



***What to take into consideration while
implementing TOC in manufacturing
companies that produce to sell through
distribution channels but believe that
they are MTO***

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Introduction – Why MTA?

Distribution Channels are in existence because the customers do not have tolerance to wait for the manufacturer to produce and ship the goods to them. Hence production has to start before the end customer has committed to buy.

Producing without firm order from the buyer is risky and therefore undesirable. Some manufacturers have been “lucky” as the distribution channels have been buying from them through orders. That has provided the comfortable environment of sort of “MTO” – Make to Order.

The reality is that “pretending” to be a MTO environment does not change the reality. The distribution channels have to order the goods without the firm order from the end customers. The end result is that the distribution channels suffer from the two major UDEs – shortages and surpluses. This has negative impact on the entire supply chain – including the manufacturers.

TOC provides the solution.

It is the MTA – Make to Availability mode of operation for the manufacturer.

It gives the manufacturer the ability to build for stock in such a way that will ensure availability of the goods for the distribution channels with very effective level of stock.



Introduction – MTA in a Pseudo MTO Environment

The MTA solution can provide a Win for all the parties participating in the supply chain:

- For the Distribution Channels - availability of the good for selling with less risk of getting stuck with goods without sales
- The manufacturer - produces what the market wants to buy
- The end consumers get the goods they want when they want them

The MTA solutions is conceptually simple, practical and technically straight forward.

Yet, the change in the flow and in managing the flow is challenging.

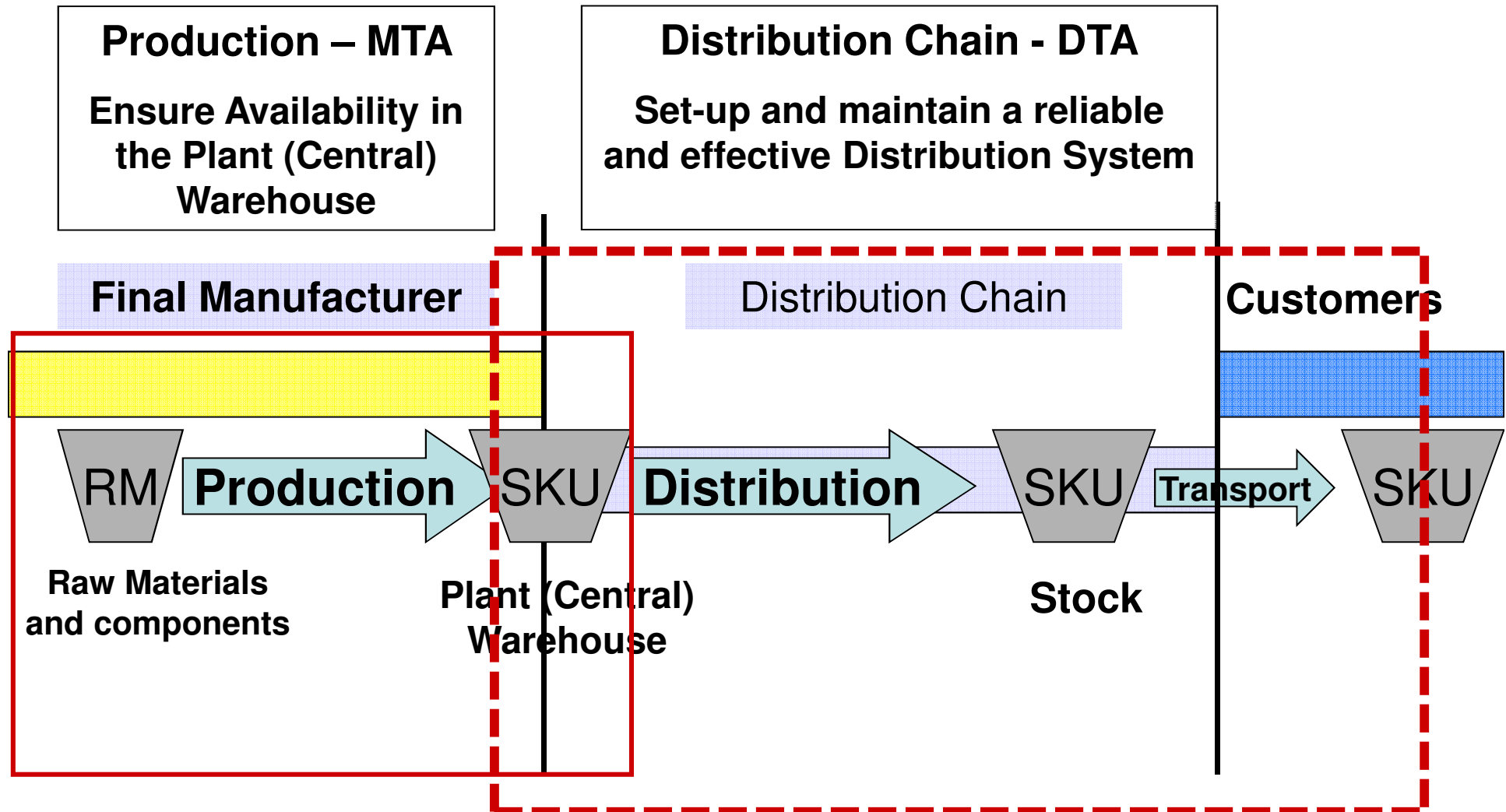
The presentation here is based on several manufacturers, some that have their own distribution system while others operate through independent distributors. These companies have been operating as if they were MTO. Their desire to maintain their market share and to grow have lead them to consider using MTA.

