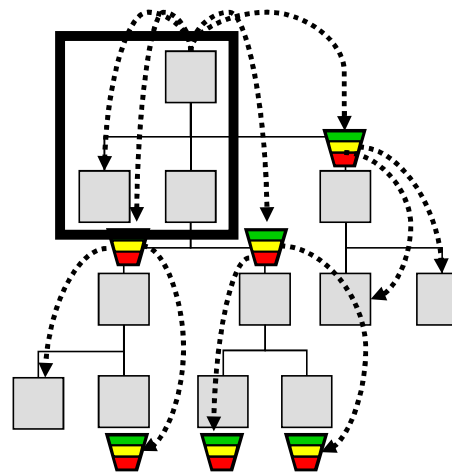
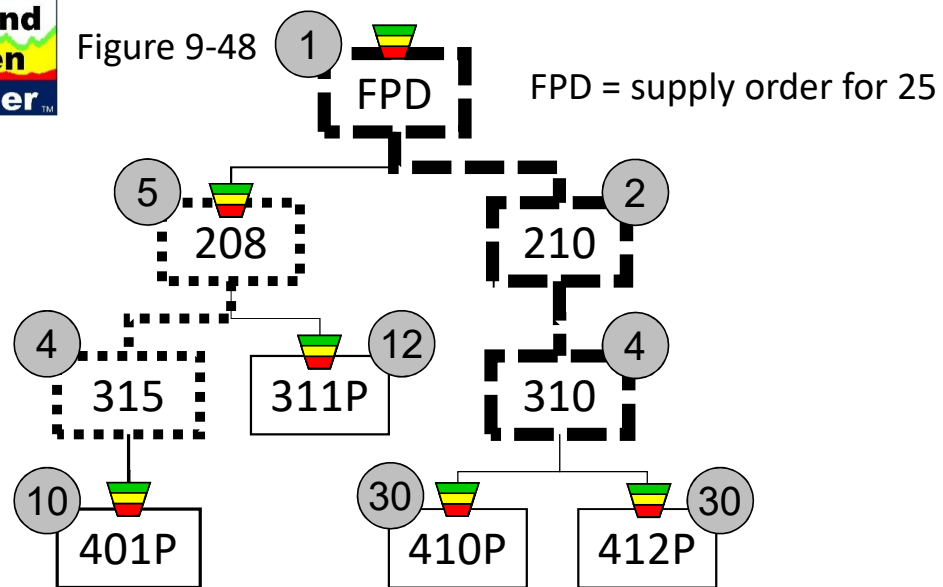


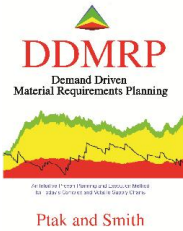
Figure 9-48



Part #	Demand Allocation	Residual On-Hand	Net Item Requirement	Order Source	Requirement Date	Order Release Date
208	25			FPD	Day 6	Day 6
210	25	0	25	FPD	Day 6	Day 4
310	25	0	25	210	Day 4	Now
410P	25			310	Now	Now
412P	25			310	Now	Now



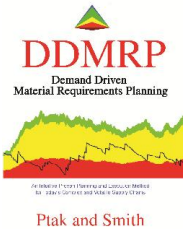
Figure 9-49



Part #	Demand Allocation	Residual On-Hand	Net Item Requirement	Order Source	Requirement Date	Order Release Date
208	25			FPD	Day 6	Day 6
210	25	0	25	FPD	Day 6	Day 4
310	25	50	0	210	Day 4	Now
410P	0			310		
412P	0			310		



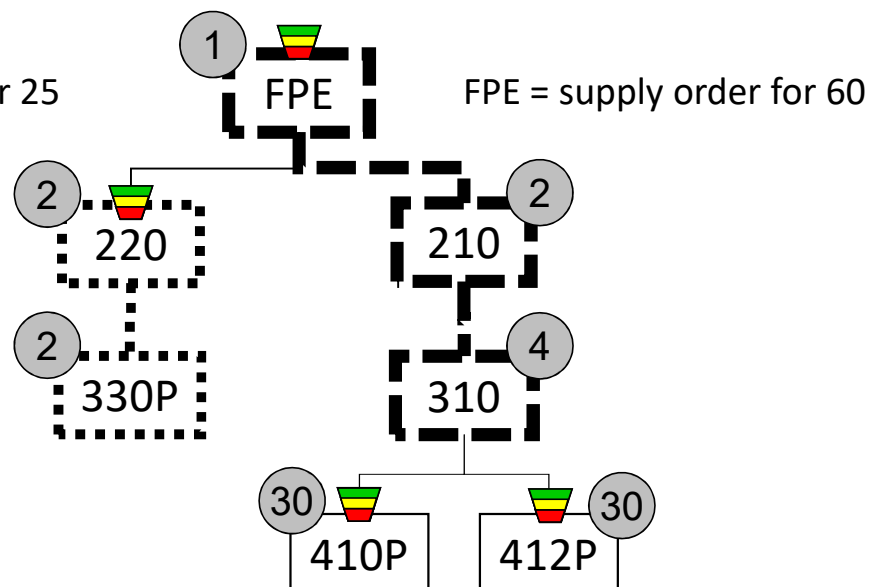
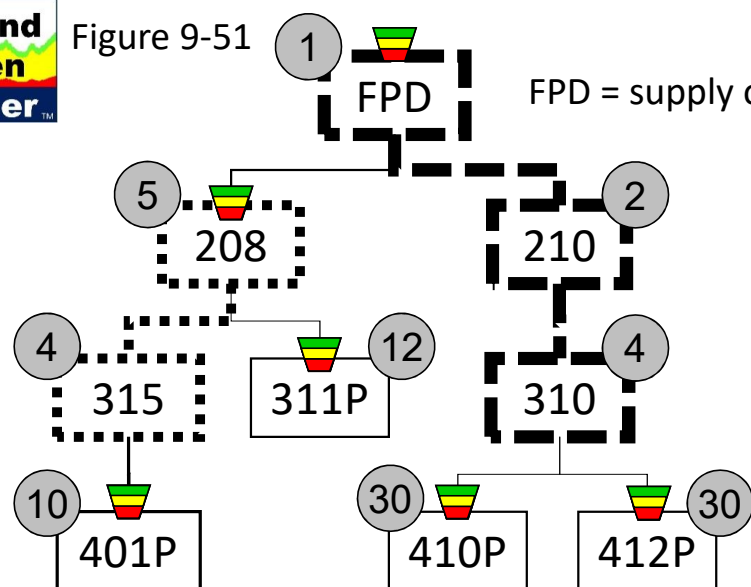
Figure 9-50



Part #	Demand Allocation	Residual On-Hand	Net Item Requirement	Order Source	Requirement Date	Order Release Date
208	125 SPIKE!			FPD	Day 6	Day 6
210	125	0	125	FPD (125)	Day 6	Day 4
310	125	50	75	210	Day 4	Now
410P	75			310	Now	Now
412P	75 SPIKE!			310	Now	Now



Figure 9-51



Part #	Demand Allocation	Residual On-Hand	Net Item Requirement	Order Source	Requirement Date	Order Release Date
208	25			FPD	Day 6	Day 6
220	60			FPE	Day 6	Day 6
210	85	0	85	FPD (25), FPE (60)	Day 6	Day 4
310	85	50	35	210	Day 4	Now
410P	35			310	Now	Now
412P	35			310	Now	Now

Figure 9-52

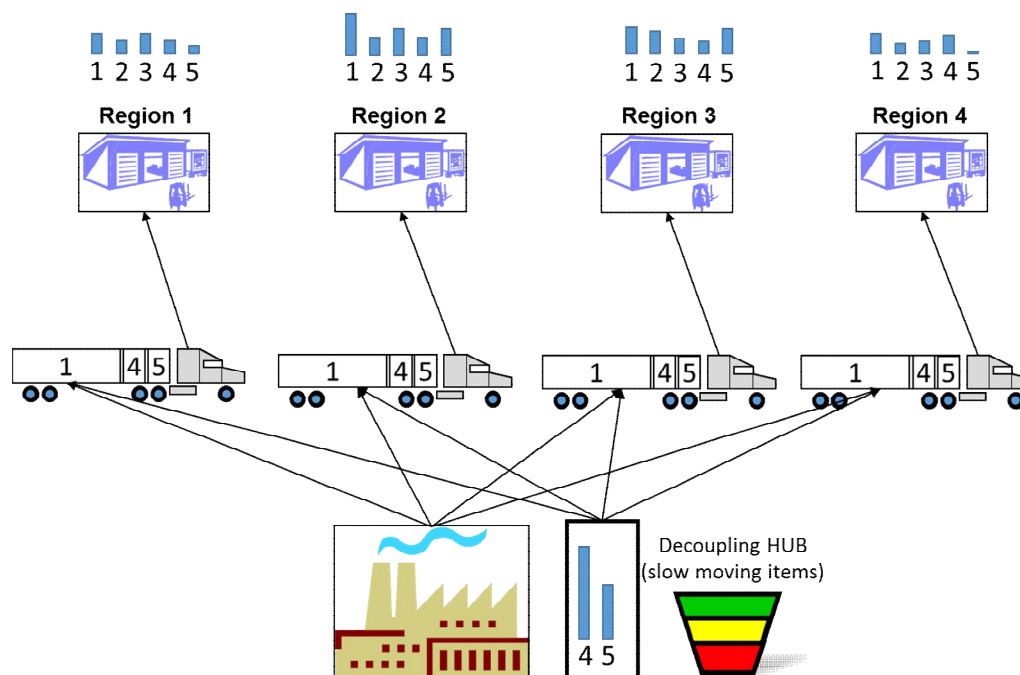




Figure 9-53

Zone Values	Location 1	Location 2	Location 3	Location 4	Total
Green	4000	2000	2000	2000	10000
Yellow	6500	3400	2925	3500	16325
Red	4875	2550	2194	2625	12244
LT	10	8	9	10	
ADU	650	425	325	350	1750
Sourcing Unit MOQ = 10000					

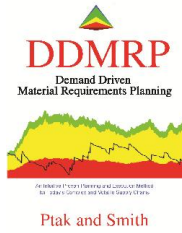


Figure 9-54

Location 1					
Product	Priority	NFP	TOG	TOY	Order
1	YELLOW 66.5%	10218	15375	11375	5157
Location 2					
Product	Priority	NFP	TOG	TOY	Order
1	GREEN 78.0%	6200	7950	5950	1750
Location 3					
Product	Priority	NFP	TOG	TOY	Order
1	YELLOW 58.7%	4176	7119	5119	2943
Location 4					
Product	Priority	NFP	TOG	TOY	Order
1	GREEN 87.7%	7124	8125	6125	1001
Total Demanded					10851

Figure 9-55

Location 1					
Product	Priority	NFP	TOG	TOY	Order
1	GREEN 87.5%	13451	15375	11375	1924
Location 2					
Product	Priority	NFP	TOG	TOY	Order
1	YELLOW 68.1%	5415	7950	5950	2535
Location 3					
Product	Priority	NFP	TOG	TOY	Order
1	GREEN 81.7%	5817	7118.75	5118.75	1301.75
Location 4					
Product	Priority	NFP	TOG	TOY	Order
1	GREEN 87.7%	7124	8125	6125	1001
Total Demanded					6762

Figure 9-56

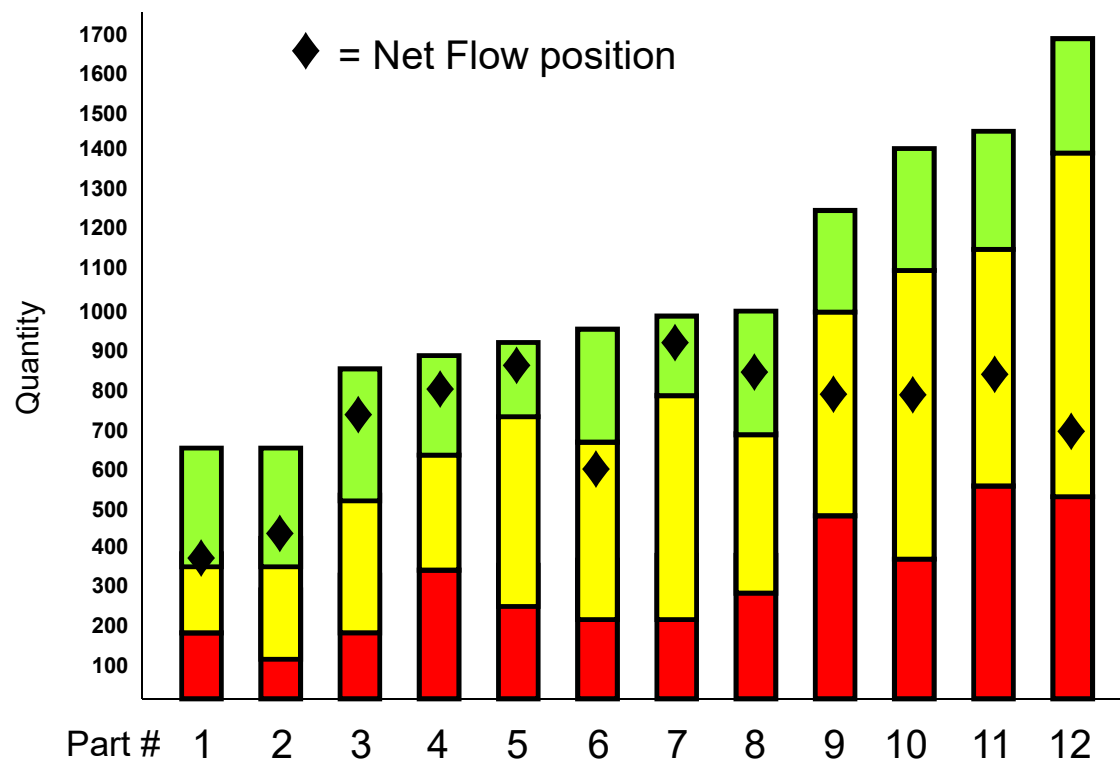


Figure 9-57

Part #	Priority	NFP	TOG	Order	Qty/Pallet	Pallets Req
12	YELLOW 41.2%	700	1700	1000	100	10
10	YELLOW 57.1%	800	1400	600	150	4
11	YELLOW 58.6%	850	1450	600	150	4
6	YELLOW 63.2%	600	950	350	50	7
9	YELLOW 64.0%	800	1250	450	150	3
1	GREEN 57.7%	375	650	0	300	0
2	GREEN 69.2%	450	650	0	300	0
8	GREEN 85.0%	850	1000	0	300	0
3	GREEN 88.2%	750	850	0	300	0
4	GREEN 88.9%	800	900	0	250	0
5	GREEN 94.4%	850	900	0	150	0
7	GREEN 95.0%	950	1000	0	200	0

Figure 9-58

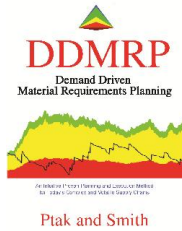
Part #	Pallets	Qty/Pallet	NFP (+1 pallet)	Priority (+1 pallet)	OTOG%
12	11	100	1800	OTOG 105.9%	5.9%
10	5	150	1550	OTOG 110.7%	10.7%
11	5	150	1600	OTOG 110.3%	10.3%
6	8	50	1000	OTOG 105.3%	5.3%
9	4	150	1400	OTOG 112.0%	12.0%
1	1	300	675	OTOG 103.8%	3.8%
2	1	300	750	OTOG 115.4%	15.4%
8	1	300	1150	OTOG 115.0%	15.0%
3	1	300	1050	OTOG 123.5%	23.5%
4	1	250	1050	OTOG 116.7%	16.7%
5	1	150	1000	OTOG 111.1%	11.1%
7	1	200	1150	OTOG 115.0%	15.0%

Figure 9-59

Part #	Pallets	Qty/Pallet	NFP (+1 pallet)	Priority (+1 pallet)	OTOG%
1	1	300	675	OTOG 103.8%	3.8%
6	8	50	1000	OTOG 105.3%	5.3%
12	11	100	1800	OTOG 105.9%	5.9%
11	5	150	1600	OTOG 110.3%	10.3%
10	5	150	1550	OTOG 110.7%	10.7%
5	1	150	1000	OTOG 111.1%	11.1%
9	4	150	1400	OTOG 112.0%	12.0%
8	1	300	1150	OTOG 115.0%	15.0%
7	1	200	1150	OTOG 115.0%	15.0%
2	1	300	750	OTOG 115.4%	15.4%
4	1	250	1050	OTOG 116.7%	16.7%
3	1	300	1050	OTOG 123.5%	23.5%



Figure 9-60



Part #	Priority	NFP	TOG	Order	Qty/Pallet	\$/pallet	Pallets Required	\$ ordered	NFP after
10	57.1%	800	1400	600	150	\$1,000	4	\$4,000	100.0%
12	41.2%	700	1700	1000	100	\$600	10	\$6,000	100.0%
11	58.6%	850	1450	600	150	\$825	4	\$3,300	100.0%
6	63.2%	600	950	350	50	\$450	7	\$3,150	100.0%
9	64.0%	800	1250	450	150	\$525	3	\$1,575	100.0%
								\$18,025	

Figure 9-61

Part #	Pallets	Qty/Pallet	NFP (+1 pallet)	Priority (+1 pallet)	OTOG%	\$/pallet
1	1	300	675	OTOG 103.8%	3.80%	\$400
6	8	50	1000	OTOG 105.3%	5.30%	\$450
12	11	100	1800	OTOG 105.9%	5.90%	\$600
11	5	150	1600	OTOG 110.3%	10.30%	\$825
10	5	150	1550	OTOG 110.7%	10.70%	\$1,000
5	1	150	1000	OTOG 111.1%	11.10%	\$480
9	4	150	1400	OTOG 112.0%	12.00%	\$525
8	1	300	1150	OTOG 115.0%	15.00%	\$1,200
7	1	200	1150	OTOG 115.0%	15.00%	\$1,200
2	1	300	750	OTOG 115.4%	15.40%	\$600
4	1	250	1050	OTOG 116.7%	16.70%	\$825
3	1	300	1050	OTOG 123.5%	23.50%	\$300

Figure 9-62

Location 1						
Product	Priority	NFP	TOG	TOY	TOR	Order
5	RED 26.8%	4125	15375	11375	4875	11250
Location 2						
Product	Priority	NFP	TOG	TOY	TOR	Order
5	YELLOW 52.1%	4142	7950	5950	2550	3808
Location 3						
Product	Priority	NFP	TOG	TOY	TOR	Order
5	YELLOW 45.1%	3214	7119	5119	2194	3905
Location 4						
Product	Priority	NFP	TOG	TOY	TOR	Order
5	YELLOW 70.7%	5741	8125	6125	2625	2384
Total Demanded						21347
Total Available						15000

Figure 9-63

Total Product 5 inventory available		15000	
Location 1 red allocation		750	
Available remaining		14250	
Location 1 yellow allocation		6500	
Location 3 yellow allocation		1905	
Location 2 yellow allocation		1808	
Location 4 yellow allocation		384	
Total allocation to TOY (all locations)		11347	
Available remaining		3653	
Location 1 green allocation		1470	
Location 2 green allocation		692	
Location 3 green allocation		828	
Location 4 green allocation		663	
Total green allocation		3653	
Total inventory allocation (all locations)		15000	
Location 1	Location 2	Location 3	Location 4
8720	2500	2733	1047

Figure 9-64

Location 1						
Product	Priority	NFP	TOG	TOY	TOR	Order
5	GREEN 83.5%	12845	15375	11375	4875	0
Location 2						
Product	Priority	NFP	TOG	TOY	TOR	Order
5	GREEN 83.5%	6642	7950	5950	2550	0
Location 3						
Product	Priority	NFP	TOG	TOY	TOR	Order
5	GREEN 83.5%	5947	7119	5119	2194	0
Location 4						
Product	Priority	NFP	TOG	TOY	TOR	Order
5	GREEN 83.5%	6788	8125	6125	2625	0
Total Demanded						0
Total Available						0

Figure 9-65

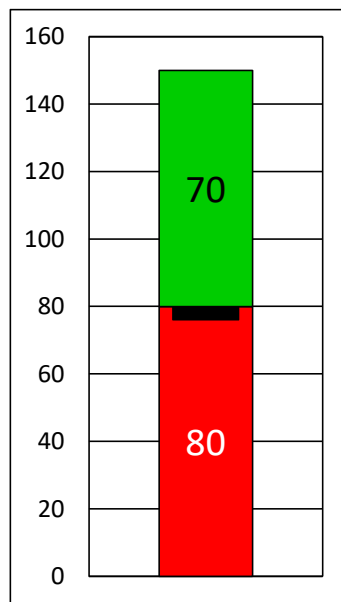


Figure 9-66

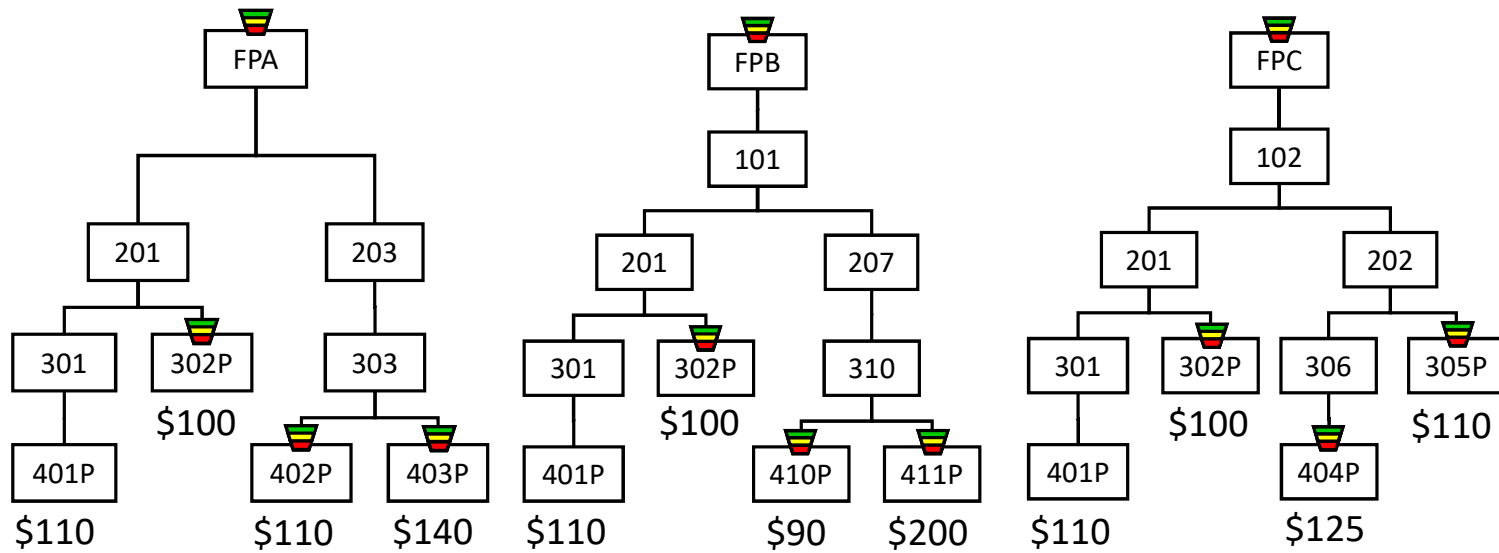




Figure 9-67

Part	Direct Material Cost
FPA	\$460
FPB	\$500
FPC	\$445
101	\$500
102	\$445
201	\$210
203	\$250
207	\$290
202	\$235
301	\$110
303	\$250
310	\$290
306	\$125
302P	\$100
305P	\$110
401P	\$110
402P	\$110
403P	\$140
410P	\$90
411P	\$200
404P	\$125