In order for MTA to function the company has to depart from some of the rules and procedures that have governed the pseudo MTO system.

To learn about the necessary changes to the system it is recommended to run a Pilot. The pilot – applying the solution to limited number of SKUs and a part of the downstream channels – is very important step in the MTA implementation.

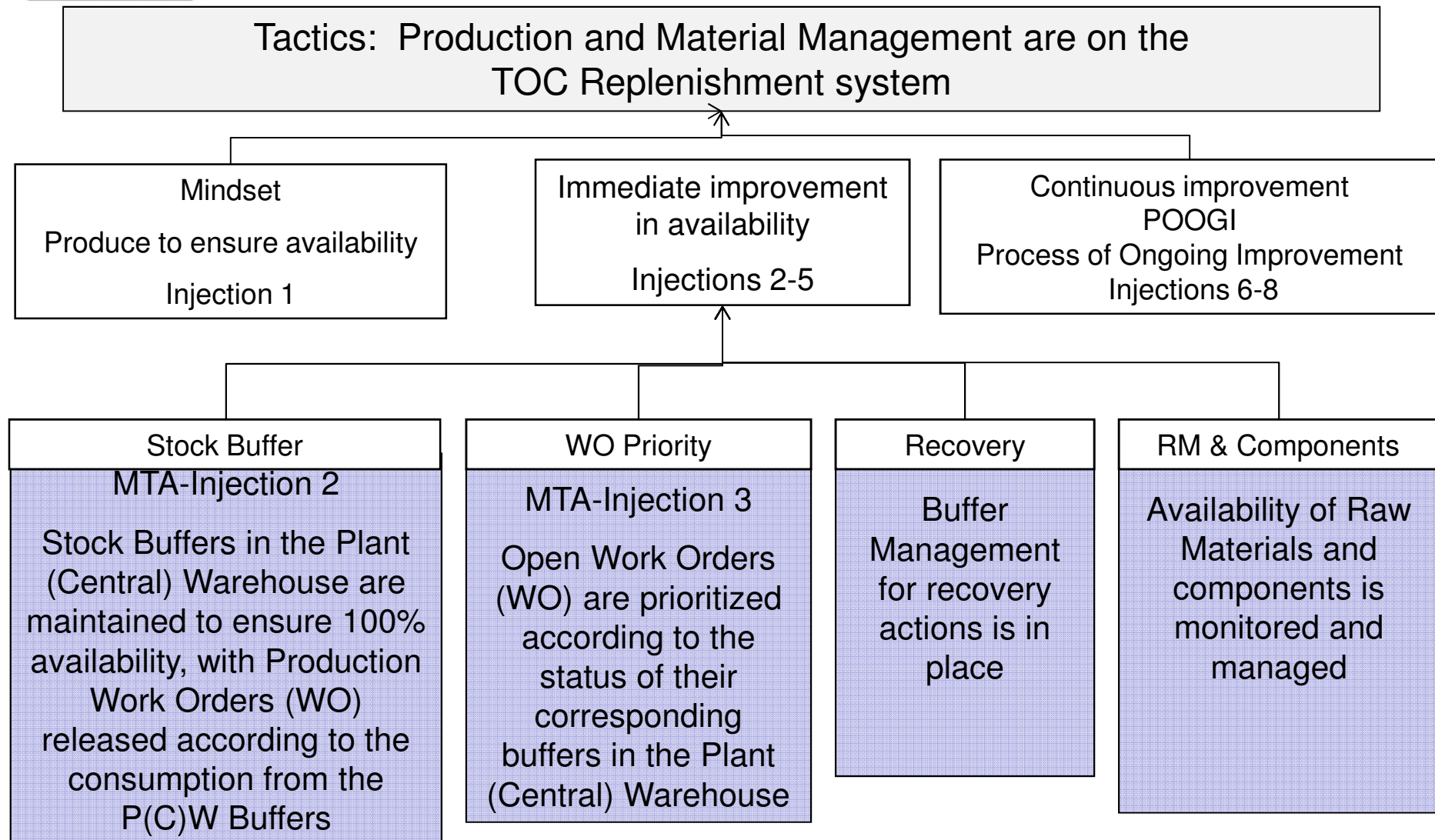


Moving to TOC replenishment Solution MTA





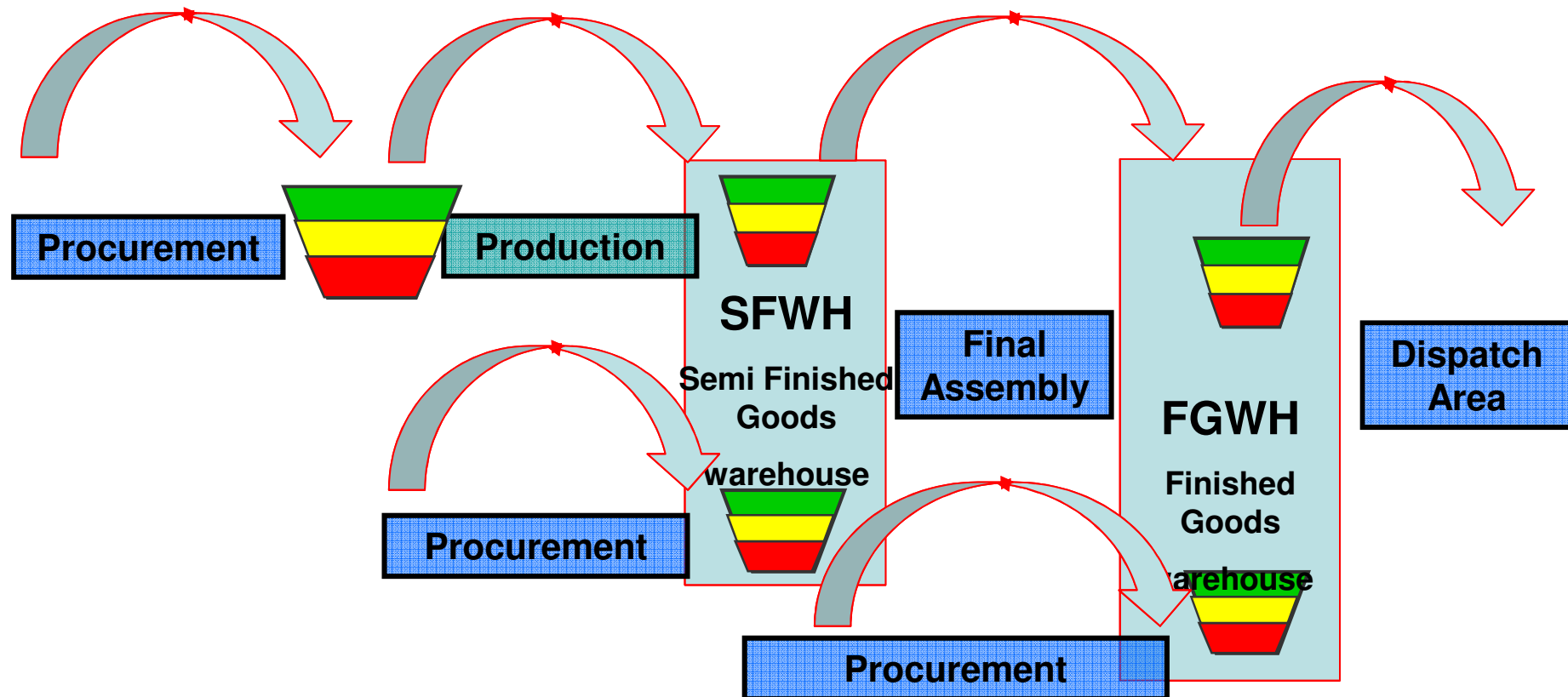
2. The Key Injections of the TOC Solution for MTA