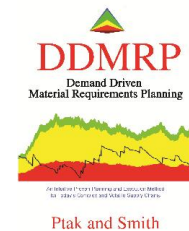
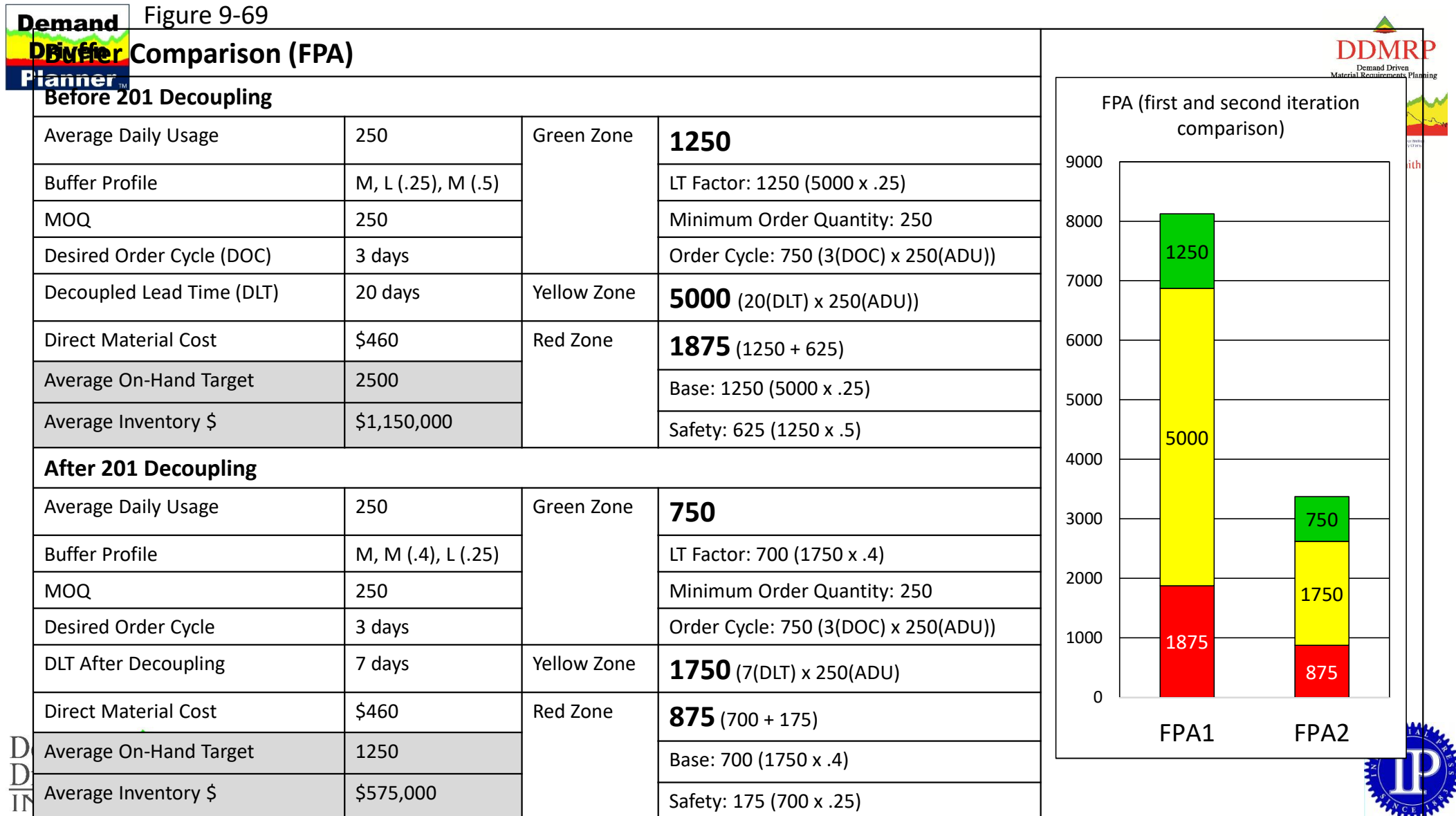
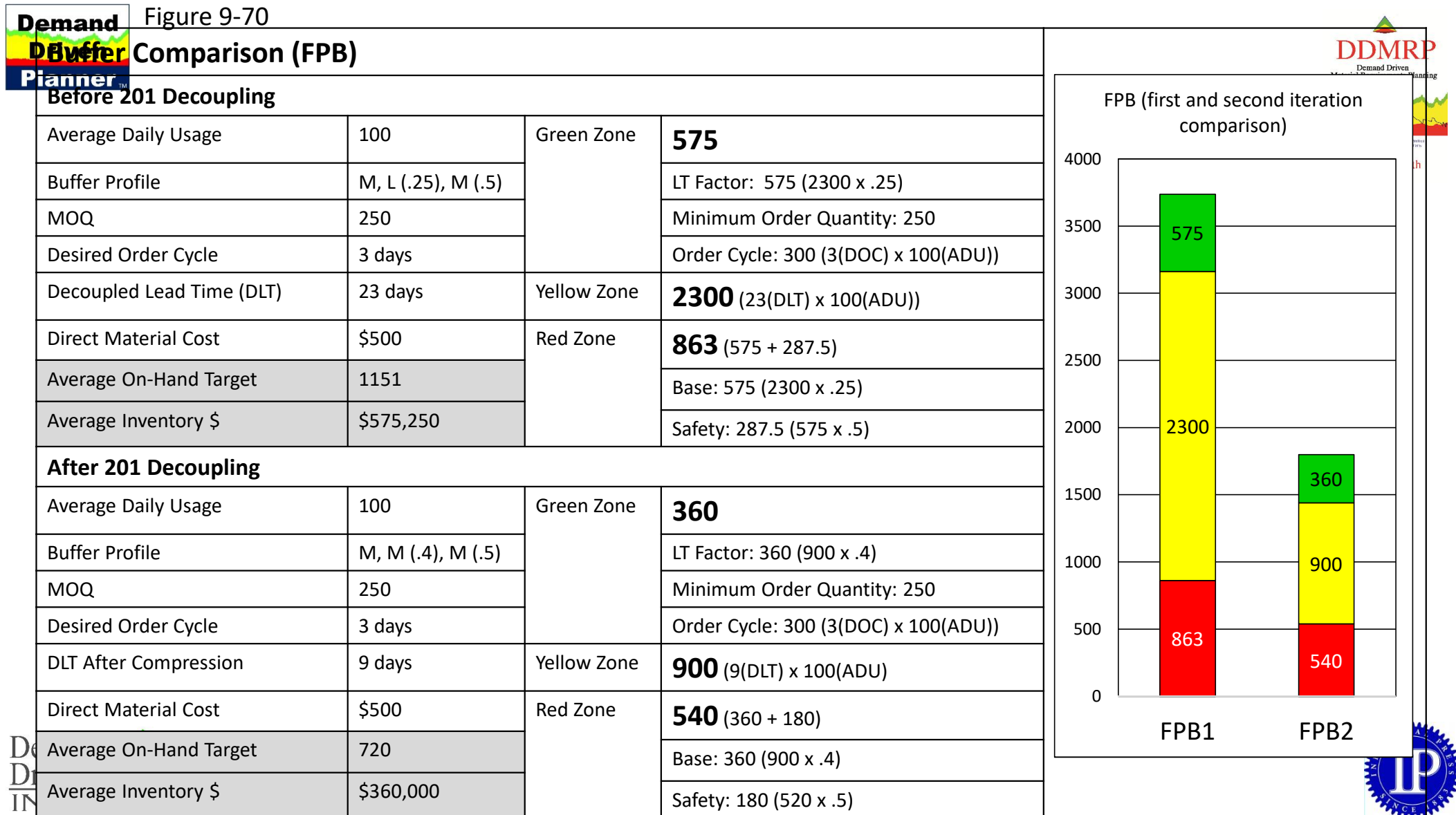


Figure 9-68

FPA			FPC			
Green Zone	1250		Green Zone	1725		
	LT Factor: 1250 (5000 x .25)			LT Factor: 1725 (6900 x .25)		
	Minimum Order Quantity: 250			Minimum Order Quantity: 250		
	Order Cycle: 750 (3(DOC) x 250(ADU))			Order Cycle: 900 (3(DOC) x 300(ADU))		
Yellow Zone	5000 (20(DLT) x 250(ADU))		Yellow Zone	6900 (23(DLT) x 300(ADU))		
Red Zone	1875 (1250 + 625)		Red Zone	2588 (1725 + 863)		
	Base: 1250 (5000 x .25)			Base: 1725 (6900 x .25)		
	Safety: 625 (1250 x .5)			Safety: 863 (1725 x .5)		
FPB				FPA	FPB	FPC
Green Zone	575					
	LT Factor: 575 (2300 x .25)		Direct Material Cost	\$460	\$500	\$445
	Minimum Order Quantity: 250		Average On-Hand Target	2500	1151	3451
	Order Cycle: 300 (3(DOC) x 100(ADU))					
Yellow Zone	2300 (23(DLT) x 100(ADU))		Average Inventory \$	\$1,150,000	\$575,250	\$1,535,473
Red Zone	863 (575 + 287.5)		Total End Item Inventory \$		\$3,260,723	
	Base: 575 (2300 x .25)					
	Safety: 287.5 (575 x .5)					





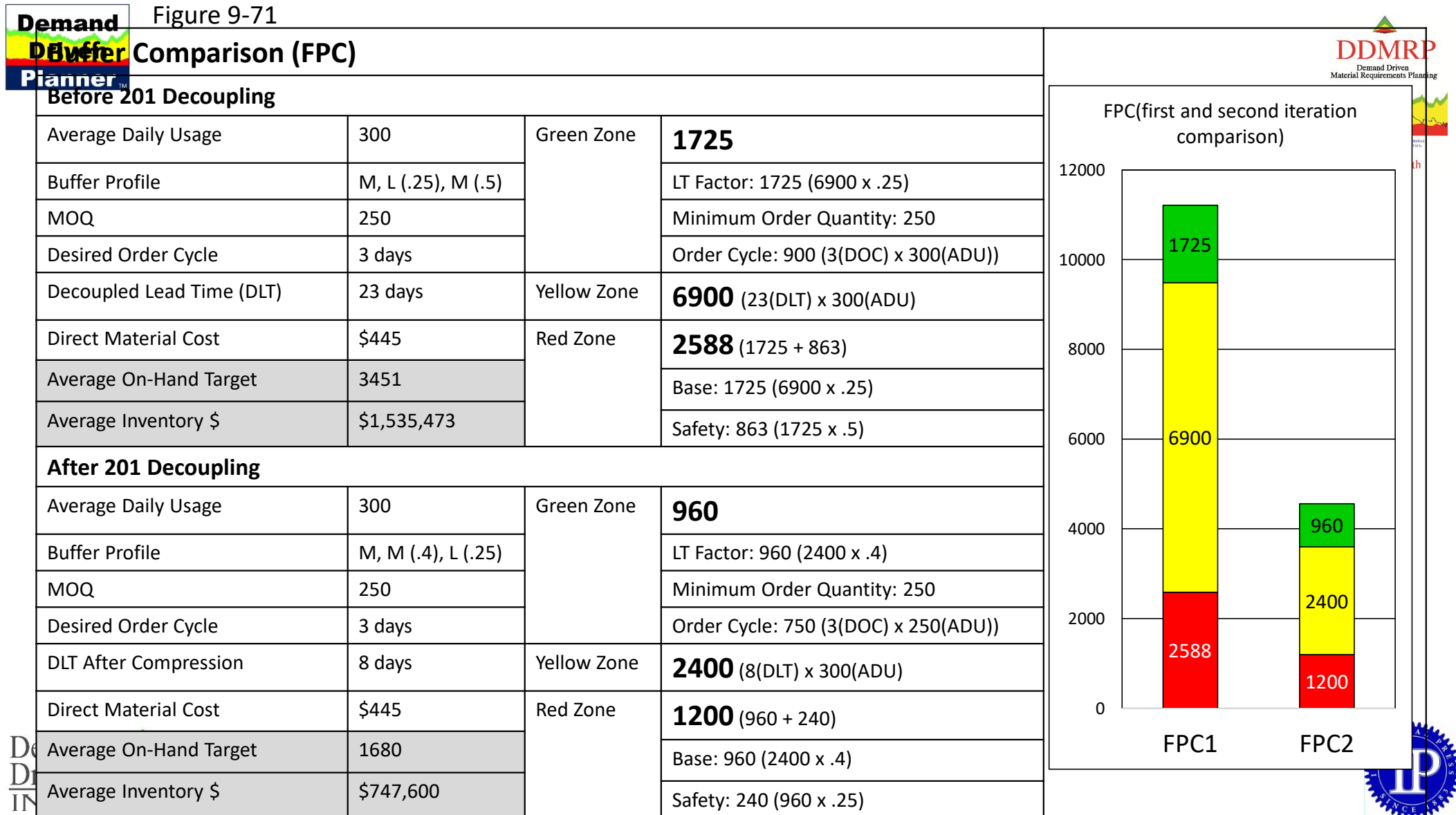


Figure 9-72

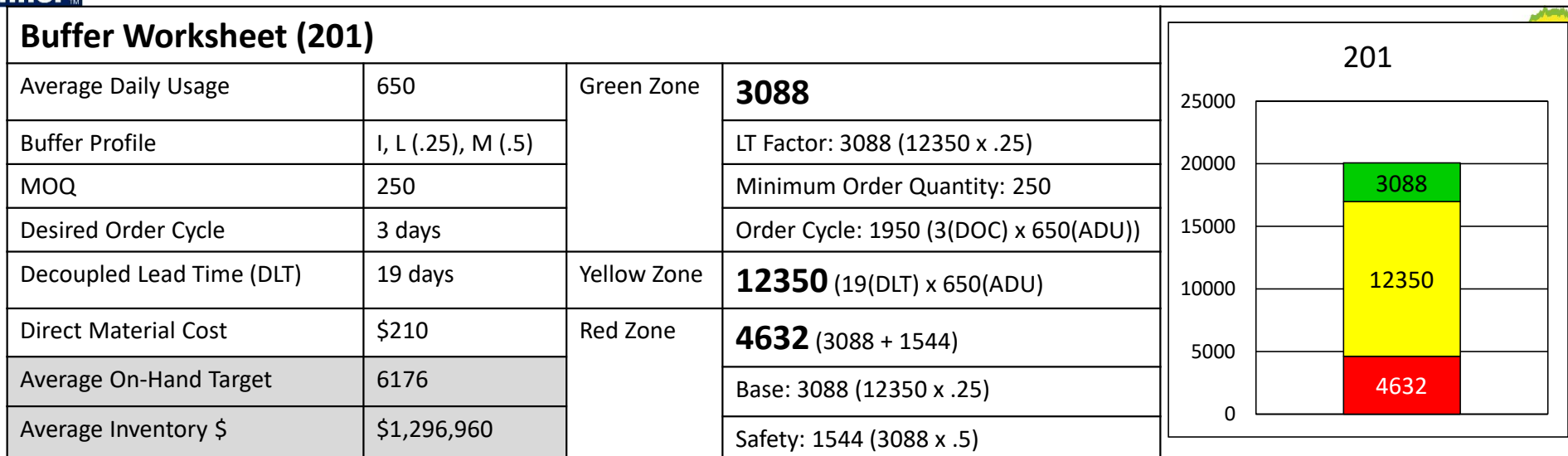


Figure 9-73

	FPA	FPB	FPC	201	Total Inventory
Start	\$1,150,000	\$575,250	\$1,535,473	\$0	\$3,260,723
Iteration 1	\$575,000	\$360,000	\$747,600	\$1,296,960	\$2,979,560
Reduction					\$281,163

Figure 9-74

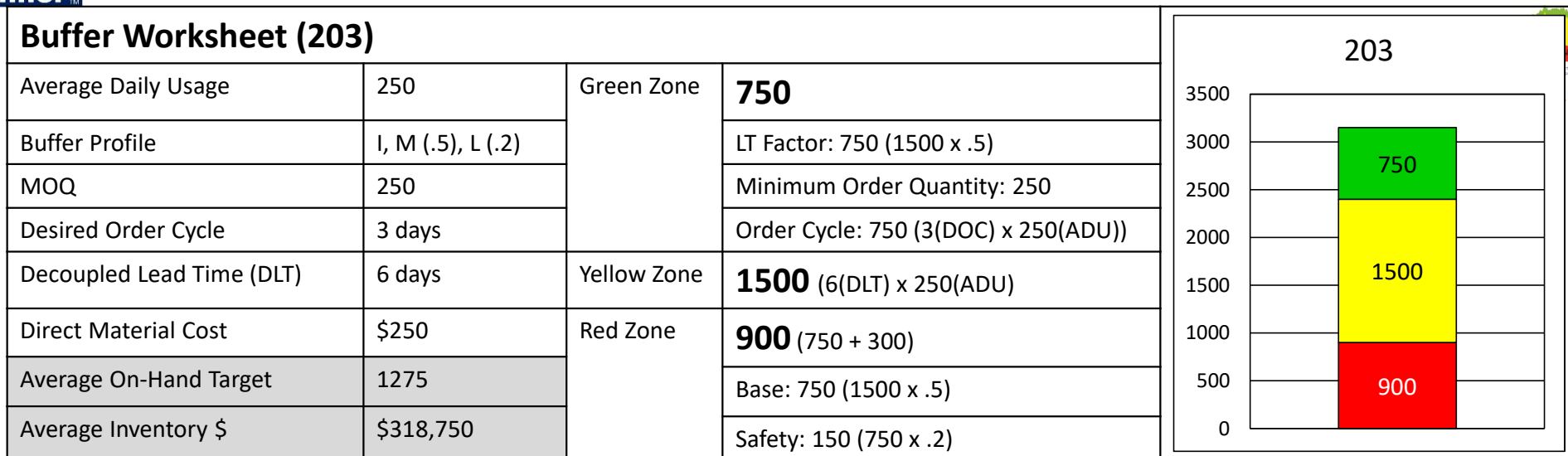
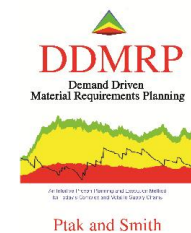




Figure 9-75



	FPA	FPB	FPC	201	203	Total Inventory
Start	\$1,150,000	\$575,250	\$1,535,473	\$0	\$0	\$3,260,723
Iteration 1	\$575,000	\$360,000	\$747,600	\$1,296,960	\$0	\$2,979,560
Iteration 2	\$0	\$360,000	\$747,600	\$1,296,960	\$318,750	\$2,723,310
Total Reduction						\$537,413

Figure 9-76



Demand Buffer Comparison (201)

Before 401P Decoupling

Average Daily Usage	650	Green Zone	3088
Buffer Profile	I, L (.25), M (.5)		LT Factor: 3088 (12350 x .25)
MOQ	250		Minimum Order Quantity: 250
Desired Order Cycle	3 days		Order Cycle: 1950 (3(DOC) x 650(ADU))
Decoupled Lead Time (DLT)	19 days	Yellow Zone	12350 (19(DLT) x 650(ADU))
Direct Material Cost	\$210	Red Zone	4632 (3088 + 1544)
Average On-Hand Target	6176		Base: 3088 (12350 x .25)
Average Inventory \$	\$1,296,960		Safety: 1544 (3088 x .5)

After 401P Decoupling

Average Daily Usage	650	Green Zone	1950
Buffer Profile	I, L (.25), L (.2)		LT Factor: 1463 (5850 x .25)
MOQ	250		Minimum Order Quantity: 250
Desired Order Cycle	3 days		Order Cycle: 1950 (3(DOC) x 650(ADU))
DLT After Compression	9 days	Yellow Zone	5850 (9(DLT) x 650(ADU))
Direct Material Cost	\$210	Red Zone	1756 (1463 + 293)
Average On-Hand Target	2731		Base: 1463 (5850 x .25)
Average Inventory \$	\$573,510		Safety: 293 (1463 x .2)

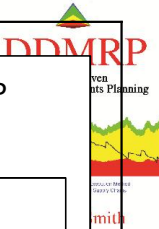
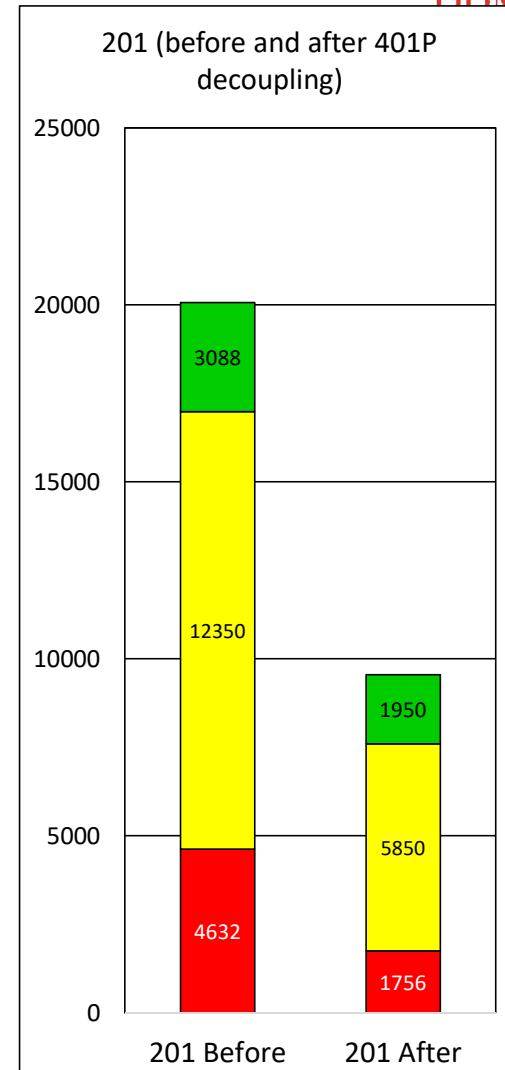


Figure 9-77

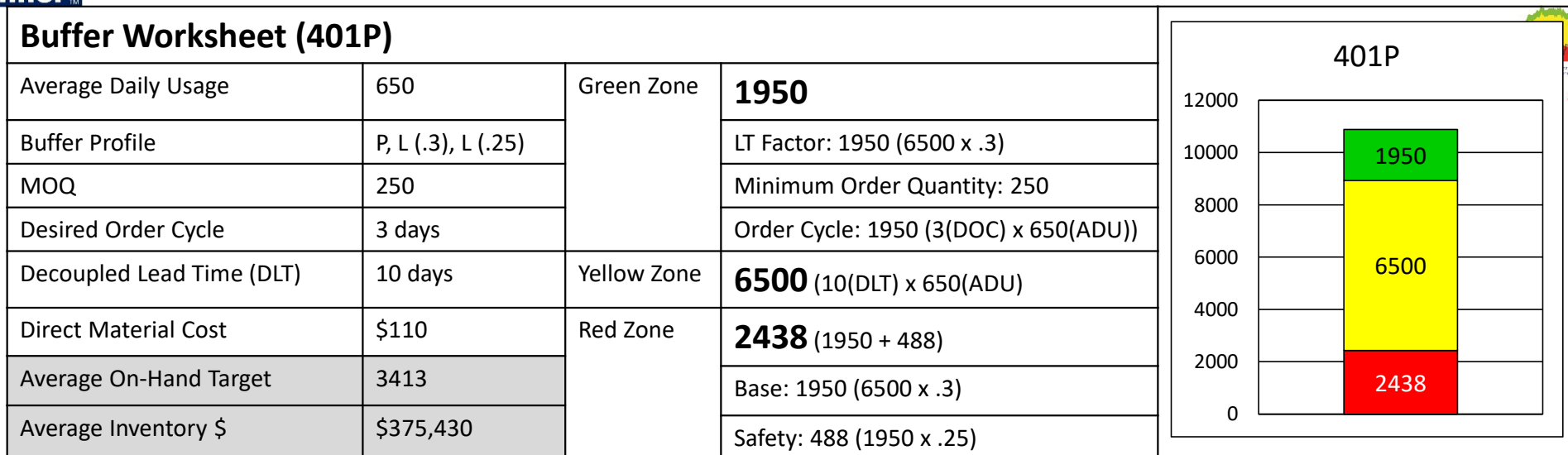
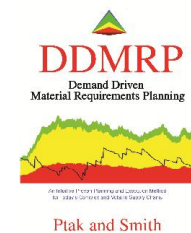


Figure 9-78

	FPA	FPB	FPC	201	203	401P	Total Inventory
Start	\$1,175,000	\$575,250	\$1,575,438	\$0	\$0		\$3,325,688
Iteration 1	\$575,000	\$360,000	\$747,600	\$1,296,960	\$0		\$2,979,560
Iteration 2	\$0	\$360,000	\$747,600	\$1,296,960	\$318,750		\$2,723,310
Iteration 3	\$0	\$360,000	\$747,600	\$573,510	\$318,750	\$375,430	\$1,999,860
Total Reduction							\$1,325,828



Chapter 10

Demand Driven Execution



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Figure 10-1

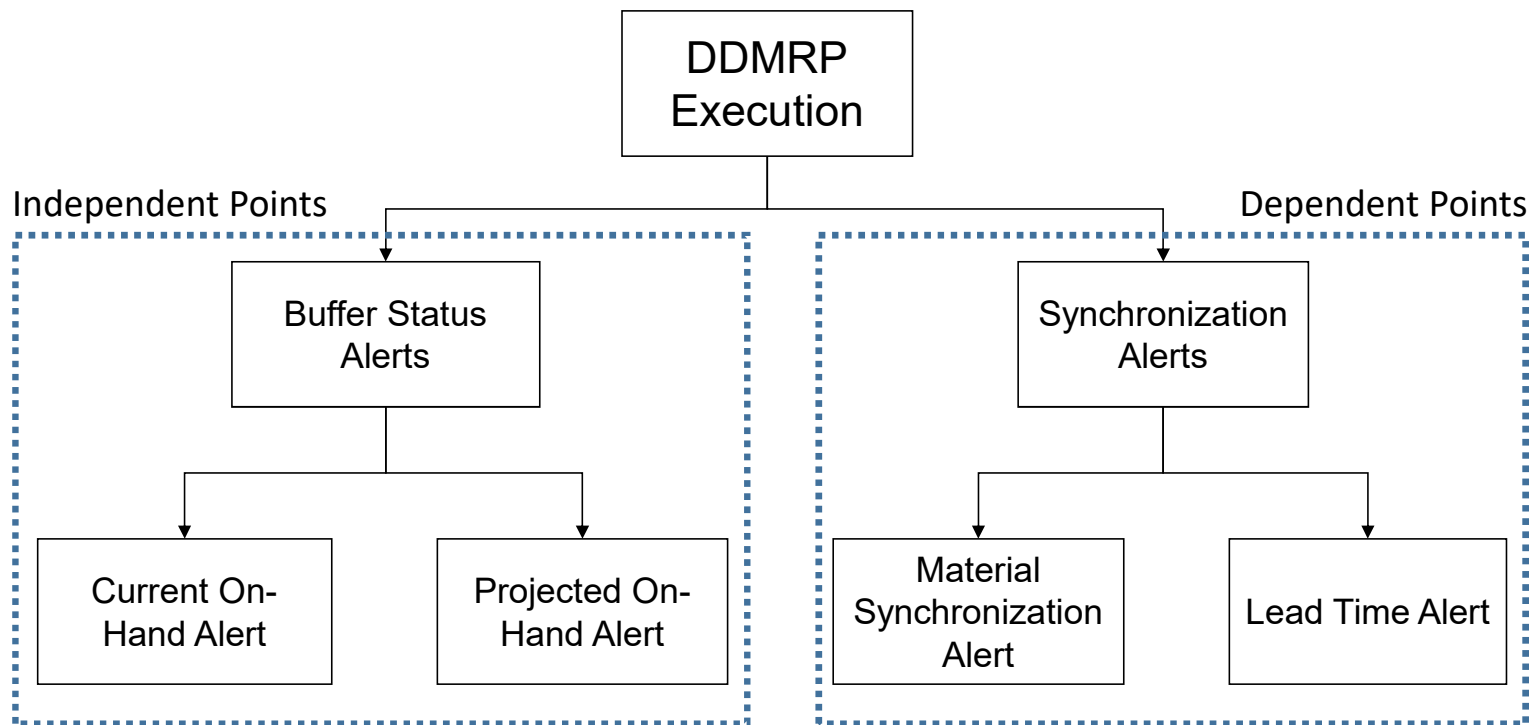




Figure 10-2

Order #	Due Date	Supplier
PO 821158	05/12	PNW Fabrication
PO 831145	05/12	PNW Fabrication
PO 831162	05/12	PNW Fabrication

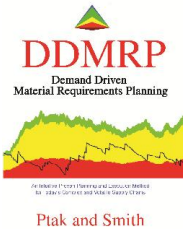
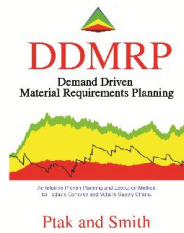




Figure 10-3



Order #	Due Date	Buffer Status	Supplier
PO 831145	05/12	RED – 12.3%	PNW Fabrication
PO 821158	05/12	YELLOW – 52.3%	PNW Fabrication
PO 831162	05/12	YELLOW – 56.1%	PNW Fabrication



Figure 10-4

Order #	Due Date	Order Type	Customer
MO 831145	05/12	MTS	Internal
MO 821158	05/12	MTS	Internal
MO 831162	05/12	MTS	Internal
MO 845172	05/13	MTS	Internal
MO 645181	05/14	MTS	Internal

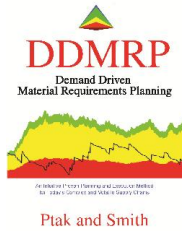


Figure 10-5

Order #	Due Date	Buffer Status	Order Type	Customer
MO 645181	05/14	RED – 13.2%	MTS	Internal
MO 845172	05/13	RED – 36.2%	MTS	Internal
MO 831162	05/12	YELLOW 62.1%	MTS	Internal
MO 831145	05/12	YELLOW – 72.1%	MTS	Internal
MO 821158	05/12	YELLOW – 87.2%	MTS	Internal

Figure 10-6

Part # Example				
Day	On-Hand	TOR	On-Hand Alert	Status
1	72	50	25	GREEN - 144.0%
2	26	50	25	YELLOW - 52.0%
3	20	50	25	RED - 40.0%

Figure 10-7

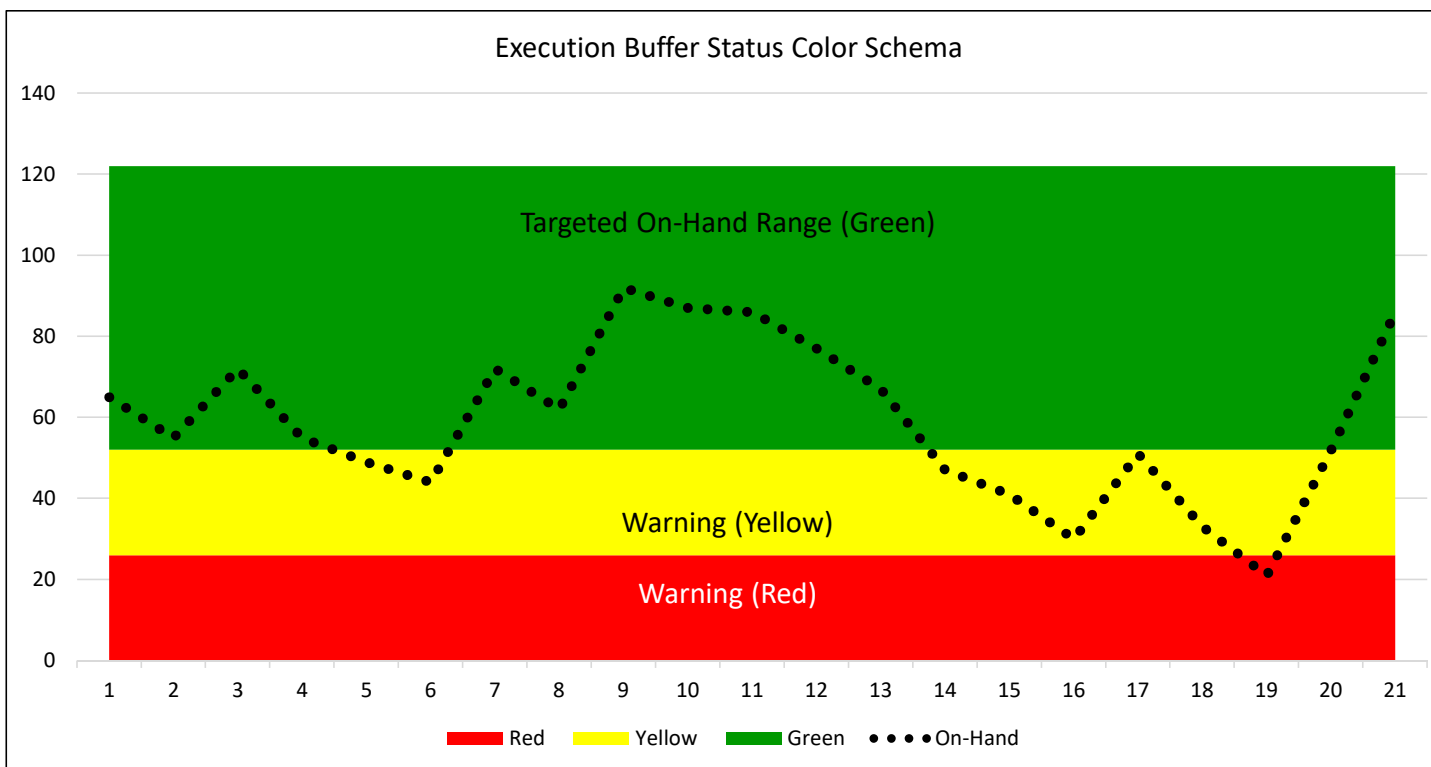


Figure 10-8

Part # Simulated Part				
Day	On-Hand	TOR	On-Hand Alert	Status
1	65	52	26	GREEN 125.0%
2	55	52	26	GREEN 105.8%
3	72	52	26	GREEN 138.5%
4	55	52	26	GREEN 105.8%
5	49	52	26	YELLOW 94.2%
6	44	52	26	YELLOW 84.6%
7	72	52	26	GREEN 138.5%
8	62	52	26	GREEN 119.2%
9	92	52	26	GREEN 176.9%
10	87	52	26	GREEN 167.3%
11	86	52	26	GREEN 165.4%
12	77	52	26	GREEN 148.1%
13	67	52	26	GREEN 128.8%
14	47	52	26	YELLOW 90.4%
15	41	52	26	YELLOW 78.8%
16	30	52	26	YELLOW 57.7%
17	51	52	26	YELLOW 98.1%
18	33	52	26	YELLOW 63.5%
19	21	52	26	RED 40.4%
20	52	52	26	YELLOW 100%
21	86	52	26	GREEN 165.4%



Figure 10-9

On-Hand Alert – Manufactured Parts	
Part #	Status
FPB	RED - 20.7%
IC203	YELLOW - 53.5%
FPC	YELLOW – 99.4%

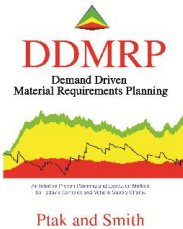




Figure 10-10

On-Hand Alert – Purchased Parts	
Part #	Status
401P	RED - 26.7%
402P	YELLOW - 58.3%
305P	YELOOW - 59.7%

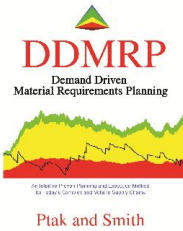




Figure 10-11

Part # FPB On-Hand Buffer Status: 20.7%				Today's Date: 8-May
TOR: 540		Current On-Hand: 112		
Order #	Quantity	Request	Promise	Status
MO15781	363	1-May	2-May	Final QC
MO15852	390	5-May	7-May	In Progress - Final Config
MO15999	382	10-May	11-May	In Progress - Assembly

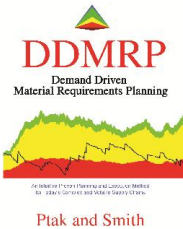
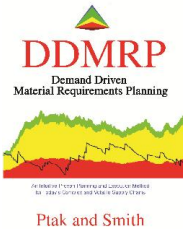




Figure 10-12

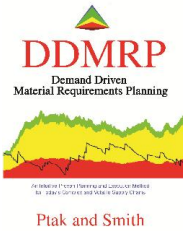


On-Hand Alert – Manufactured Parts	
Part #	Status
IC203	YELLOW – 53.5%
FPB	YELLOW – 88.0%
FPC	YELLOW – 99.4%





Figure 10-13



Part # 401P On-Hand Buffer Status: 26.7%			Today's Date: 8-May
TOR: 2438		Current On-Hand: 651	Supplier: Chelan Fabrication
Order #	Quantity	Due Date	Status
PO24366	712	3-May	In Transit - Tracking #127823
PO24413	687	8-May	In Progress at Supplier
PO24587	720	12-May	In Progress at Supplier



Figure 10-14

On-Hand Alert – Distributed Parts		
Part #	Status	Location
FPT	RED – 21.7%	Riverside
FPT	RED – 29.9%	Dallas
FPD	RED – 30.1%	Riverside
FPT	YELLOW – 51.6%	Chicago
FPE	YELLOW – 66.8%	Chicago
FPD	YELLOW – 64.2%	Atlanta
FPG	YELLOW – 75.1%	Dallas

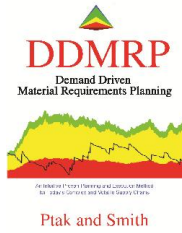
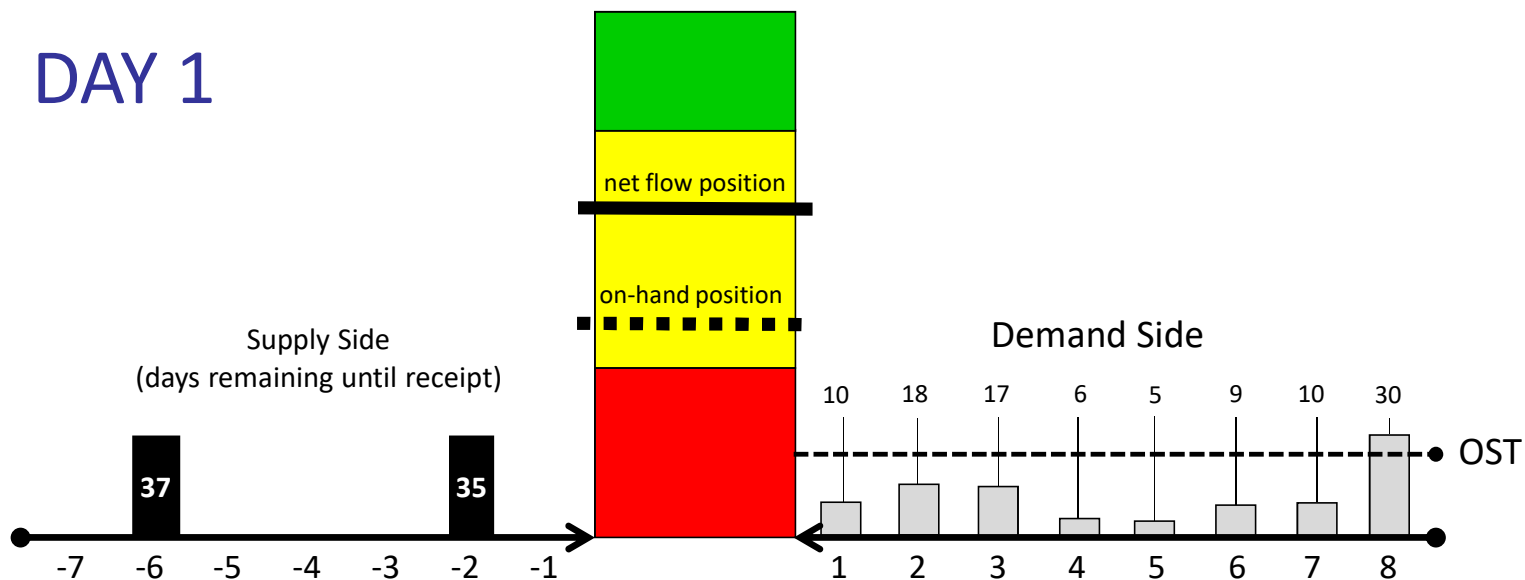


Figure 10-15

SKU	Chicago (HUB)	Riverside	Dallas	Atlanta	Network
FPD	YELLOW – 97.0%	RED – 30.1%	YELLOW – 81.0%	YELLOW – 64.2%	YELLOW
FPE	YELLOW – 66.8%	GREEN – 112.0%	GREEN – 131.0%	GREEN – 101.2%	GREEN
FPG	GREEN – 115.0%	GREEN – 103.1%	YELLOW – 75.1%	GREEN – 113.2%	GREEN
FPK	GREEN – 140.0%	GREEN – 102.0%	GREEN – 115.0%	GREEN – 121.3%	GREEN
FPT	YELLOW – 51.6%	RED – 21.7%	RED – 29.9%	GREEN – 113.4%	RED

Figure 10-16

DAY 1



Part#	Planning Priority	On-Hand	On-Order	Qualified Demand	Net Flow Position	Order Amount	Request Date	Top RED	Top YELLOW	Top GREEN	Lead Time
EXAMPLE	YELLOW 61.8%	65	72	40	97	60	Day 8	52	122	157	7

Figure 10-17

	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8
Sales Order Demand	18	17	6	5	9	10	30
Expected Supply	35				37		
Projected Starting On-Hand	55	72	55	49	44	72	62
Projected Status	GREEN – 105.8%	GREEN – 138.5%	GREEN – 105.8%	YELLOW – 94.2%	YELLOW – 84.6%	GREEN – 138.5%	GREEN – 119.2%

Figure 10-18

	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8
Average Daily Usage	10	10	10	10	10	10	10
Expected Supply	35				37		
Projected Starting On-Hand	55	80	70	60	50	77	67
Projected Status	GREEN – 105.8%	GREEN – 153.8%	GREEN – 134.6%	GREEN – 115.4%	YELLOW – 96.2%	GREEN – 148.1%	GREEN – 128.8%

Figure 10-19

	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8
Average Daily Usage	10	10	10	10	10	10	10
Sales Orders	18	17	6	5	9	10	30
Expected Supply	35				37		
Projected Starting On-Hand	55	72	55	45	35	62	52
Projected Status	GREEN – 105.8%	GREEN – 138.5%	GREEN – 105.8%	YELLOW – 86.5%	YELLOW – 67.3%	GREEN – 119.2%	GREEN – 100.0%

Figure 10-20

Projected On-Hand Alert – Purchased Parts	
Today's Date: 3 - May	
Part #	Status
401P	DARK RED -4.3% (5 – MAY)
402P	RED 35.7% (6 – MAY)
404P	RED 49.1% (6 – MAY)

Figure 10-21

401P (DARK RED -4.3% (5-MAY))					Today's Date: 3-May
Current On-Hand: 2108					
Order #	Quantity	Date	Projected OH	Projected Status	Status
MO2574	2213	5-May	-105	DARK RED -4.3%	Unreleased
PO61325	2112	6-May	2007	YELLOW 82.3%	In Process at Supplier
PO61343	1987	7-May	3994	GREEN 163.8%	In Process at Supplier

Figure 10-22

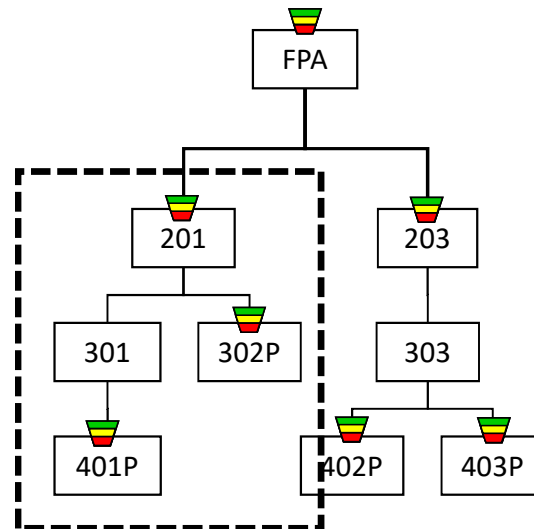




Figure 10-23

Order #	Part #	Release Date	Quantity	Shortage	Parent Buffer Status
MO2574	301	5-May	2213	DARK RED 401P -105	201 - YELLOW 84%