3. Technical Implementation

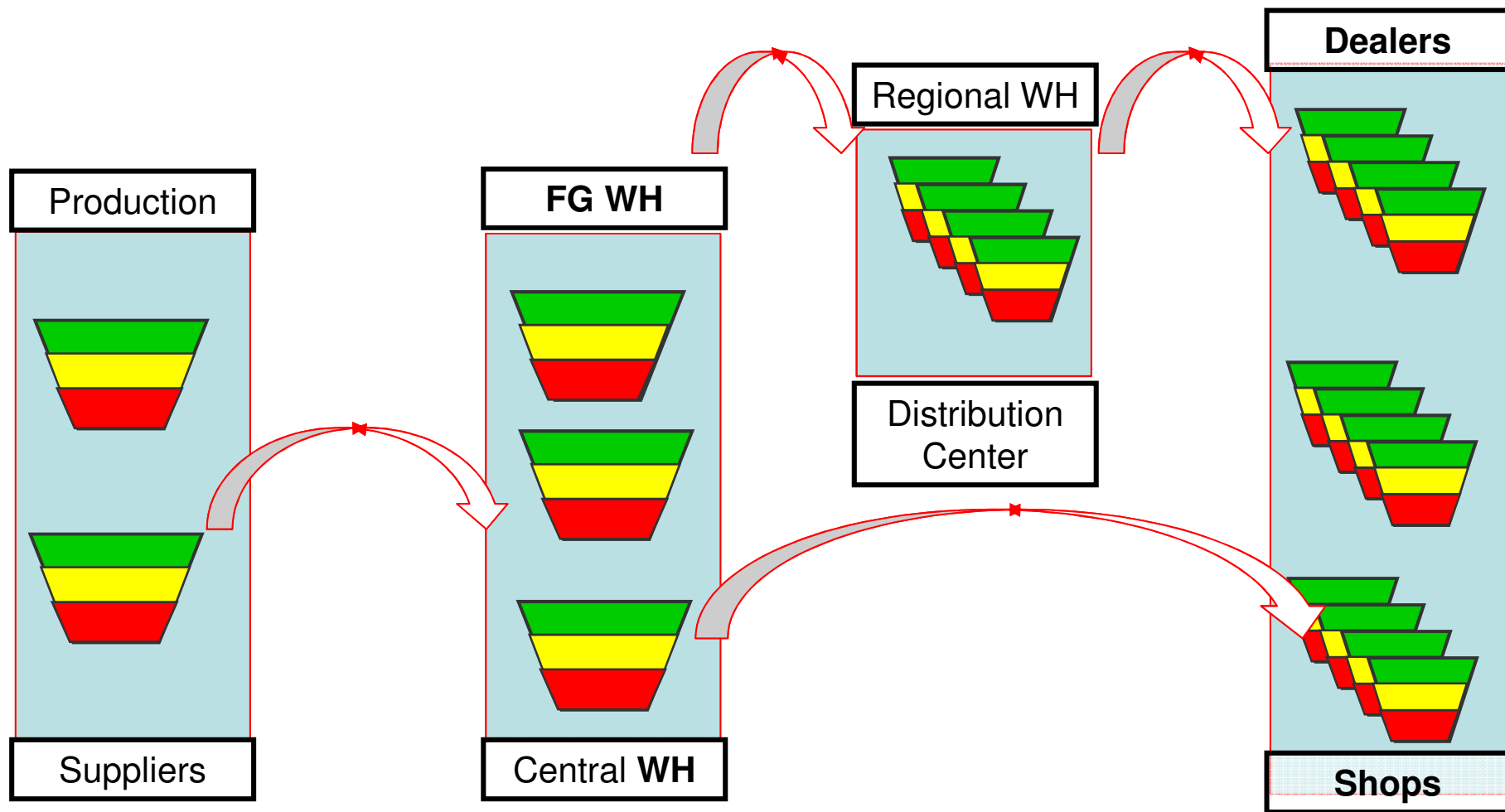
The General Structure of the MTA implementation