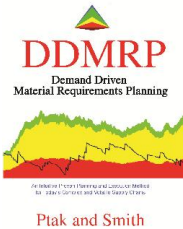


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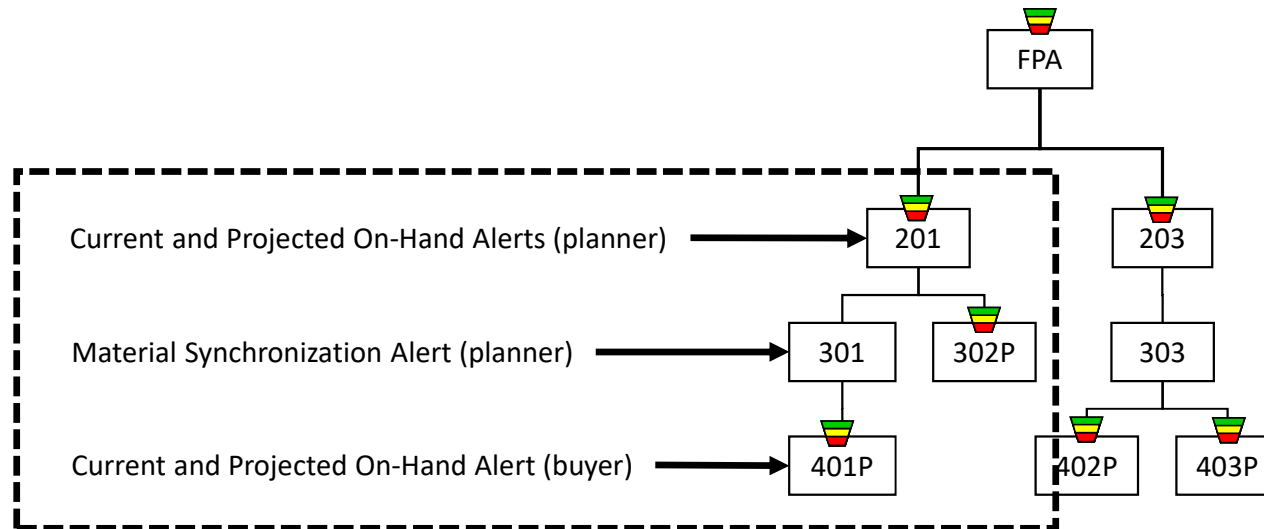


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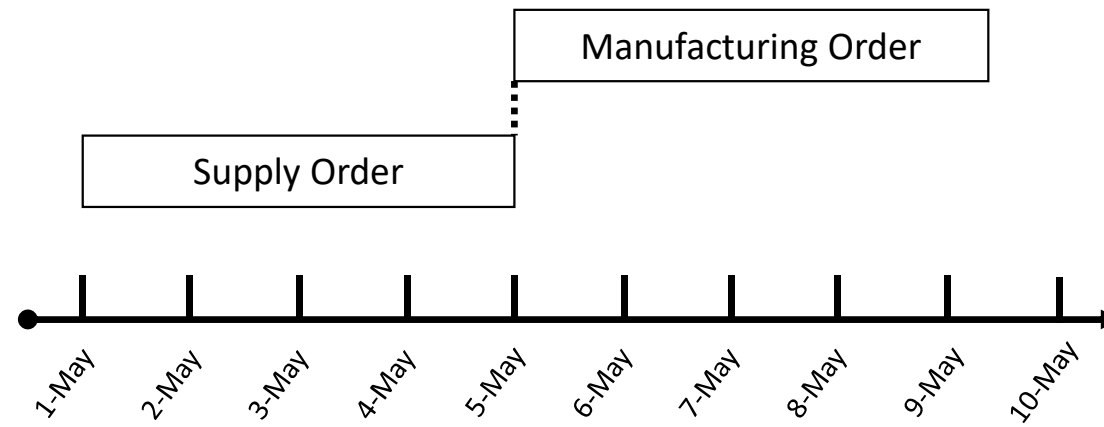


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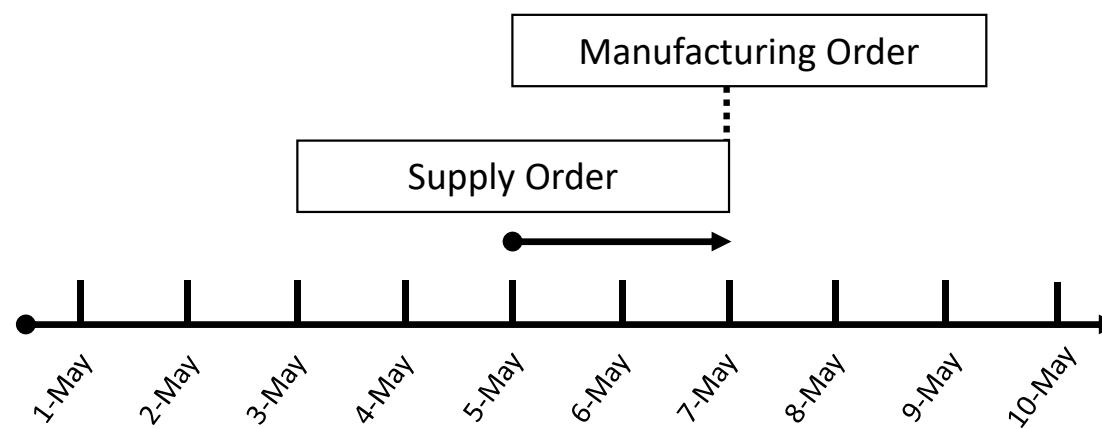


Figure 10-27

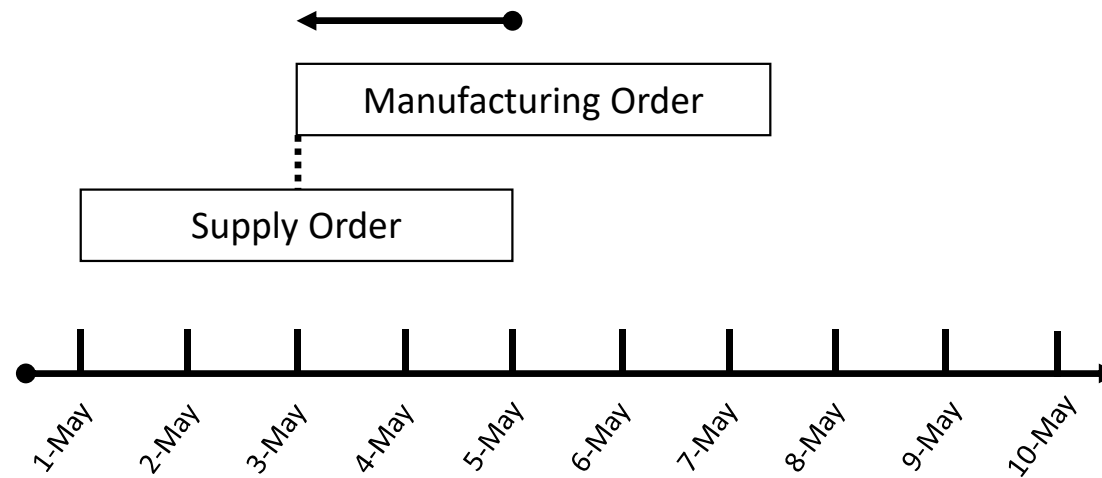


Figure 10-28

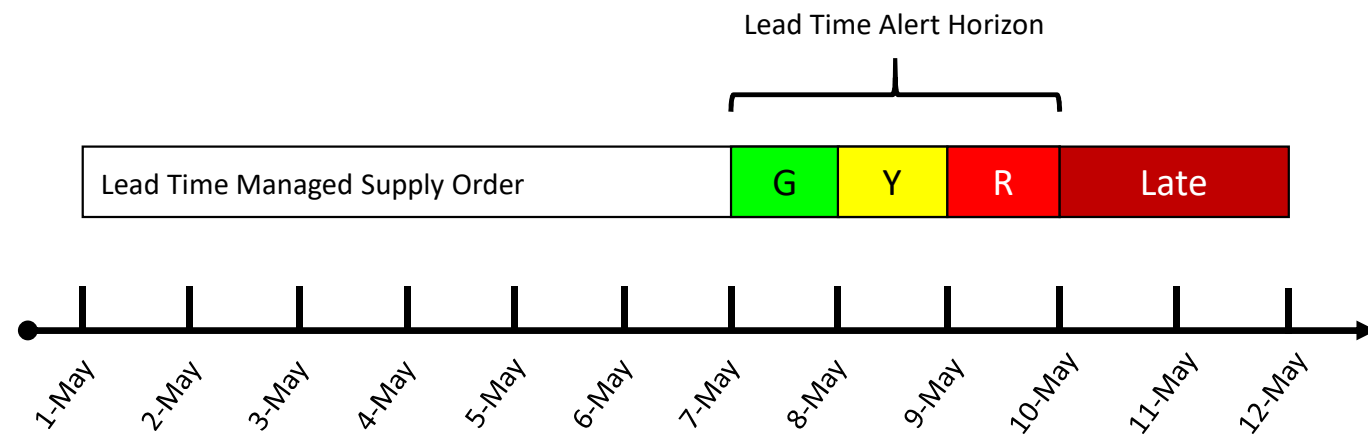
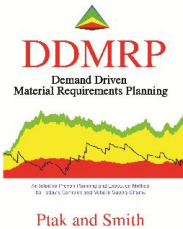




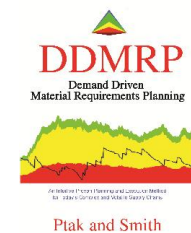
Figure 10-29



Lead Time Alerts				Today's Date: 5-May	
Order #	Part #	Due Date	Lead Time Alert Status	Current?	Lead Time
PO112032	PPL	12-May	RED - 7 days left	GREEN - YES	90
PO113562	PPF	17-May	YELLOW - 12 days left	RED - NO	60
MO5741	FPZ	19-May	GREEN - 14 days left	RED - NO	45

Figure 10-30

Lead Time Alerts				Today's Date: 5-May	
Order #	Part #	Due Date	Lead Time Alert Status	Current?	Lead Time
PO112032	PPL	12-May	RED - 7 days left	GREEN - YES	90
PO113562	PPF	22-May	GREEN - 17 days left	GREEN - YES	60
MO5741	FPZ	19-May	GREEN - 14 days left	RED - NO	45



Chapter 11

DDMRP Impacts to the Operational Environment



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Figure 11-1

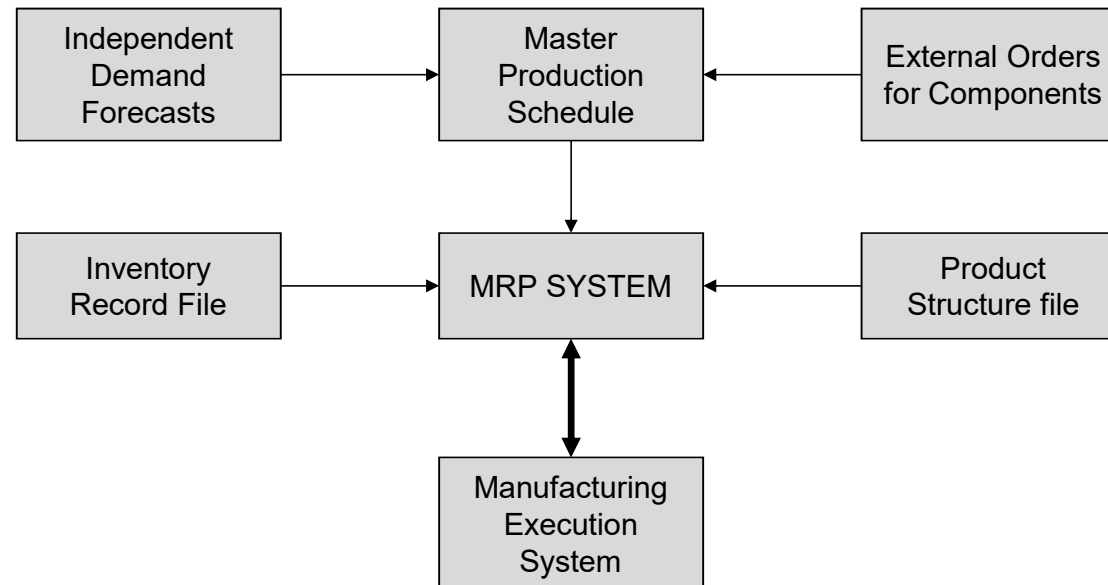


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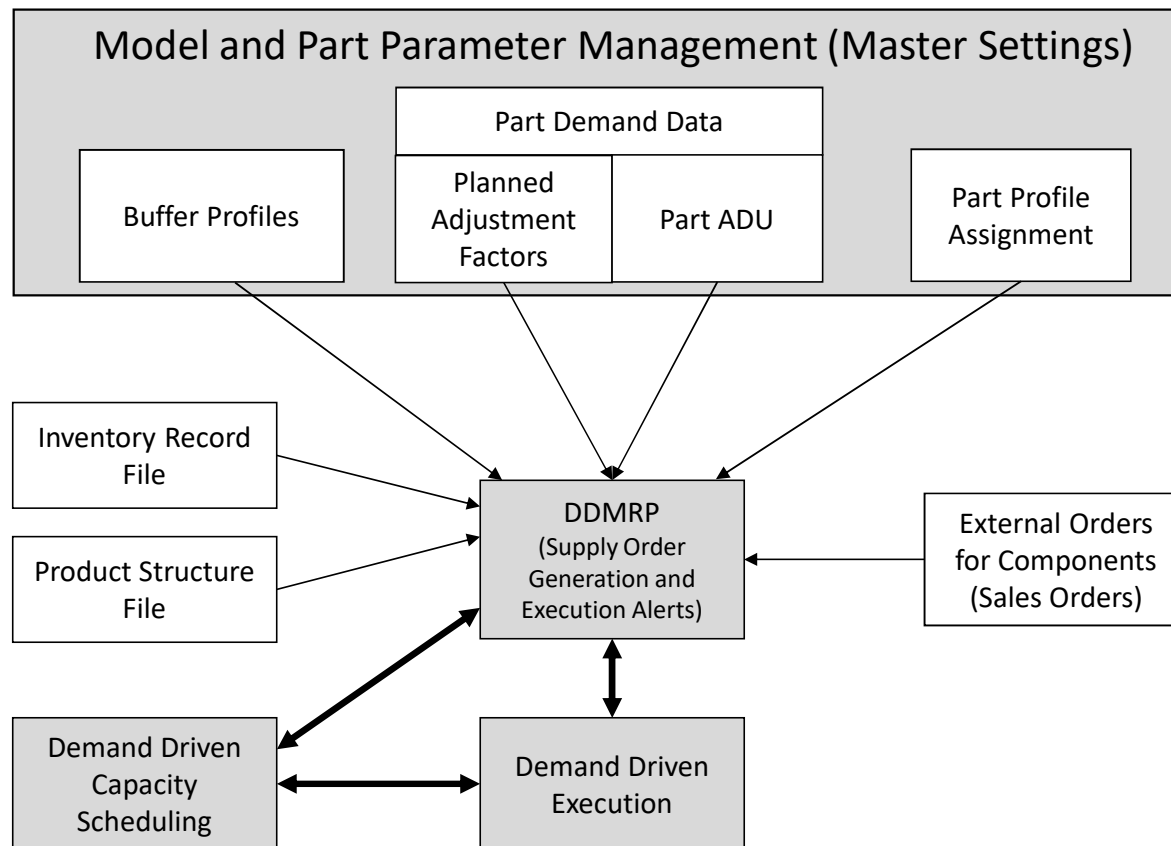
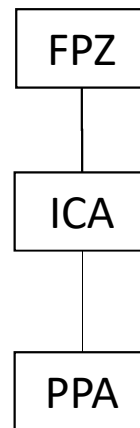


Figure 11-3

Product
Structure View



Product Structure View
with Routing Info

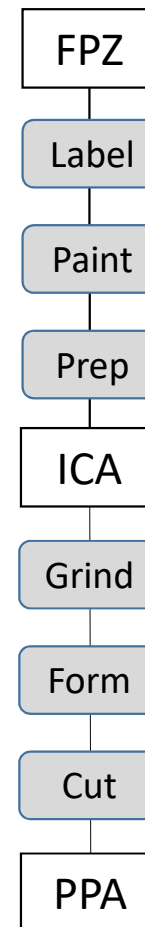
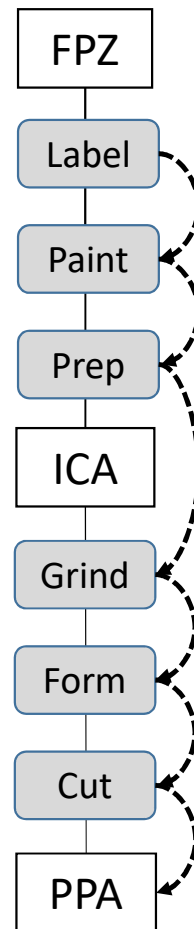


Figure 11-4

Coupled Schedule



Decoupled Schedule

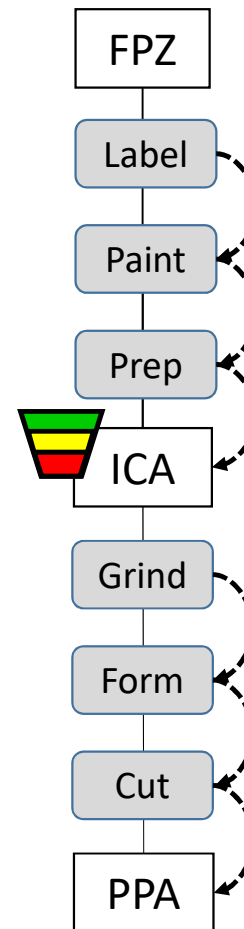


Figure 11-5

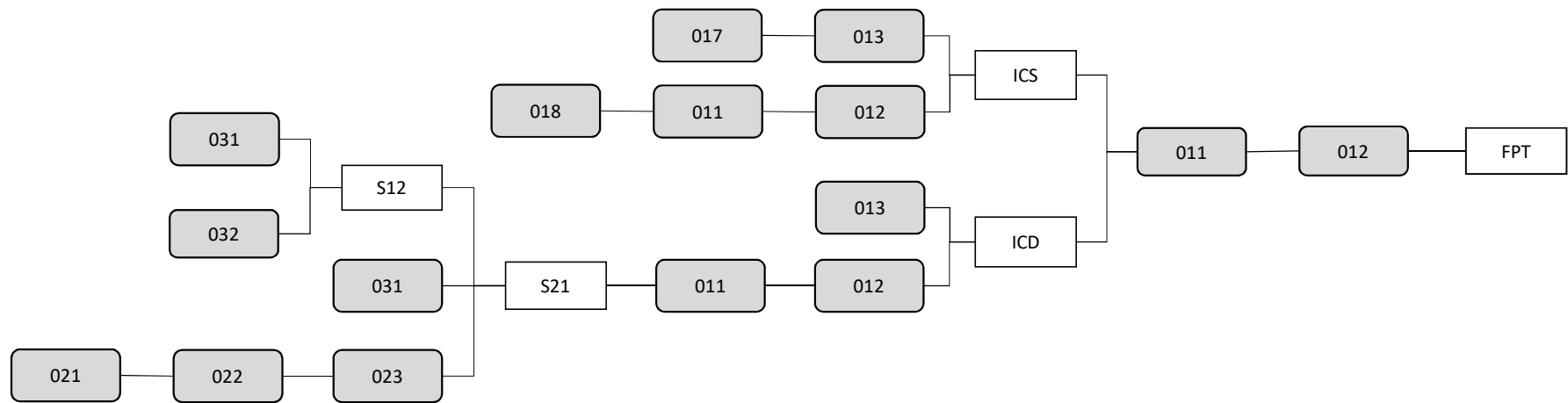


Figure 11-6

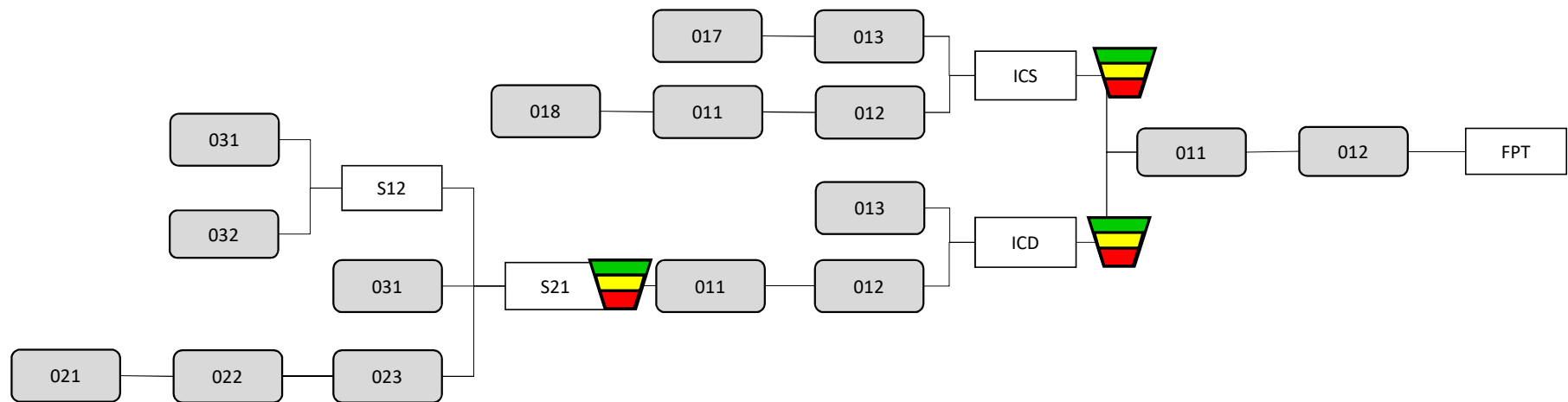


Figure 11-7

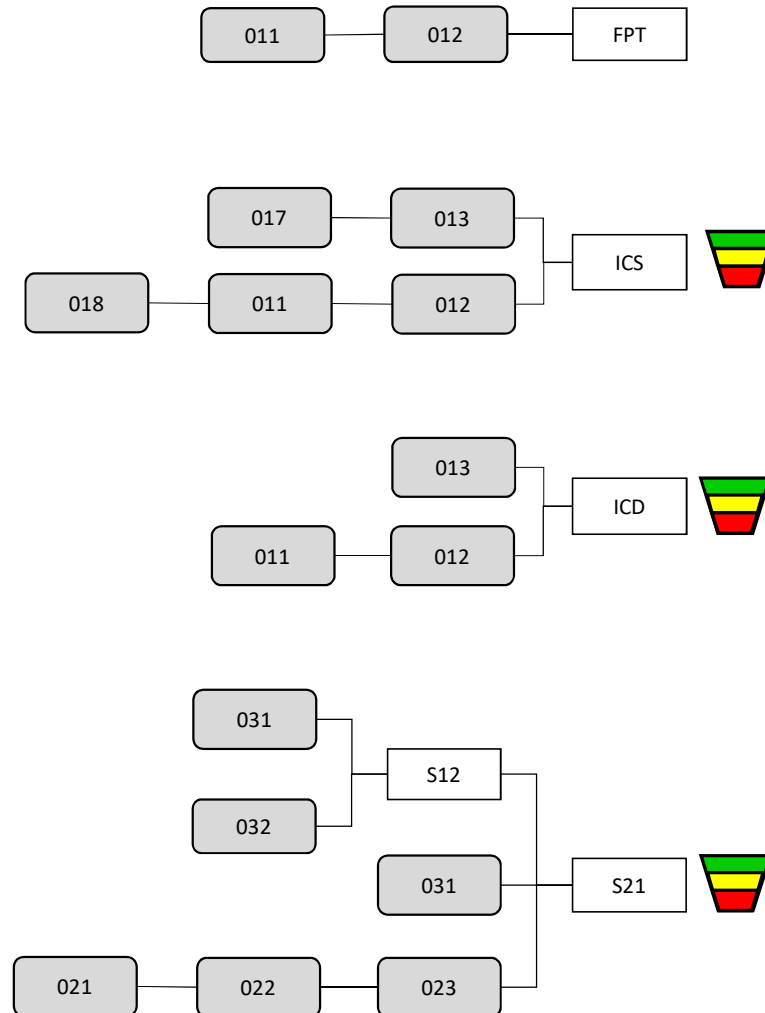


Figure 11-8

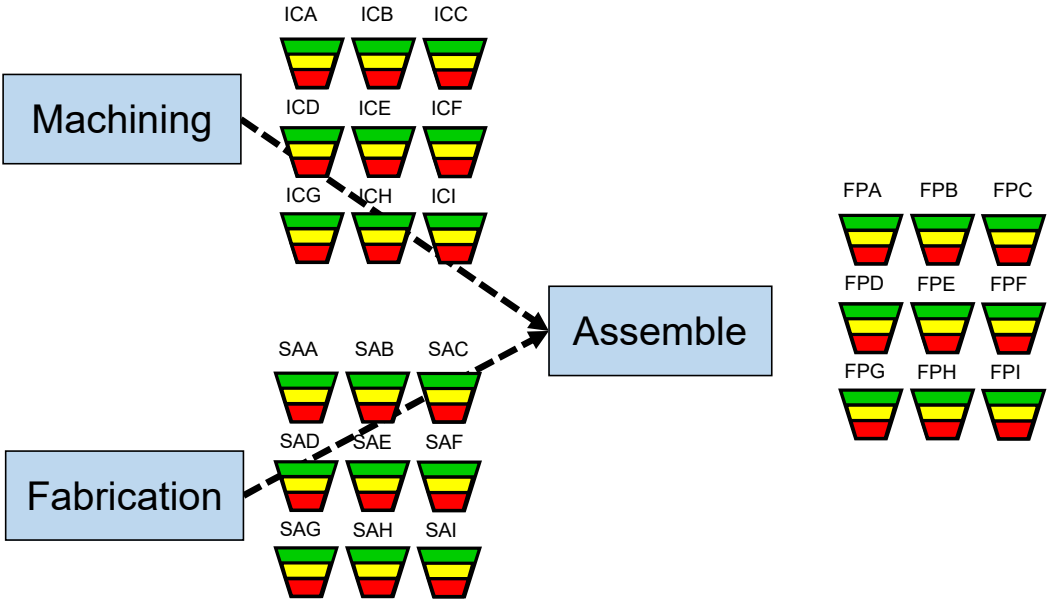


Figure 11-9

Part#	Planning Priority	On-Hand	On-Order	Qualified Demand	Net Flow Position	Order Recommendation	TOG
FPB	YELLOW (49%)	4012	5453	3200	6265	6500	12765
FPE	YELLOW (68.7%)	4054	3358	540	6872	3128	10000
FPA	YELLOW (70%)	530	4021	213	4338	2162	6200

Figure 11-10

Part#	Planning Priority	On-Hand	On-Order	Qualified Demand	Net Flow Position	Order Recommendation	TOG
ICB	YELLOW (58%)	12000	16359	8000	20359	14743	35102
SAF	YELLOW (72%)	5532	900	960	5472	2128	7600
ICH	YELLOW (74%)	3721	1530	713	4538	1594	6132
ICD	YELLOW (77.3%)	5714	2200	562	7352	2154	9506

Figure 11-11

120	Part #	Assembly minutes per part	Top of Green	Top of Green Assembly time	Average OH	Average OH Assembly time	Minimum order size	Assembly minutes per average order
240	123	30	455	13650 minutes	155	4650 minutes	120	3600 minutes
95								

Figure 11-12

Part#	Planning Priority	Allergen Sequence	On-Hand	On-Order	Qualified Demand	Net Flow Position	Order Recommendation	TOG
BerryTart(ras)	YELLOW (65.4%)	1	5032	900	960	4972	2628	7600
PieFill(apple)	YELLOW (69.1%)	1	3421	1530	713	4238	1894	6132
OatmealChew	YELLOW (68.9%)	2	5214	1900	562	6552	2954	9506
NutSurprise	YELLOW (58.0%)	4	12000	16359	8000	20359	14743	35102



Figure 11-13

Part#	Planning Priority
FPB	YELLOW (49%)
FPE	YELLOW (68.7%)
FPA	YELLOW (70%)

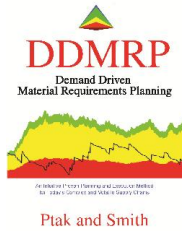
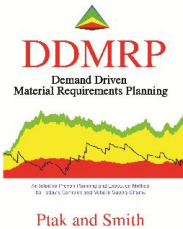




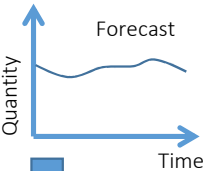
Figure 11-14



Order #	Item #	Buffer Status
MO 819-87	FPA	RED (35.3%)
MO 832-41	FPB	GREEN (133.7%)
WO 211-72	FPE	GREEN (135.1%)

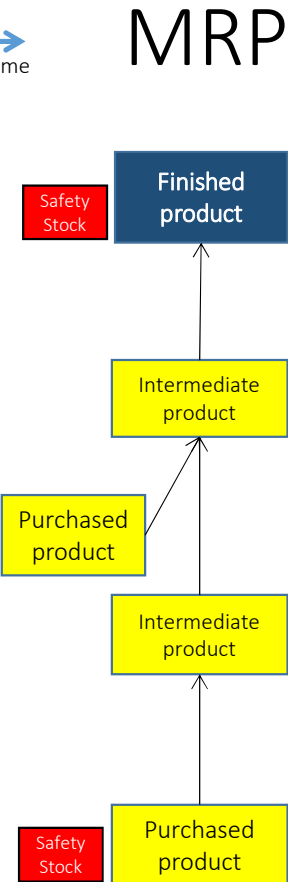


Figure 11-15



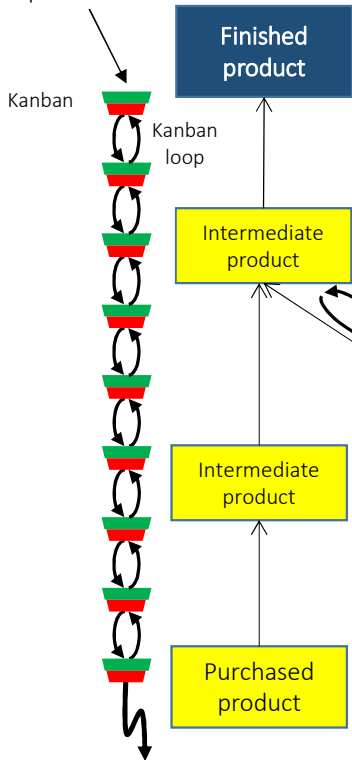
MPS
↓
MRP

Orders are created based on MRP

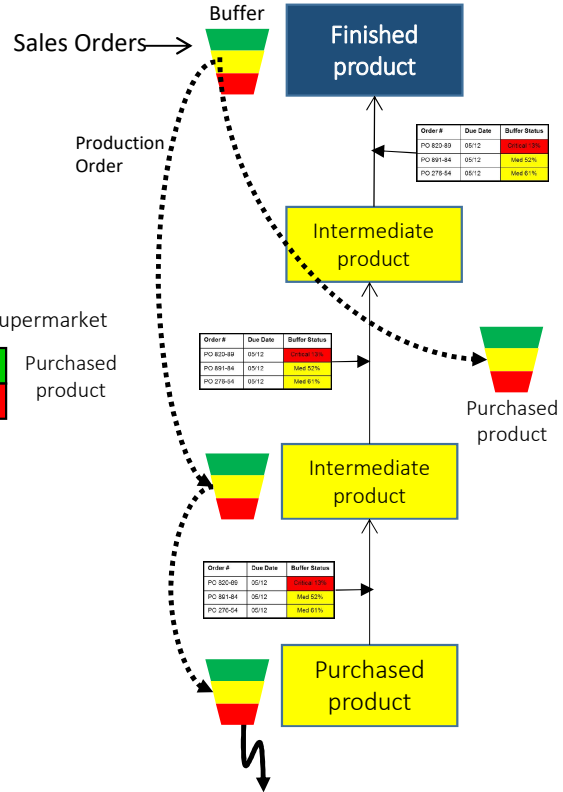


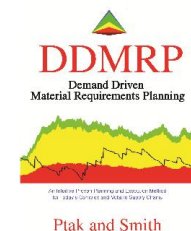
Lean

Takt Time or Consumption



DDMRP





Chapter 12

DDMRP Metrics and Analytics



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Figure 12-1

Date	Chicken Truffle		Chicken Noodle		Beef Stew		Minestrone	
	DDMRP Recommendation	Actual	DDMRP Recommendation	Actual	DDMRP Recommendation	Actual	DDMRP Recommendation	Actual
1-Oct	GREEN		GREEN		OTOG		GREEN	
2-Oct	YELLOW 1200		GREEN		OTOG		GREEN	
3-Oct	YELLOW 1321	1800	GREEN		OTOG	1200	YELLOW 1900	1900
4-Oct	OTOG		GREEN		OTOG		GREEN	
5-Oct	OTOG		GREEN		OTOG		GREEN	
6-Oct	GREEN		YELLOW 2400		OTOG		GREEN	
7-Oct	GREEN		YELLOW 2600		OTOG		GREEN	
8-Oct	GREEN		YELLOW 2950		GREEN		GREEN	
9-Oct	GREEN		YELLOW 3120		GREEN		GREEN	
10-Oct	GREEN		YELLOW 3500		GREEN		YELLOW 2150	2150
11-Oct	GREEN		YELLOW 4200		GREEN		GREEN	
12-Oct	YELLOW 1700		RED 6000		GREEN		GREEN	
13-Oct	YELLOW 1762		RED 6200	6200	GREEN	1200	GREEN	
14-Oct	YELLOW 1900		GREEN		OTOG		GREEN	
15-Oct	YELLOW 1950		GREEN		OTOG		GREEN	

Figure 12-2

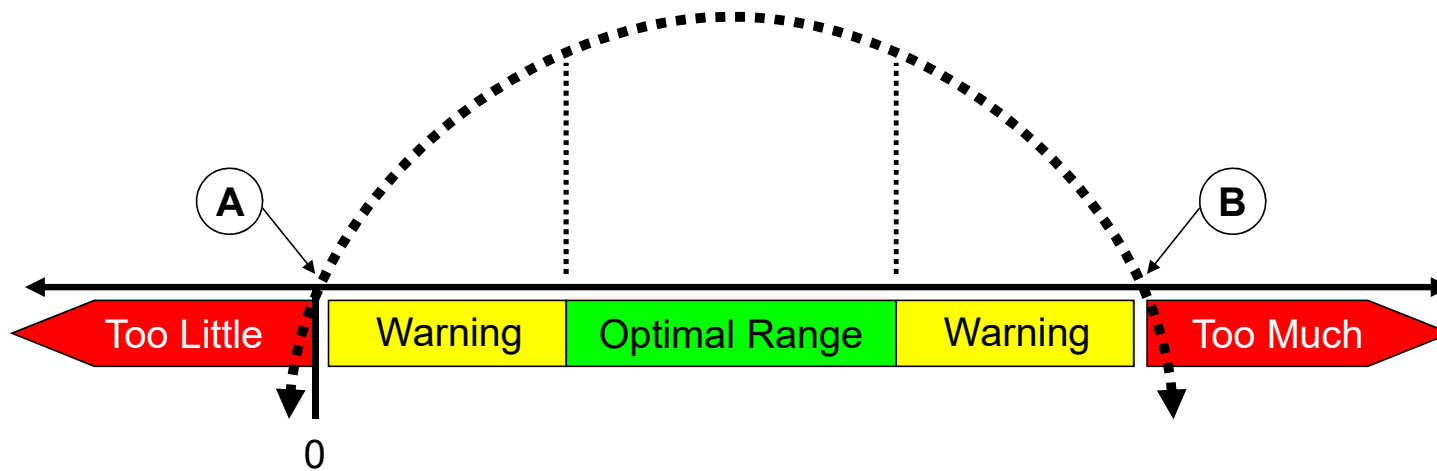


Figure 12-3

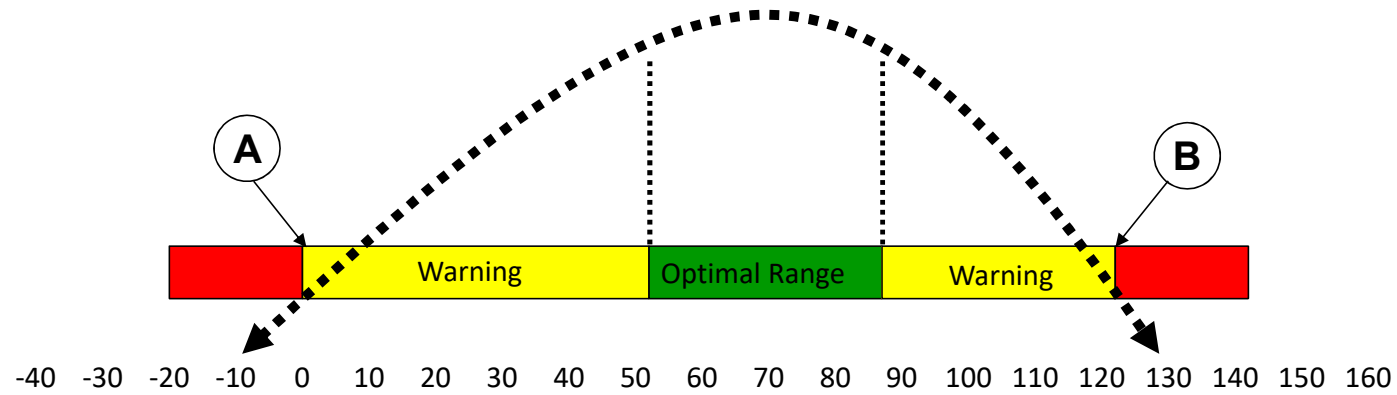


Figure 12-4

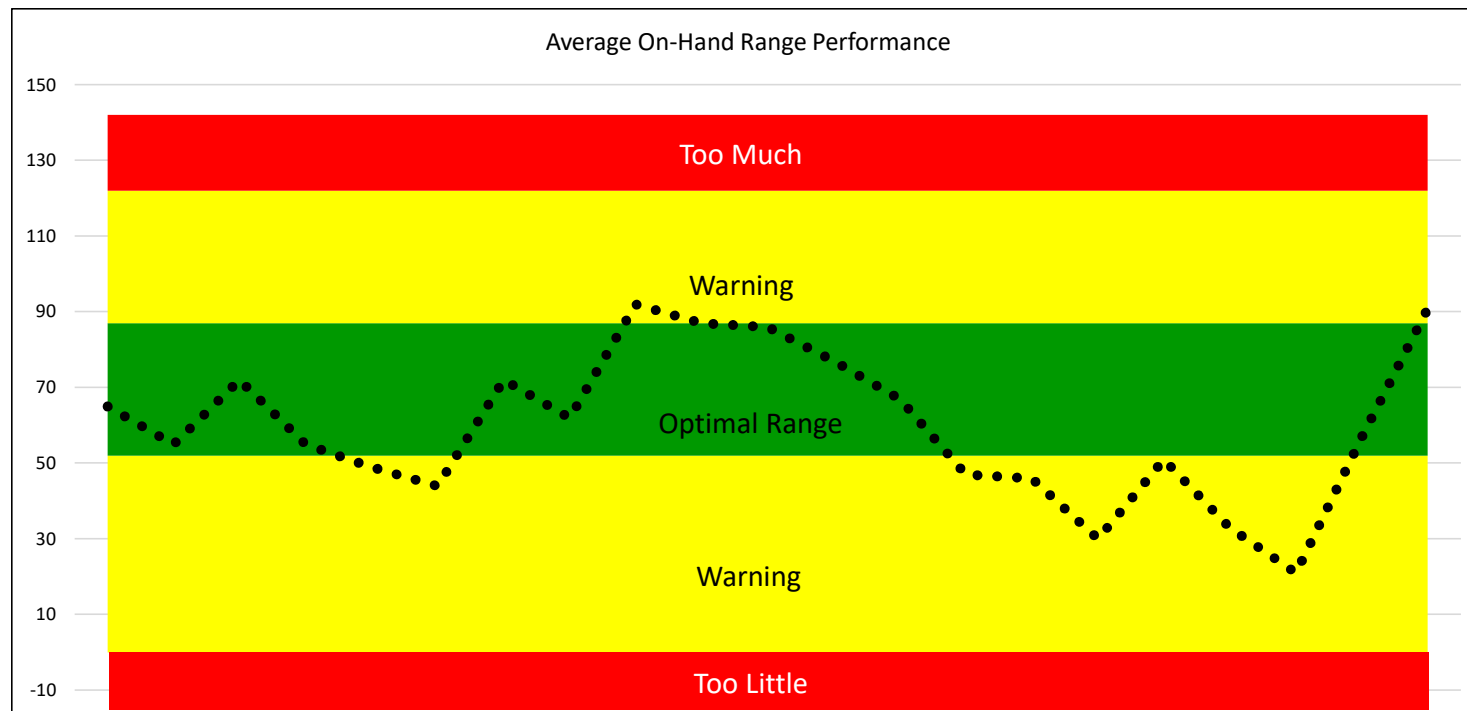


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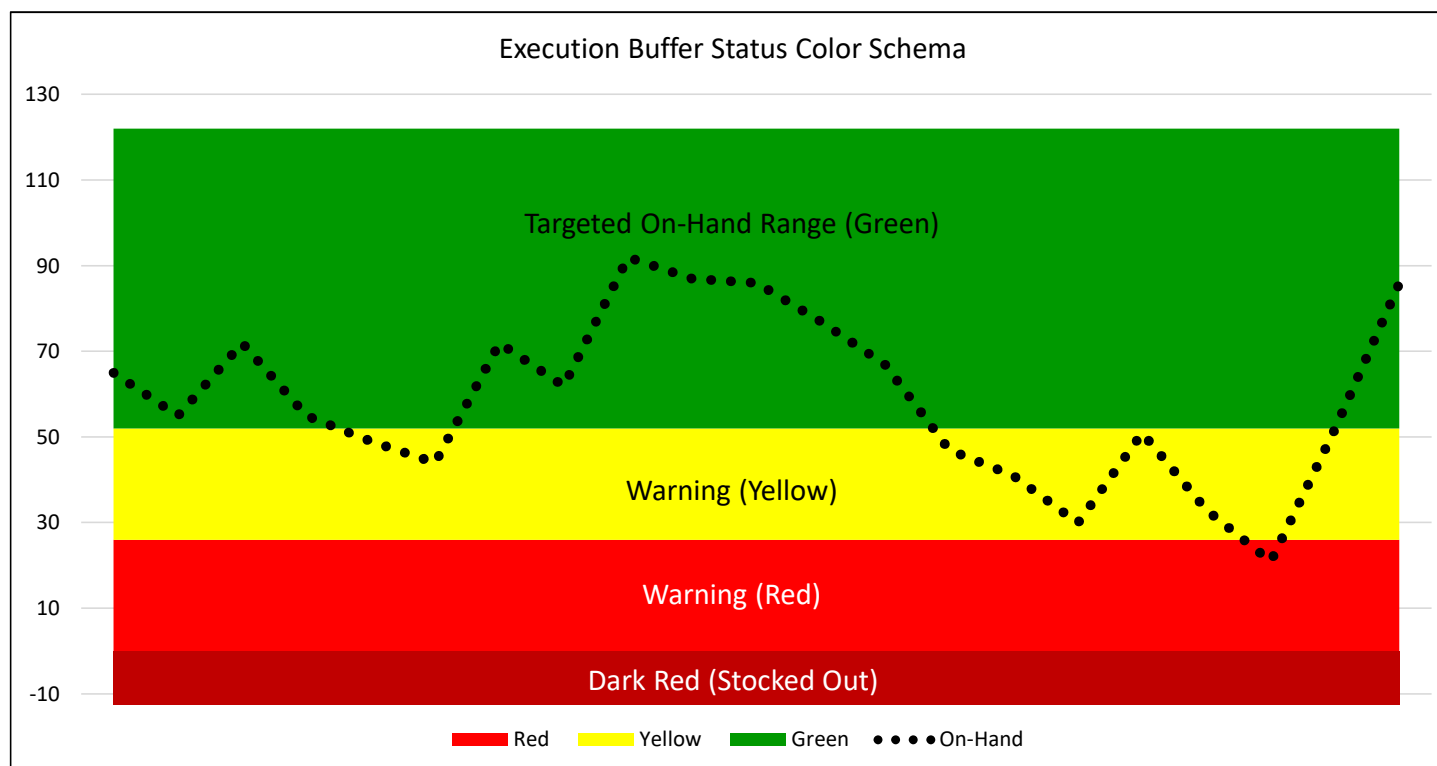