3. Technical Implementation

Extending the implementation to suppliers and customers





3. Technical Implementation – the Central File

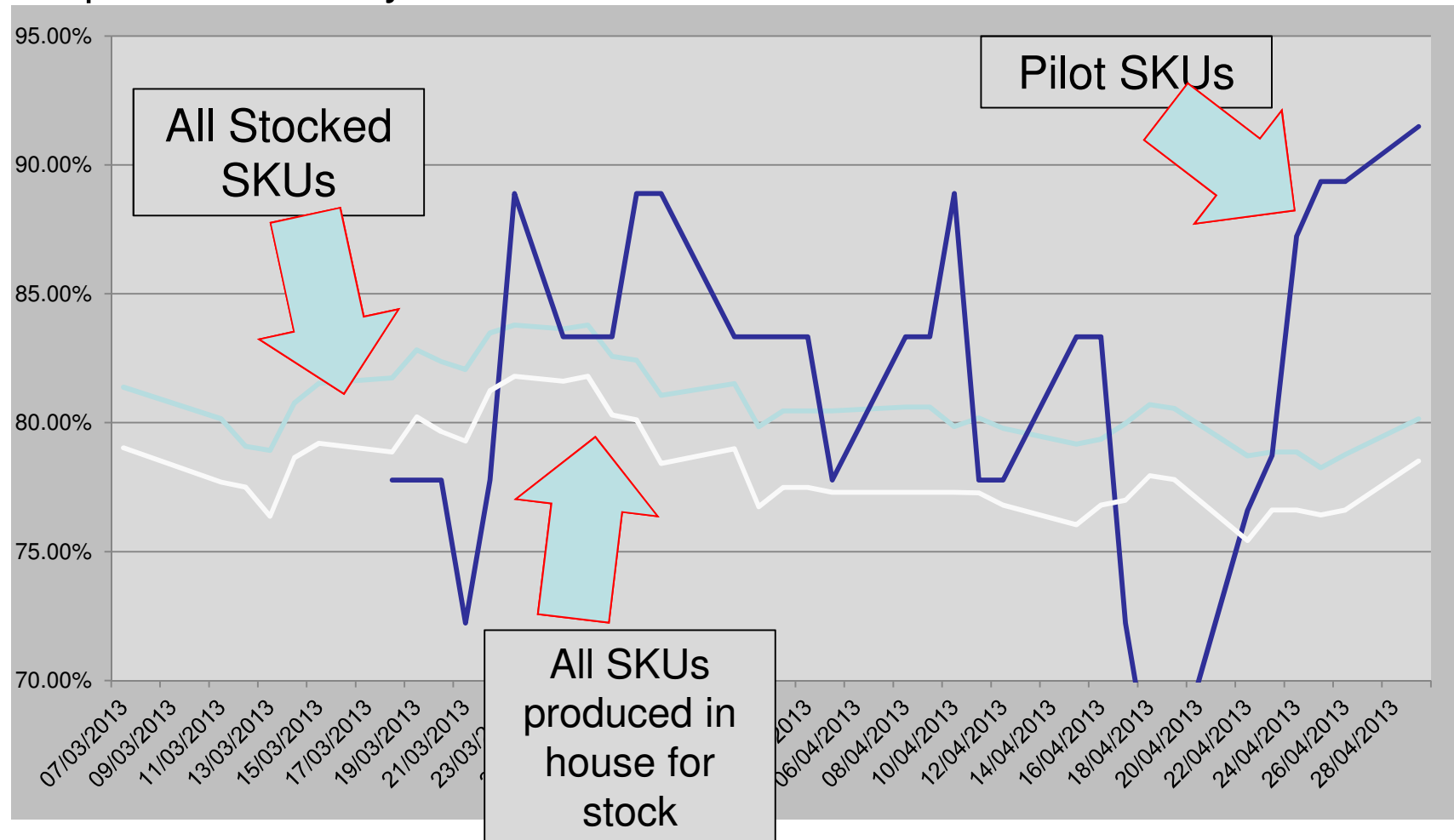
Example – Daily Control File of Pilot SKUs in FG Warehouse

	A	B	D	E	F	G	H	I	J	K
	Date	SKU - Name/Description	Buffer Size (Target Level) Buffer Size?	Minimum Order Quantity	Balance on hand	Buffer Status	In Production	Buffer Statistics - What is the WO waiting for?	Corrective Actions	Date of Expected Delivery
72	01/07/2012		144	1	0	100%	144			
73	01/07/2012		64	1	0	100%	128			
74	01/07/2012		58	1	0	100%	64			
75	01/07/2012		336	1	0	100%	321			
76										
77	01/07/2012		195	1	1	99%	200			
78	01/07/2012		437	1	7	98%	450			
79	01/07/2012		360	81	106	71%	260			
80	01/07/2012		25	1	8	68%	20			
81	01/07/2012		50	1	16	68%	40			
82	01/07/2012		34	10	11	68%	20			
83	01/07/2012		37	1	12	68%	0			
84	01/07/2012		130	1	44	66%	94			
85										
86	01/07/2012		89	1	31	65%	30			
87	01/07/2012		57	72	20	65%	72			
88	01/07/2012		23	1	15	35%	6			
89	01/07/2012		150	50	99	34%	50			
90	01/07/2012		309	1	206	33%	0			
91										
92	01/07/2012		75	1	51	32%	0			
93	01/07/2012		170	72	116	32%	0			
94	01/07/2012		60	1	41	32%	0			
95	01/07/2012		172	1	121	30%	0			
96	01/07/2012		58	1	42	28%	0			
97										
98	01/07/2012		247	81	252	-2%	0			
99	01/07/2012		152	81	162	-7%	0			
00	01/07/2012		73	1	81	-11%	0			
01	01/07/2012		59	1	112	-90%	0			
02	01/07/2012		02	1	45	06%	0			