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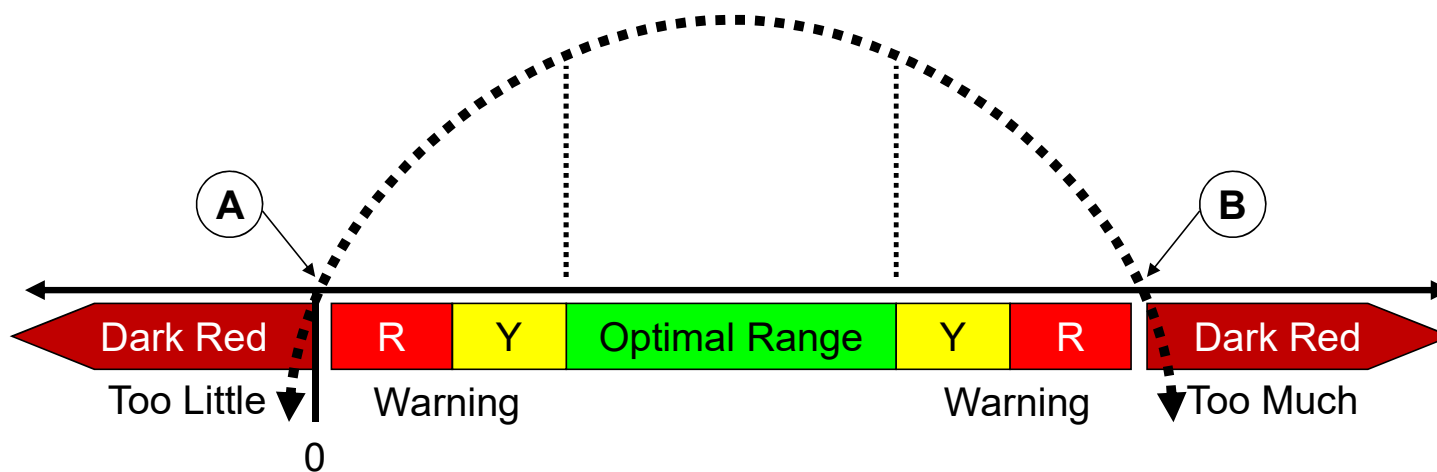


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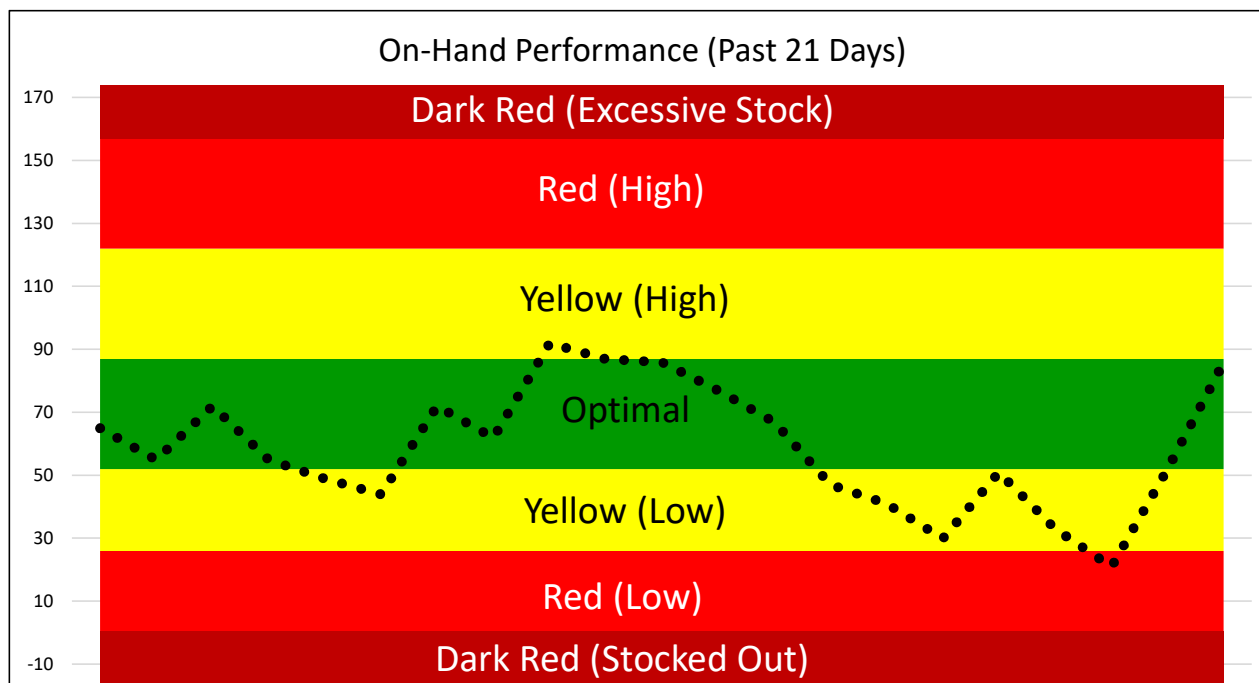


Figure 12-8

On-Hand Position Frequency (over 21 days)

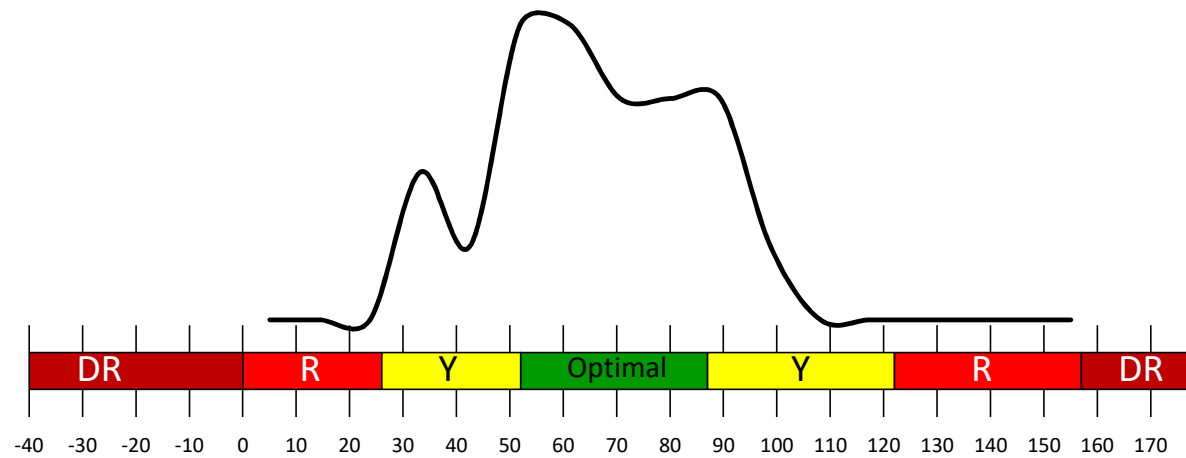


Figure 12-9

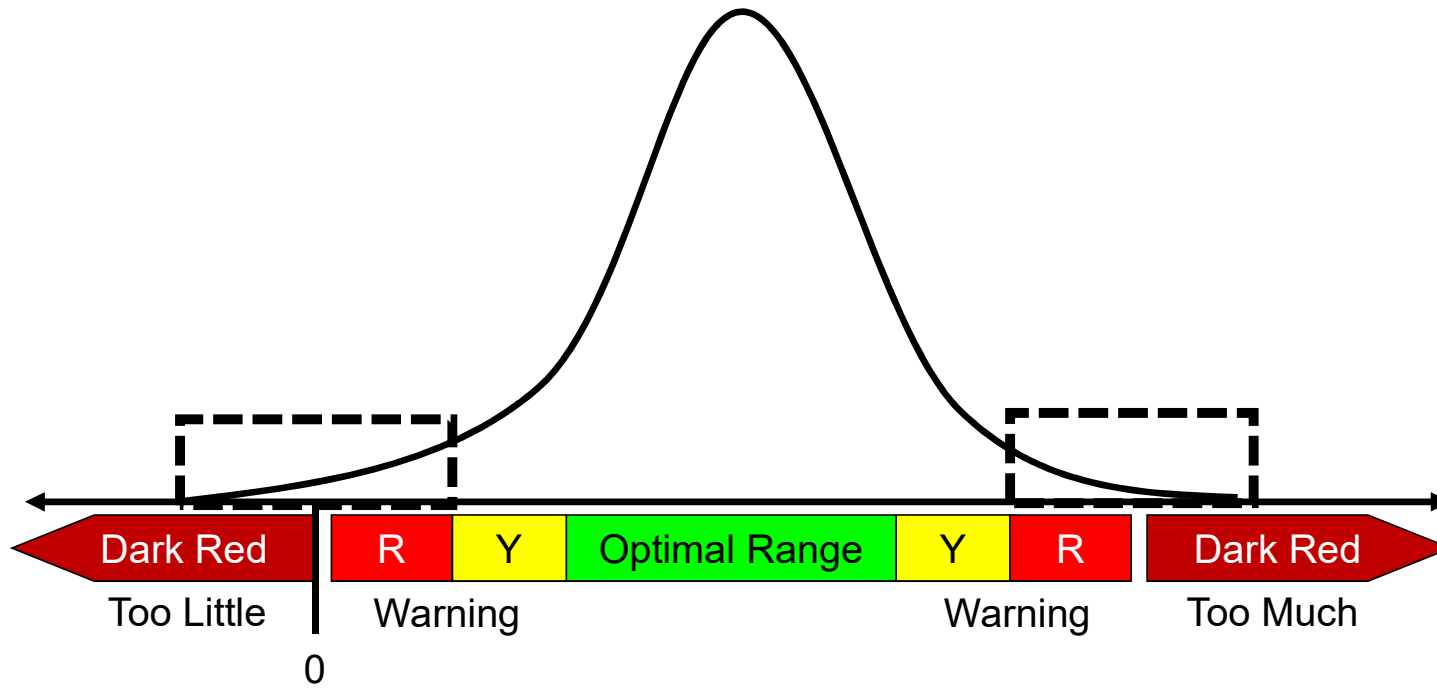


Figure 12-10

Purchased Part Disruption Report			Date Range: May 1-31		
Part #	Supplier	Parent Items	Number of Stock-Outs	Total Stock-Out Days	Number of OH Red
PPA	PNW Heat Treat	4	3	10	5
PPC	PNW Heat Treat	12	3	6	4
PPZ	Columbia Fabrication	2	1	22	1

Figure 12-11

Intermediate Part Disruption Report			Date Range: May 1-31		
Intermediate Part	Supplying Resources	Parent Items	Number of Stock-Outs	Total Stock-Out Days	Number of OH Red
ICT	Drive Control Cell	8	5	21	9
ICD	Cylinder Cell	5	2	3	12
ICS	Falcon Lathe	2	0	0	5

Figure 12-12

Supplier Disruption Report		Date Range: May 1-31		
Supplier	Number of Parts	Number of Stock-Outs	Total Stock-Out Days	Number of OH Red
PNW Heat Treat	11	15	29	19
Chelan Electronics	5	0	0	10
Columbia Fabrication	1	1	22	1

Figure 12-13

Excess Inventory Report by Planner				Date Range: May 1-31			
Planner	Number of Parts	Beginning Excessive OH (Dark Red)	End Excessive OH (Dark Red)	Excess Inventory Change	Beginning High OH (Red)	End High OH (Red) \$	High OH Change
Nick M.	152	(19) \$121,633.00	(17) \$112,361.00	-\$9,272.00	(26) \$165,223.00	(12) \$67,284.00	-\$97,939.00
Carmine M.	113	(10) \$51,471.21	(12) \$67,897.67	\$16,426.46	(13) \$71,233.00	(25) \$172,913.00	\$101,680.00
Julia W.	49	(1) \$5,123.00	0	-\$5,123.00	(7) \$9774.00	(1) \$674.00	-\$9,100.00

Figure 12-14

Excess Inventory by Part				Date Range: May 1-31			
Part #	Planner	Beginning Excessive OH (Dark Red)	End Excessive OH (Dark Red)	Excess Inventory Change	Beginning High OH (Red)	End High OH (Red) \$	High OH Change
FPT	Nick M.	\$1,256.00	0	-\$1,256.00	\$2,135.00	\$136.00	-\$1,999.00
FPH	Carmin M	\$5,471.21	\$1,781.00	-\$3,690.21	\$1124.00	\$1124.00	0
FPI	Carmin M	0	\$1,231.00	\$1,231.00	\$356.00	\$1254.00	\$898.00

Figure 12-15

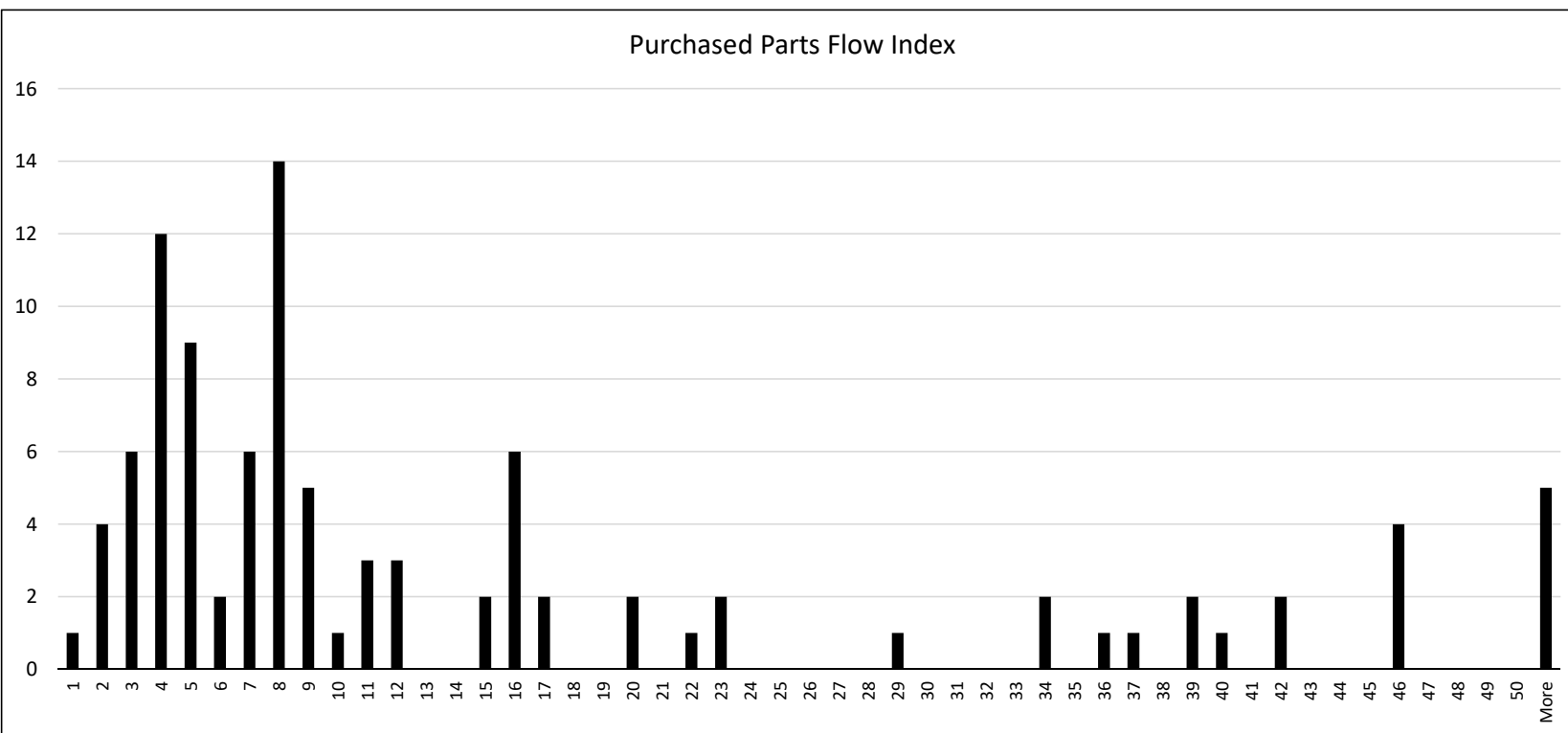


Figure 12-16

Part #	ADU	Green Zone	Order Frequency
148	22	1000	45.45
181	11	500	45.45
192	22	1000	45.45
198	11	500	45.45
159	9	500	55.56
162	7	500	71.43
154	11	1000	90.91
138	3	400	133.33
182	3	500	166.67

Figure 12-17

Part #	ADU	Green Zone	Order Frequency
141	765	400	0.52
187	422	500	1.18
204	65	100	1.54
171	320	500	1.56
220	127	250	1.97
124	321	700	2.18
143	422	1000	2.37
146	798	2000	2.51
185	765	2000	2.61
201	765	2000	2.61
212	68	200	2.94

Figure 12-18

Changed High Frequency Parts				Changed Low Frequency Parts			
Part #	ADU	Green Zone	Order Frequency	Part #	ADU	Green Zone	Order Frequency
141	765	2295	3.00	148	22	500	22.73
187	422	1266	3.00	181	11	250	22.73
204	65	195	3.00	192	22	500	22.73
171	320	960	3.00	198	11	250	22.73
220	127	381	3.00	159	9	250	27.78
124	321	963	3.00	162	7	250	35.71
143	422	1266	3.00	154	11	500	45.45
146	798	2394	3.00	138	3	200	66.67
185	765	2295	3.00	182	3	250	83.33
201	765	2295	3.00				
212	68	204	3.00				

Figure 12-19

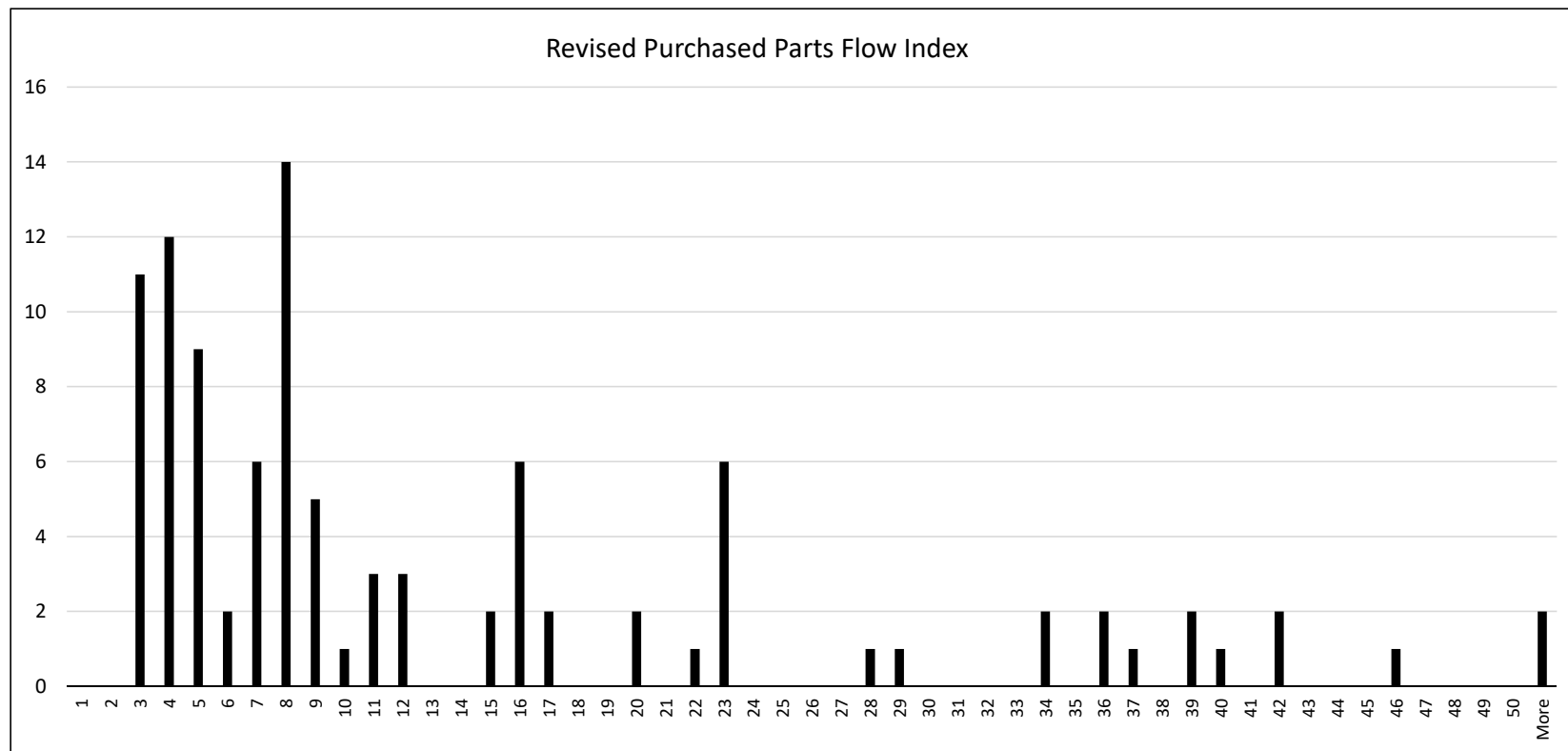
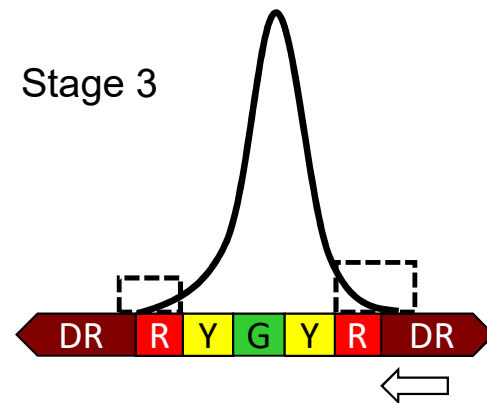
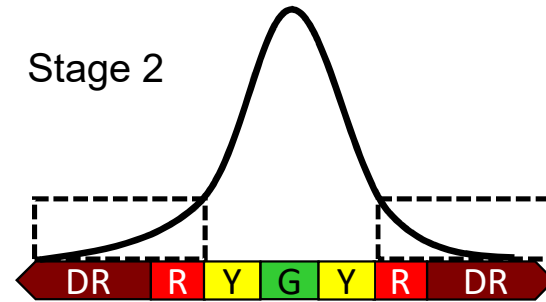
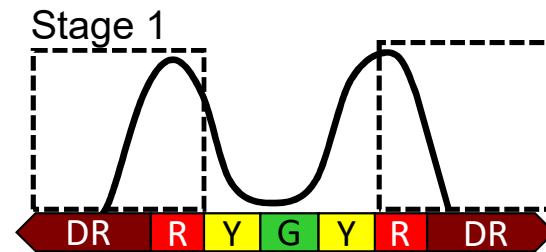
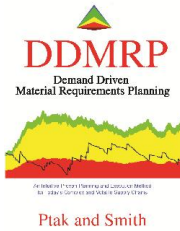


Figure 12-20





Chapter 13

The Demand Driven Organization



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Figure 13-1

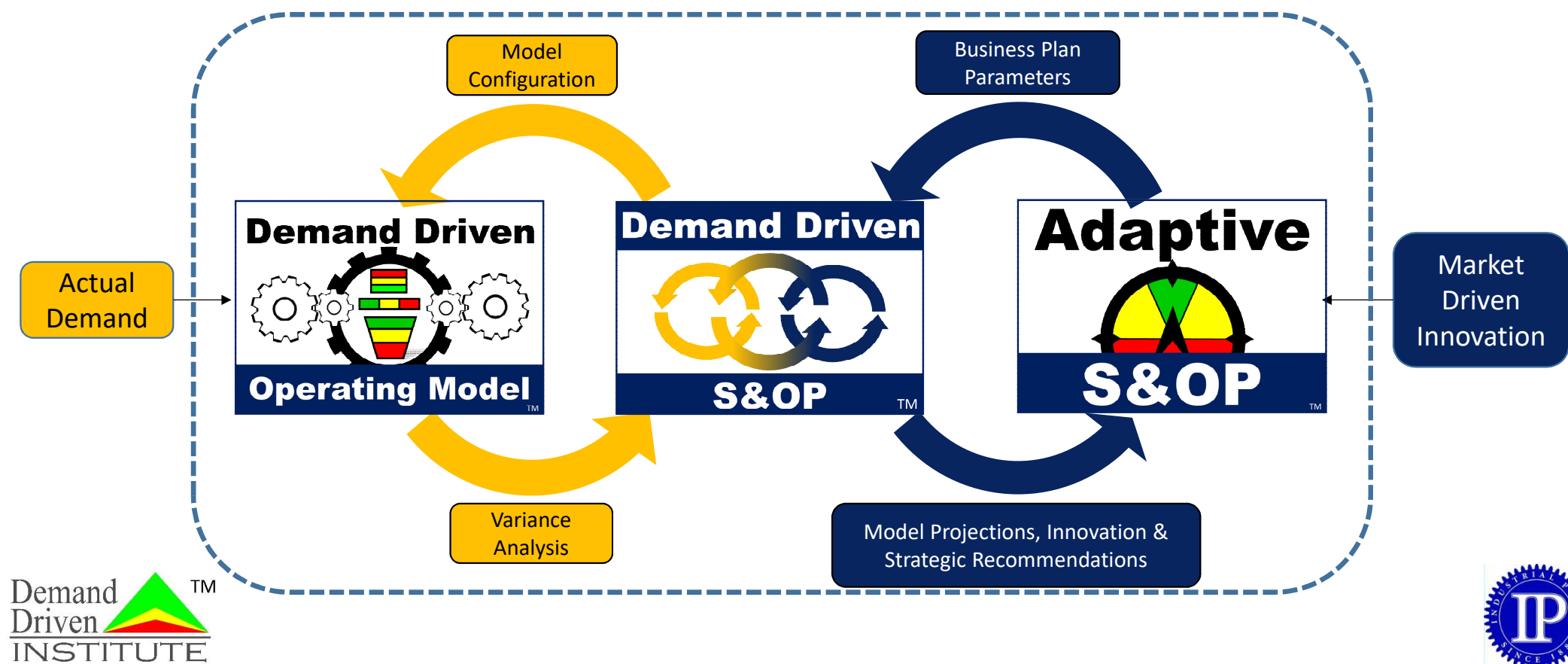


Figure 13-2

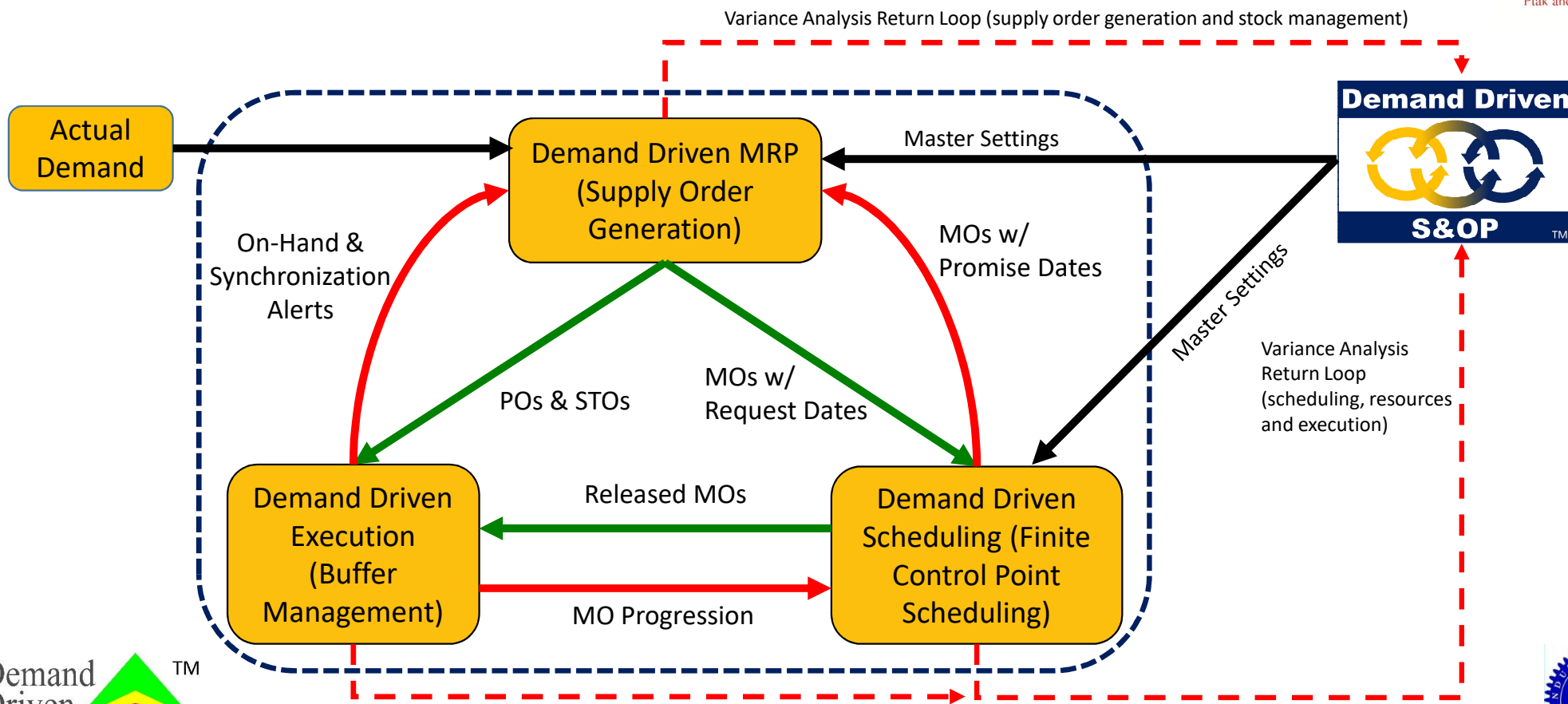


Figure 13-3

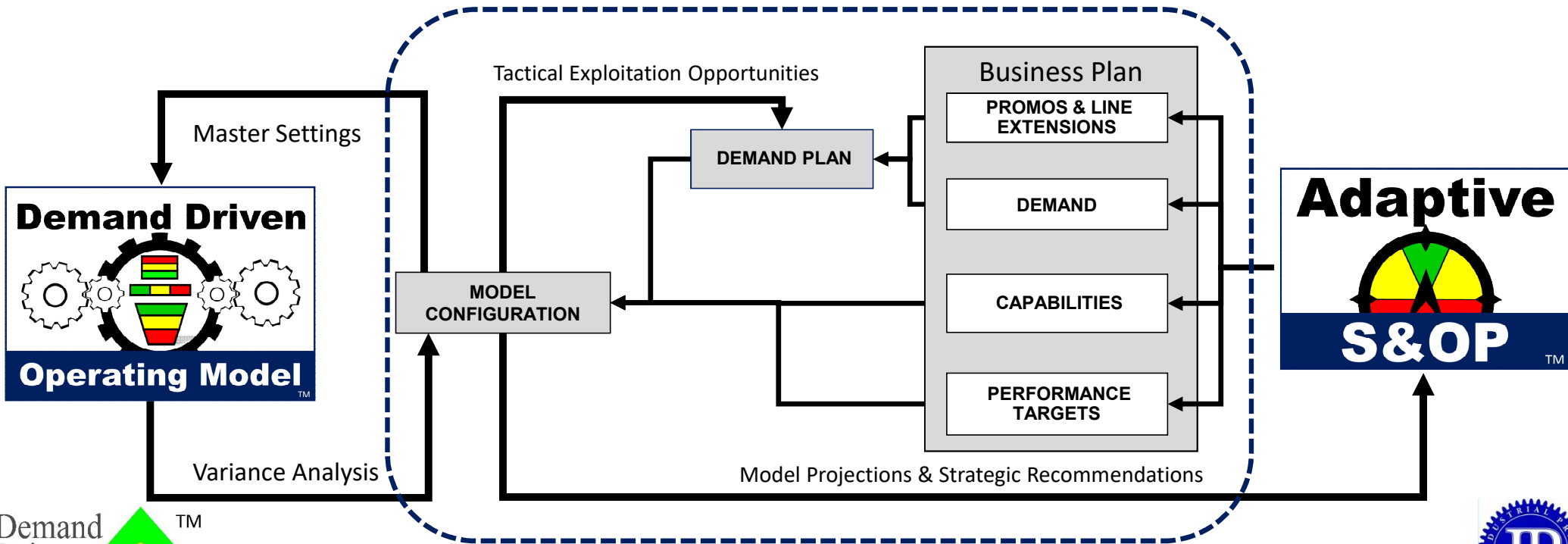


Figure 13-4

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).

Figure 13-5

Part Trait	Buffer Profile Assignment			
Average Daily Usage (ADU)	X	Lead Time Factor	=	Buffer & Zone Levels
Lead Time				
Minimum Order Quantity (MOQ)		Variability Factor		
Location (Distributed parts only)				



Figure 13-6

Part #	Current ADU	Projected ADU	Decoupled Lead Time	Desired Order Cycle	MOQ	Variability
XYZ	100	150	5 (low – 75%)	3	500	Medium (50%)
ZYX	50	75	7 (medium – 50%)	3	250	Medium (50%)
ABG	25	10	5 (low – 75%)	3	250	Low (25%)
GJK	20	200	5 (low – 75%)	3	250	High (70%)

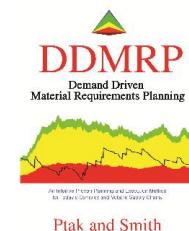
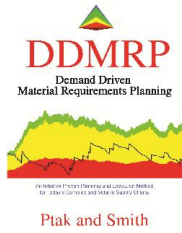




Figure 13-7



	XYZ Now	XYZ Projected	ZYX Now	ZYW Projected	ABG Now	ABG Projected	GJK Now	GJK Projected
Green	500	563	250	263	250	250	250	750
Yellow	500	750	350	525	125	50	100	1000
Red	563	845	263	395	118	48	128	1275
Average OH	813	1127	388	527	243	173	253	1650

Figure 13-8

Part #	Working Capital per Unit	Current Target Inventory Level	Current Average Working Capital	Projected Target Inventory Level	Projected Average Working Capital
XYZ	\$100	813	\$81,300	1127	\$112,700
ZYX	\$90	388	\$34,920	527	\$47,430
ABG	\$80	243	\$19,440	173	\$13,840
GJK	\$50	253	\$12,650	1650	\$82,500
		Total	\$148,310	Total	\$256,470

Figure 13-9

Part #	Units per Pallet	Current Target Inventory Level	Current Average Pallet Positions	Projected Target Inventory Level	Projected Average Pallets Positions	Projected Maximum Pallets Positions
XYZ	10	813	81	1127	113	141
ZYX	20	388	20	527	27	33
ABG	50	243	5	173	4	6
GJK	30	253	9	1650	55	68
		Total	115	Total	199	248

Figure 13-10

Item #	Minutes per Unit on Lathe	Current ADU	Current Average Daily Load	Projected ADU	Projected Average Daily Load
XYZ	30	100	3000 minutes	150	4500 minutes
ZYX	25	50	1250 minutes	75	1875 minutes
ABG	20	25	500 minutes	10	200 minutes
GJK	10	20	200 minutes	200	2000 minutes
		Total	4950 minutes	Total	8575 minutes

Figure 13-11

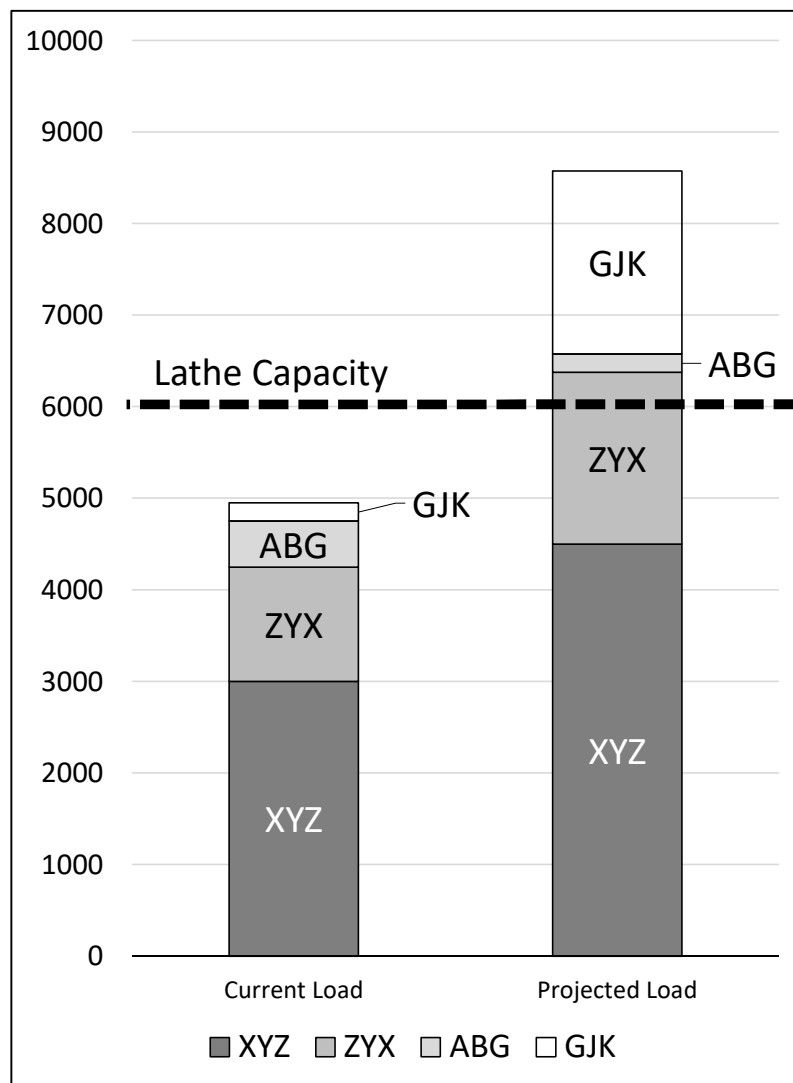
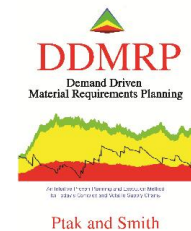




Figure 13-12



Item #	Minutes per Unit on Lathe	Direct Material Cost	Price	Contribution Margin	Contribution Margin/Lathe minute
XYZ	30	\$100	\$275	\$175	\$5.83/min
ZYX	25	\$90	\$250	\$160	\$6.40/min
ABG	20	\$80	\$200	\$120	\$6.00/min
GJK	10	\$50	\$120	\$70	\$7.00/min

Figure 13-13

Item #	Minutes per Unit on Lathe	Direct Material Cost	Price	Contribution Margin	Contribution Margin per Lathe minute
XYZ	30	\$100	\$292	\$192	\$6.40
ZYX	25	\$90	\$250	\$160	\$6.40
ABG	20	\$80	\$208	\$128	\$6.40
GJK	10	\$50	\$120	\$70	\$7.00

Figure 13-14

Item #	Current Green Zone	Current ADU	Current Order Frequency	Projected Green Zone	Projected ADU	Projected Order Frequency
XYZ	500	100	5	563	150	3.75
ZYX	250	50	5	263	75	3.51
ABG	250	25	10	250	10	25
GJK	250	20	12.5	750	200	3.75

Figure 13-15

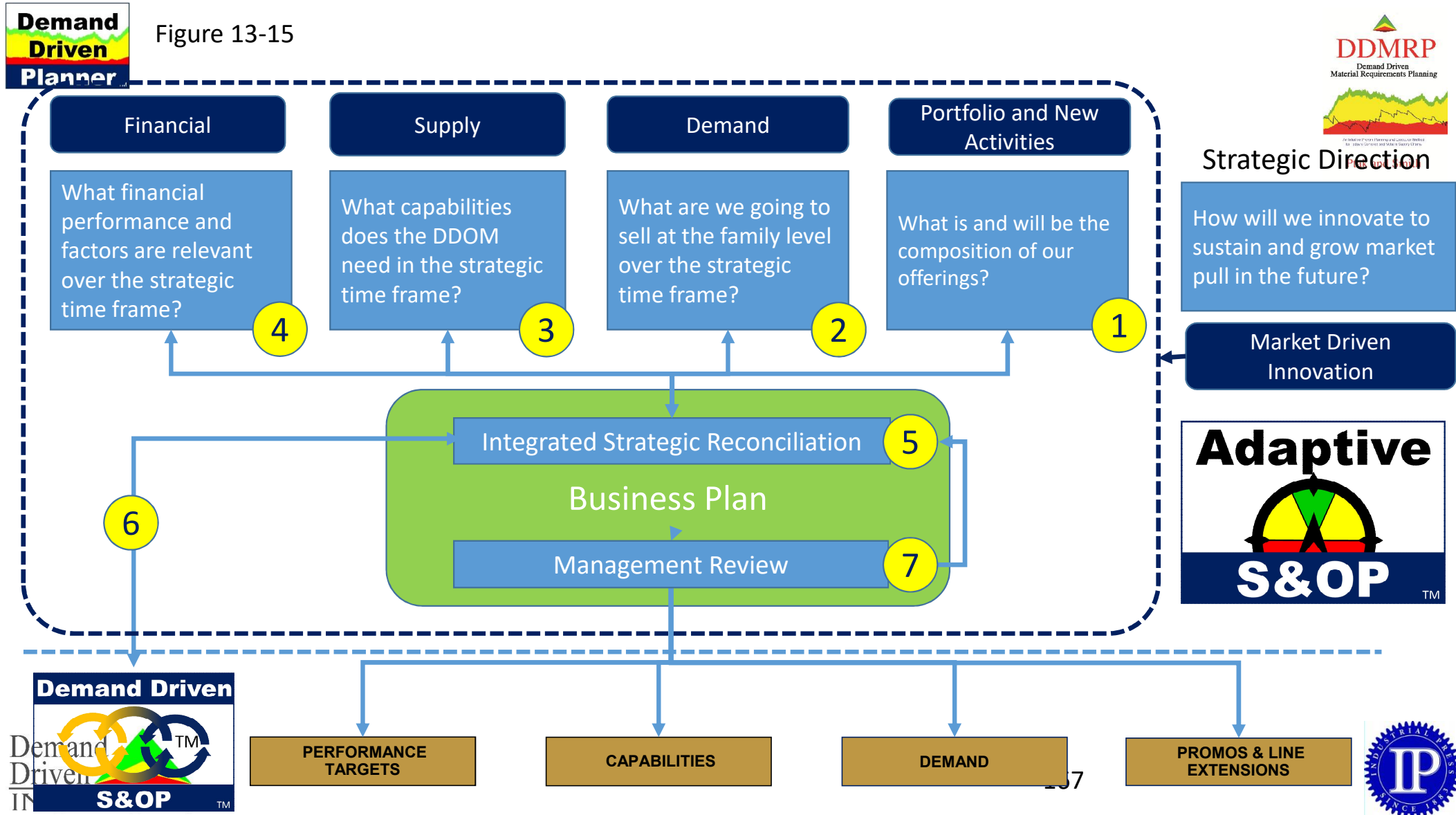


Figure 13-16

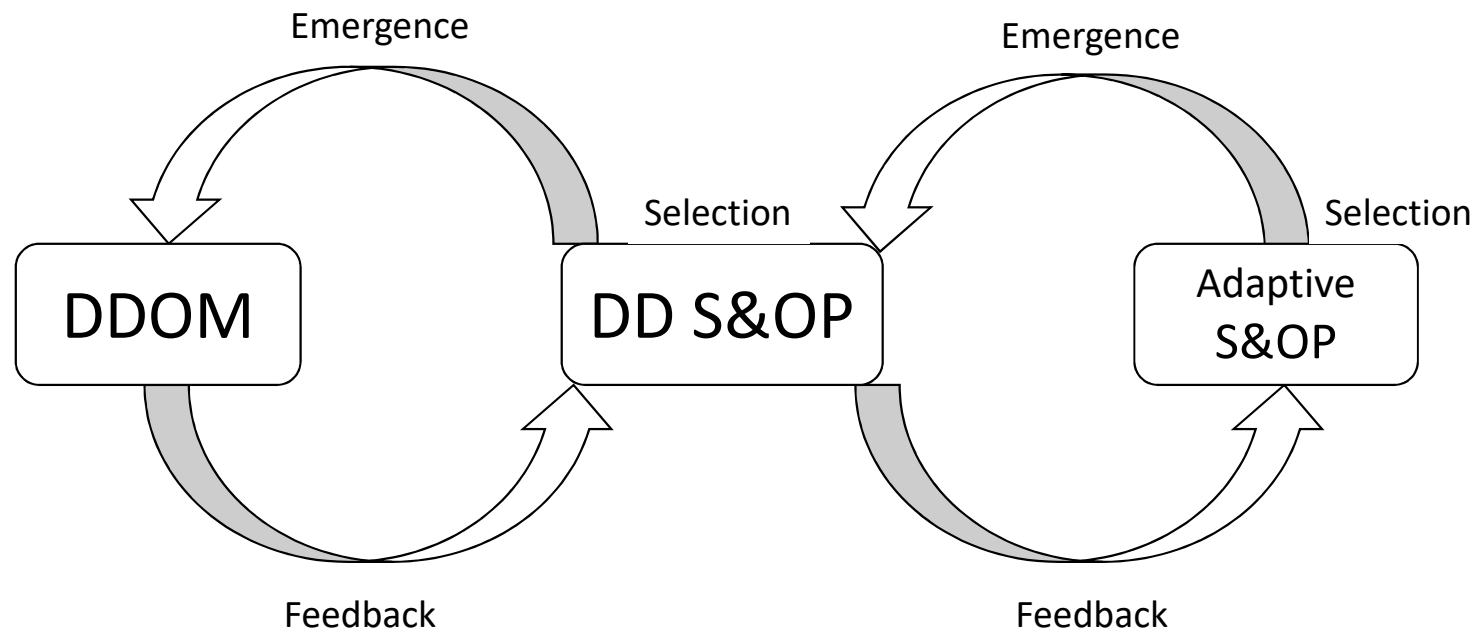


Figure 13-17

Stage 5: DDAE Level III				
Operational Objectives	Demand Driven Characteristics	Primary Metrics	Analytics	Personnel Capabilities
Sense, Adapt and Innovate across the organization and supply chain (customers and suppliers)	A mature DDOM with mature DDS&OP and Adaptive S&OP. Thoughtware fully installed.	RACE/ROIC Improvement Rate	Strategic Conflict Definition and Resolution	Strategic personnel are able to analyze complex problem areas (Internal and external), define strategic conflicts and constraints and recommend strategic policy/direction changes. They are able to mentor new key personnel through the DDAE Model
Stage 4: DDAE Level II				
Operational Objectives	Demand Driven Characteristics	Primary Metrics	Analytics	Personnel Capabilities
Leverage the Demand Driven Operating Model capability across the enterprise and into the market	A mature DDOM with the strategic and tactical reconciliation process of DDS&OP with Adaptive S&OP in place. A full flow-based metric suite in place.	Strategic contribution, Waste/Improvement, Operating expense control, RACE/ROIC	Outlier analysis (Time, Capacity and Stock Buffers), Buffer compression, contribution margin rate and volume improvement	Other functional personnel now understand the requirements and capabilities of the DDOM. Personnel are able to successfully bridge the tactical and strategic relevant ranges. They can project, recommend and adapt
Stage 3: DDAE Level I				
Operational Objectives	Demand Driven Characteristics	Primary Metrics	Analytics	Personnel Capabilities
Fully synchronize and leverage operational capability for better flow performance	Trial and/or expanding implementation of the Demand Driven Operating Model (DDOM) with supporting Tactical flow-based metrics	Reliability, Stability, Velocity	Buffer run charts, Reason code analysis, Flow exception reports, Flow indices	Personnel understand the broader implications of DDMRP to the organization. Personnel understand how to implement Demand Driven Scheduling and Execution. Personnel are capable of adjusting the DDOM based on performance analytics
Stage 2: Operational Efficiency (Flow)				
Operational Objectives	Demand Driven Characteristics	Primary Metrics	Analytics	Personnel Capabilities
Flow Protection and Promotion	Trial and/or expanding implementation of Demand Driven Material Requirements Planning (DDMRP)	Signal Integrity, Decoupling Point Integrity, Average Inventory, Service	OTOG % and \$, % to inventory target, OTD and/or fill rates	Personnel are aware of and capable of describing the problems with conventional planning systems. They are well versed in DDMRP principles and are capable of implementing (at a cursory level) decoupling point buffers
Stage 1: Operational Efficiency (Cost)				
Operational Objectives	Demand Driven Characteristics	Primary Metrics	Analytics	Personnel Capabilities
Cost Reduction and Responsiveness	Conventional MPS, MRP, DRP and MES practices. Demand Driven principles are limited to the incorporation of actual demand into supply order generation in the demand time fence. Strategic conflict between cost and service.	OEE, Fully absorbed unit cost, Service	Absorption rates, Total days of inventory, OTD and/or fill rates	Traditional supply chain management and cost accounting approaches