Availability Reports – for Injection 1

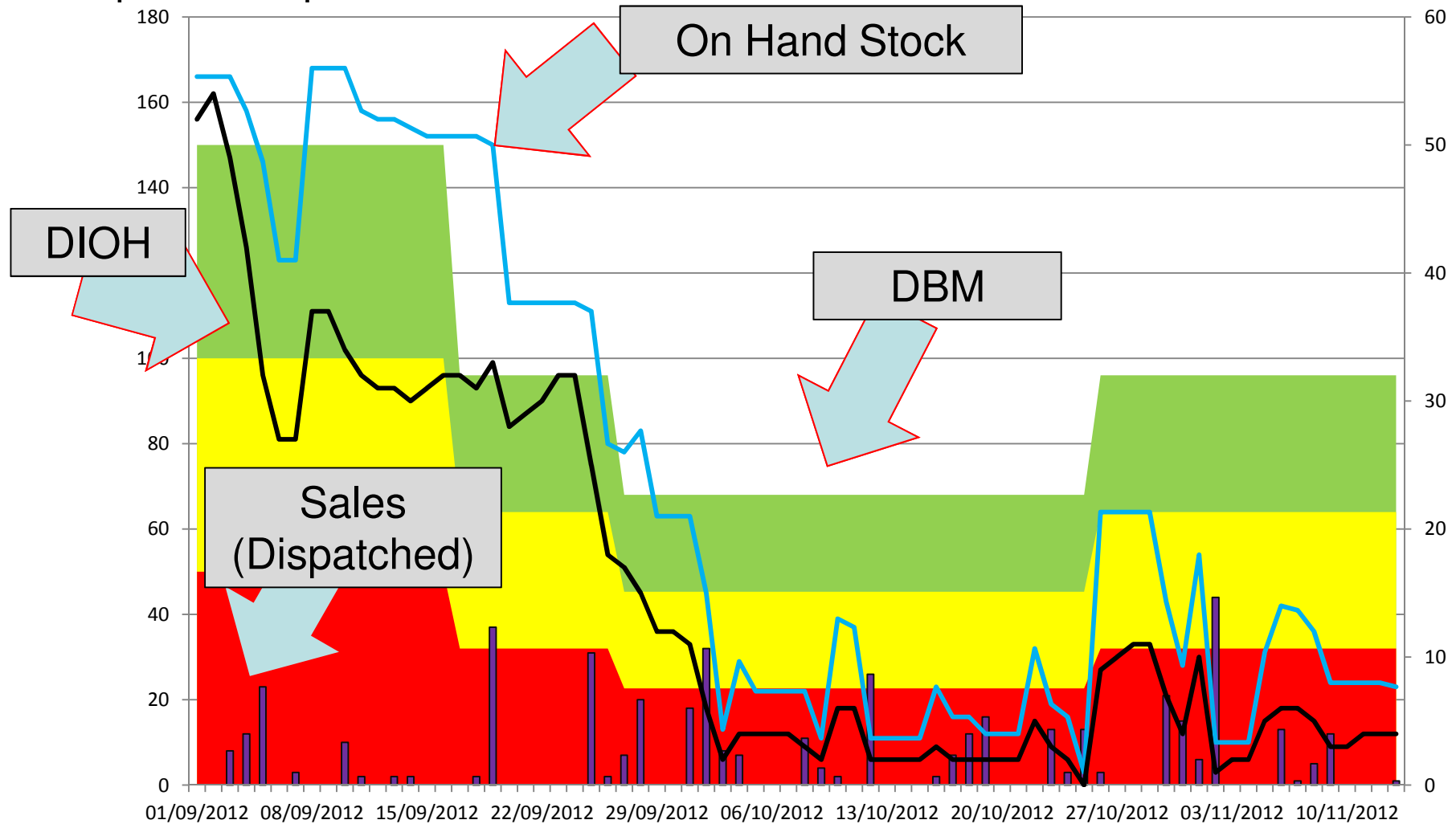
Example – Availability of SKUs in the FG Warehouse





Managing every SKU for Availability with no excess inventory – Injection 2 for Injection 1

Example of the profile of an individual SKU





Managing for Availability – Where to focus?

There is too much data!
How not to lose the big picture?

Average Penetration

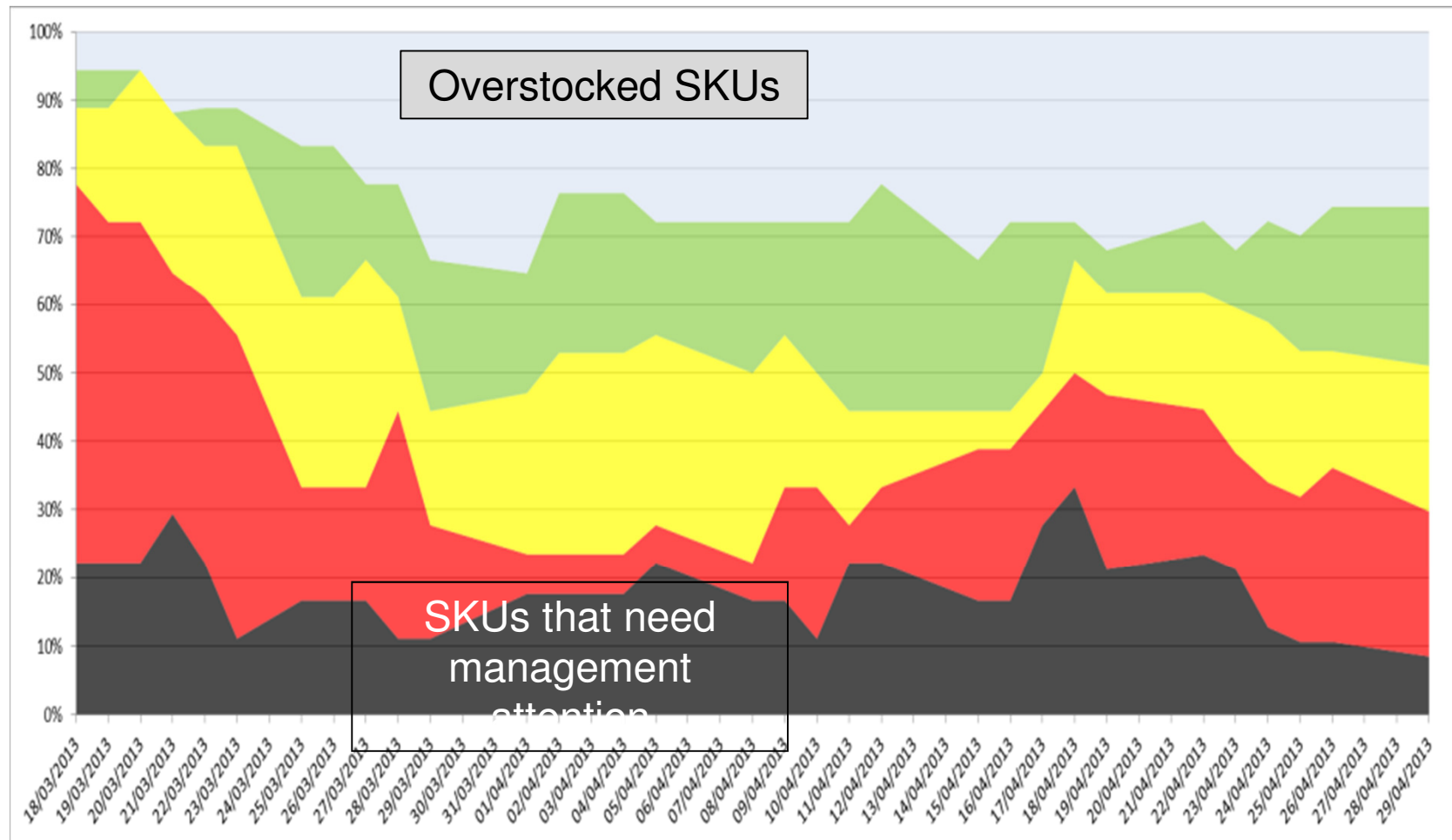
Daily Buffer Penetrations per SKU

	16/08	17/08	18/08	19/08	20/08	21/08	22/08	23/08	24/08	25/08	26/08	27/08	28/08	29/08	30/08	31/08	01/09	02/09	03/09	04/09	05/09	06/09	Average Buffer Penetration
5																							100%
6	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
7	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
8	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
9	71%	76%	84%	84%	84%	95%	92%	84%	86%	84%	132%	132%	83%	104%	90%	82%	55%	55%	55%	100%	69%	71%	85%
10	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	45%	53%	48%	48%	51%	71%	84%
11	88%	100%	100%	100%	100%	100%	100%	69%	69%	69%	69%	69%	69%	56%	56%	76%	76%	76%	76%	83%	83%	83%	80%
12	100%	87%	83%	80%	80%	83%	89%	83%	98%	99%	100%	100%	47%	61%	74%	70%	61%	61%	61%	73%	84%	72%	80%
13	100%	100%	100%	100%	100%	100%	100%	14%	43%	66%	66%	66%	52%	74%	76%	63%	51%	51%	51%	64%	96%	100%	74%
14	53%	62%	62%	62%	62%	71%	71%	71%	76%	88%	66%	66%	64%	58%	58%	58%	69%	69%	69%	69%	73%	73%	67%
15	24%	29%	33%	33%	33%	34%	36%	50%	65%	65%	65%	65%	82%	84%	86%	86%	86%	86%	86%	86%	89%	89%	63%
16	81%	92%	75%	37%	37%	65%	65%	68%	80%	89%	89%	89%	73%	45%	47%	53%	40%	40%	40%	48%	68%	52%	62%
17	55%	90%	93%	93%	93%	68%	73%	71%	43%	44%	47%	47%	64%	69%	66%	60%	26%	26%	26%	65%	78%	73%	62%
18	58%	58%	58%	58%	58%	65%	68%	70%	64%	84%	84%	84%	91%	44%	56%	37%	23%	23%	23%	65%	74%	47%	62%
19	84%	58%	58%	58%	50%	53%	69%	70%	84%	72%	48%	48%	60%	44%	57%	71%	46%	46%	46%	71%	57%	44%	58%
20	51%	72%	82%	82%	82%	82%	37%	39%	39%	39%	81%	81%	81%	81%	58%	58%	16%	16%	16%	58%	58%	59%	58%