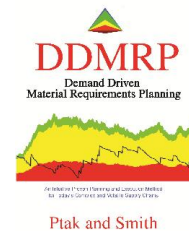
Figure 13-18

$\Delta \text{Flow} \rightarrow \Delta \text{Cash Velocity} \rightarrow \Delta \left(\frac{\text{Net Profit}}{\text{Investment}} \right) \rightarrow \Delta \text{ROI}$

Due Date Performance
Fill Rates
Inventory Turns

$\Delta \text{Cost} \rightarrow \Delta \text{Cash Velocity} \rightarrow \Delta \left(\frac{\text{Net Profit}}{\text{Investment}} \right) \rightarrow \Delta \text{ROI}$

OEE
Fully Absorbed Unit Cost



Appendix B

Simulating DDMRP Buffers



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Figure B-1

Your Initials <u>MPS</u>	
Demand Values	
Day	Value (0-500)
1	<u>431</u>
2	<u>0</u>
3	<u>0</u>
4	<u>30</u>
5	<u>0</u>
6	<u>10</u>
7	<u>330</u>
8	<u>50</u>
9	<u>45</u>
10	<u>115</u>



Figure B-2

Buffer Profile	P, L (.75), H (1.2)
MOQ	0
Imposed or Desired Order Cycle (DOC)	0
Decoupled Lead Time (DLT)	90 days

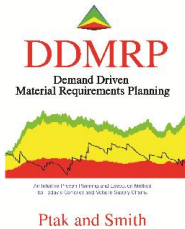




Figure B-3

Buffer Profile	M, M (.5), H (1.2)
MOQ	0
Imposed or Desired Order Cycle (DOC)	0
Decoupled Lead Time (DLT)	90 days

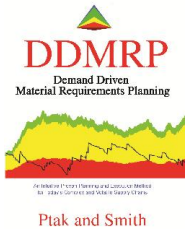


Figure B-4

Widget		Gazoonk	
Green Zone	XXXX	Green Zone	XXXX
	LT Factor: XXXX (2700 x .X)		LT Factor: XXXX (630 x .X)
	Minimum Order Quantity: 0		Minimum Order Quantity: 0
	Order Cycle: 0		Order Cycle: 0
Yellow Zone	2700 (90(DLT) x 30(ADU))	Yellow Zone	630 (21(DLT) x 30 (ADU))
Red Zone	XXXX (XXXX + XXXX)	Red Zone	XXXX (XXXX + XXXX)
	Base: XXXX (2700 x .X)		Base: XXXX (630 x .X)
	Safety: XXXX (XXXX x 1.2)		Safety: XXXX (XXXX x 1.2)
Average OH		Average OH	

Figure B-5

Simulation Results - Widget			
Average On-Hand	8,551	Minimum On-Hand	1,369
Total Demand	54,967	Maximum On-Hand	14,280
Average Daily Usage	151	Service Level	100%
Peak Demand	500	Days Stocked Out	0
Supply Orders	20	Annual Turns	6.43
Average Order Size	2,911	Average Order Frequency	18.25

Figure B-6

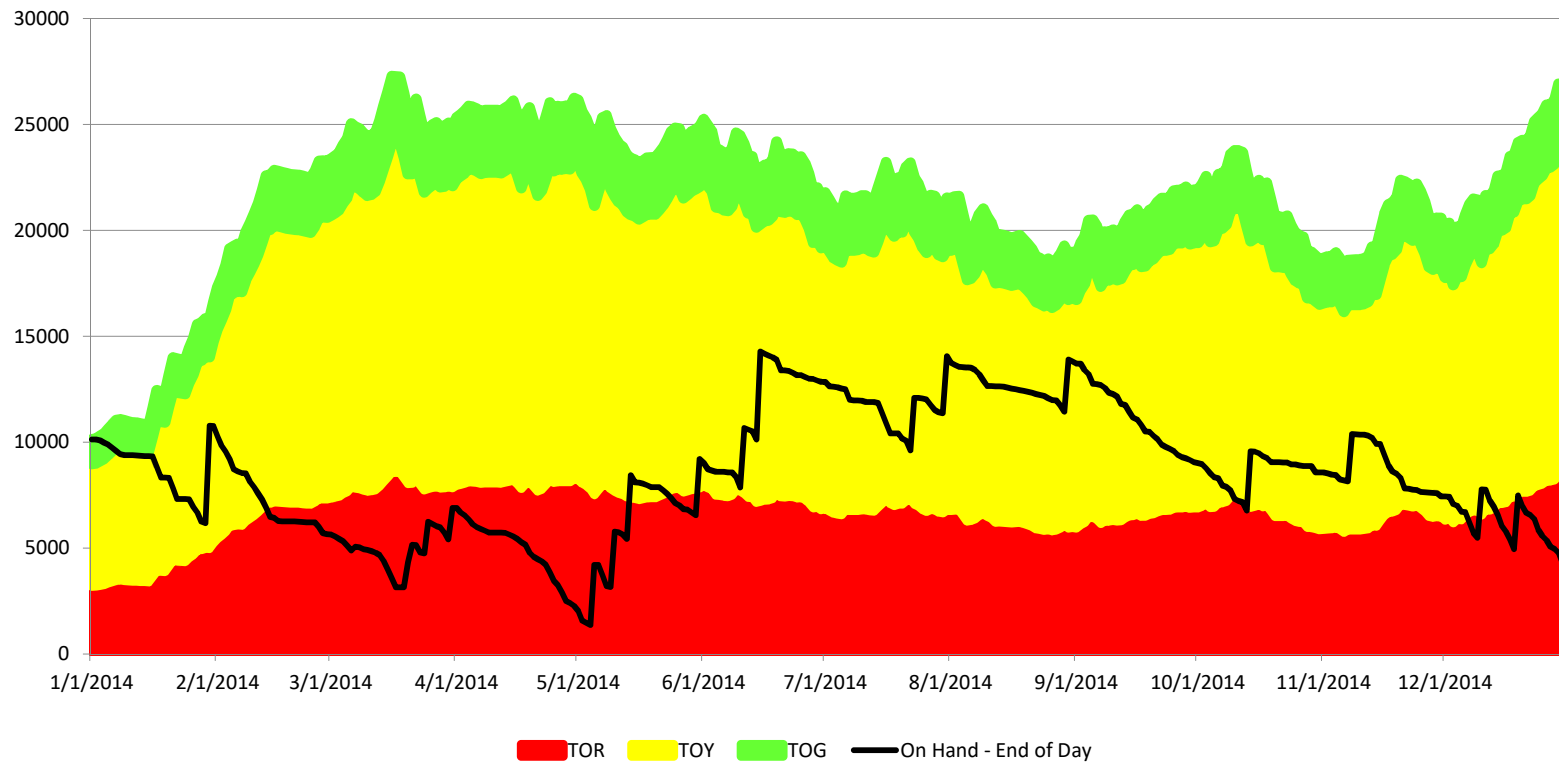


Figure B-7

Simulation Results – Widget (no order spike qualification)			
Average On-Hand	8,603	Minimum On-Hand	980
Total Demand	54,967	Maximum On-Hand	13,376
Average Daily Usage	151	Service Level	100%
Peak Demand	500	Days Stocked Out	0
Supply Orders	20	Annual Turns	6.39
Average Order Size	2,936	Average Order Frequency	18.25 days

Figure B-8

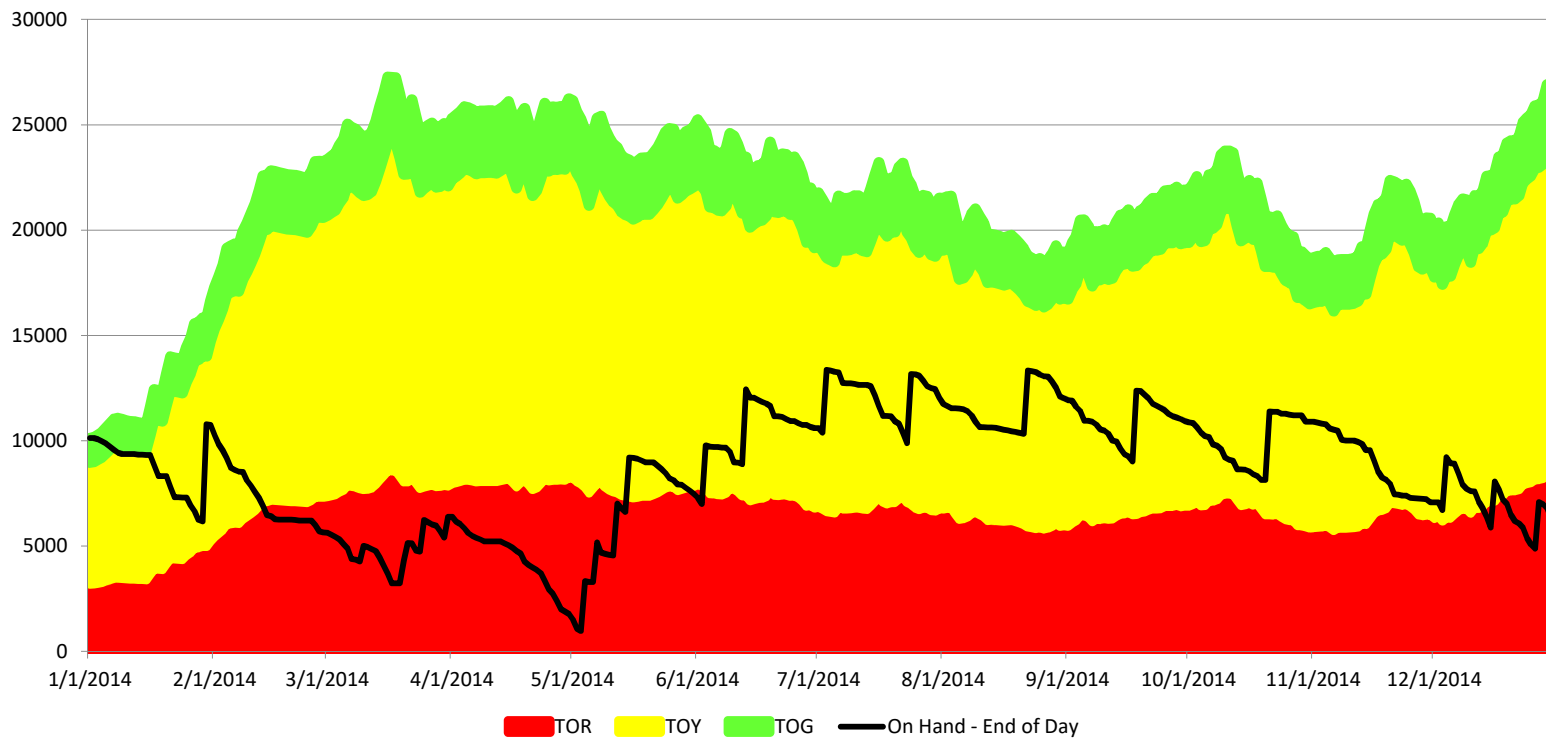


Figure B-9

Simulation Results – Gazoonk			
Average On-Hand	3,670	Minimum On-Hand	380
Total Demand	57,105	Maximum On-Hand	7,776
Average Daily Usage	156	Service Level	100%
Peak Demand	500	Days Stocked Out	0
Supply Orders	48	Annual Turns	15.56
Average Order Size	1,187	Average Order Frequency	7.6 days

Figure B-10

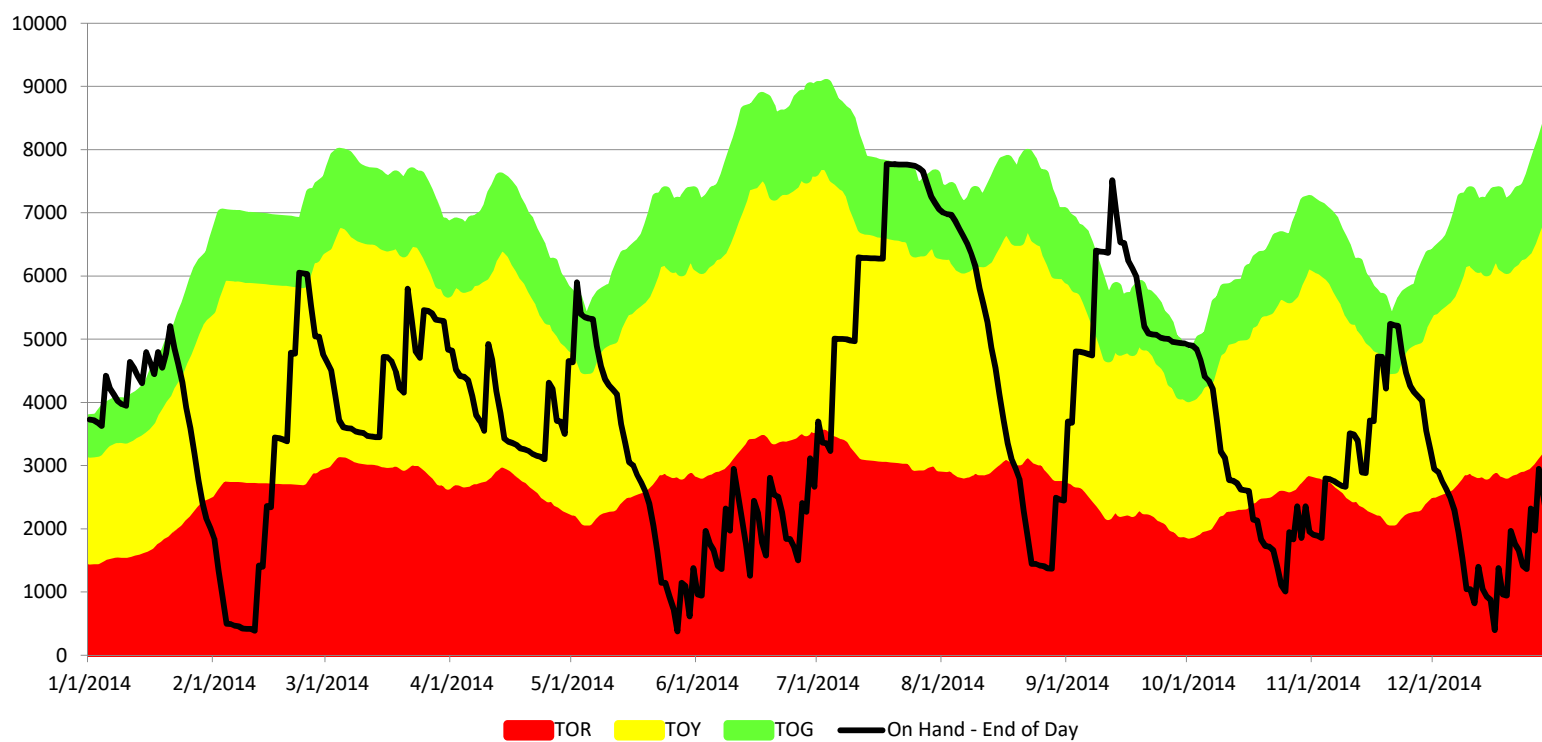


Figure B-11

Simulation Results – Gazoonk (no order spike qualification)			
Average On-Hand	3,509	Minimum On-Hand	(125)
Total Demand	57,105	Maximum On-Hand	8,328
Average Daily Usage	156	Service Level	99.5%
Peak Demand	500	Days Stocked Out	2
Supply Orders	51	Annual Turns	16.27
Average Order Size	1,137	Average Order Frequency	7.1 days

Figure B-12

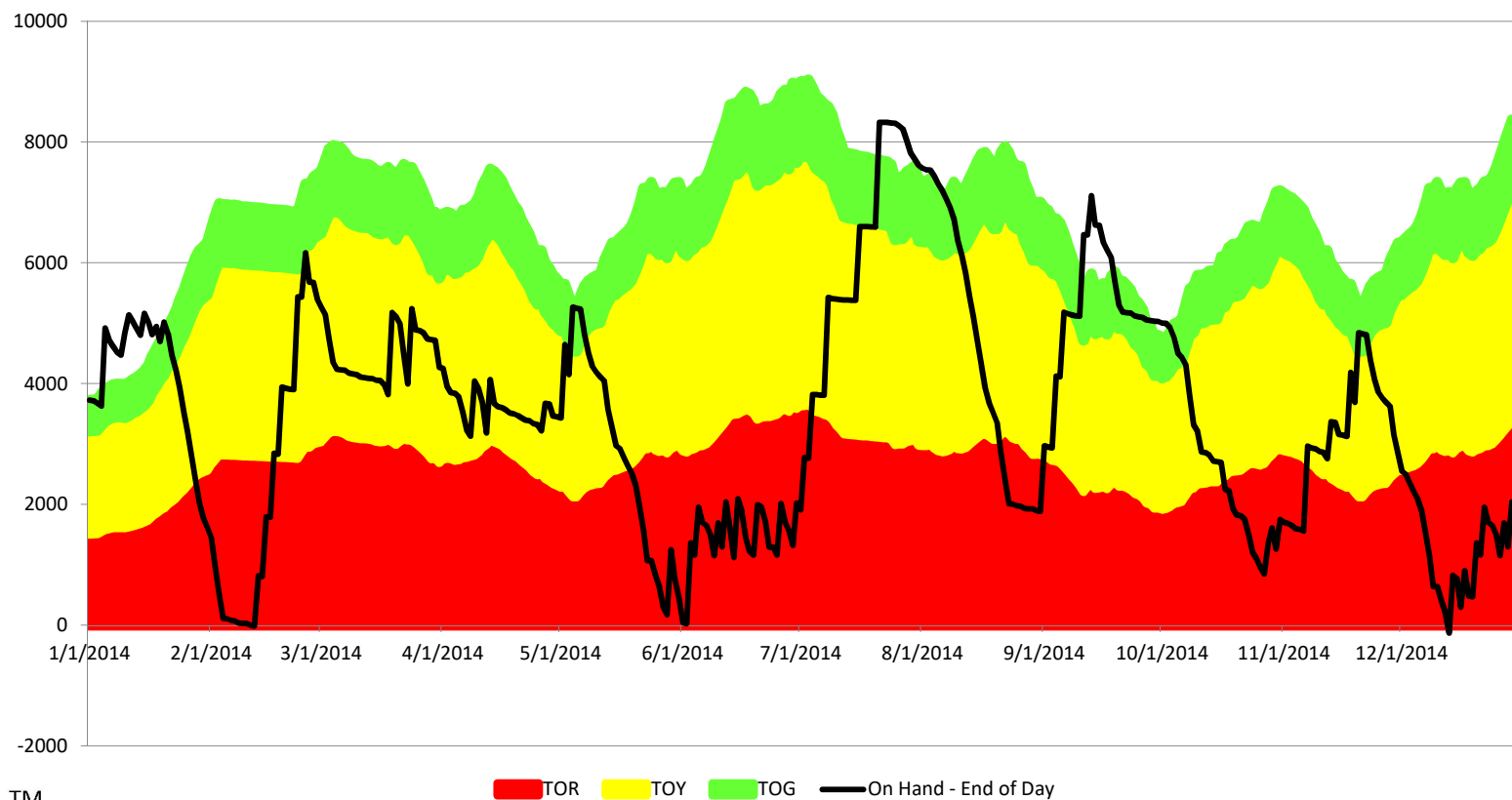


Figure B-13

Simulation Results – Gazoonk (no order spike qualification with larger red zone)			
Average On-Hand	3,865	Minimum On-Hand	235
Total Demand	57,105	Maximum On-Hand	8,823
Average Daily Usage	156	Service Level	100%
Peak Demand	500	Days Stocked Out	0
Supply Orders	50	Annual Turns	14.78
Average Order Size	1,161	Average Order Frequency	7.3 days

Figure B-14

Simulation Results – Gazoonk (large MOQ)			
Average On-Hand	6,298	Minimum On-Hand	1,141
Total Demand	57,105	Maximum On-Hand	14,740
Average Daily Usage	156	Service Level	100%
Peak Demand	500	Days Stocked Out	0
Supply Orders	10	Annual Turns	9.07
Average Order Size	5,244	Average Order Frequency	36.5 days

Figure B-15