21	84%	97%	97%	100%	100%	100%	70%	70%	85%	85%	85%	85%	90%	62%	28%	28%	-13%	-13%	-13%	4%	18%	21%	55%
22	53%	38%	43%	43%	43%	59%	46%	19%	31%	38%	69%	69%	59%	63%	57%	68%	33%	33%	33%	93%	78%	69%	52%
23	46%	46%	46%	46%	46%	20%	20%	20%	27%	70%	70%	70%	76%	98%	78%	78%	35%	35%	35%	78%	59%	63%	52%
24	62%	61%	55%	55%	55%	58%	58%	55%	46%	53%	53%	53%	57%	53%	53%	51%	42%	42%	42%	42%	41%	39%	51%
25	44%	60%	64%	64%	64%	91%	100%	100%	100%	100%	100%	100%	31%	38%	-3%	0%	6%	6%	6%	17%	18%	18%	51%
26	45%	58%	52%	45%	45%	43%	30%	30%	44%	46%	46%	46%	65%	71%	67%	55%	55%	55%	55%	60%	58%	43%	51%
27	49%	54%	59%	25%	25%	27%	27%	43%	60%	52%	52%	52%	52%	52%	52%	52%	52%	52%	52%	57%	57%	57%	48%
28	40%	49%	49%	4%	4%	34%	99%	54%	1%	91%	91%	91%	99%	99%	5%	-1%	4%	4%	4%	39%	91%	73%	47%
29	23%	32%	32%	32%	32%	63%	67%	67%	30%	30%	30%	30%	35%	35%	35%	35%	90%	90%	90%	95%	28%	12%	46%
30	56%	59%	59%	46%	46%	49%	37%	37%	42%	48%	48%	48%	56%	56%	58%	42%	37%	37%	37%	40%	39%	39%	46%
31	55%	64%	51%	43%	43%	43%	35%	43%	39%	50%	50%	50%	50%	58%	41%	42%	49%	49%	49%	51%	27%	27%	46%
32	46%	62%	65%	42%	42%	43%	46%	48%	39%	50%	50%	50%	58%	39%	20%	37%	36%	36%	36%	51%	56%	56%	46%
33	50%	54%	60%	60%	60%	37%	37%	30%	36%	44%	44%	44%	48%	48%	49%	46%	39%	39%	39%	39%	45%	47%	45%
34	56%	68%	69%	43%	43%	43%	31%	31%	33%	40%	40%	40%	46%	46%	46%	39%	41%	41%	41%	43%	55%	58%	45%
35	43%	49%	67%	39%	39%	72%	34%	42%	20%	25%	25%	25%	49%	53%	56%	59%	36%	36%	36%	65%	68%	29%	45%
36	53%	53%	56%	28%	28%	38%	38%	40%	49%	49%	31%	31%	31%	42%	34%	43%	43%	43%	43%	80%	61%	70%	45%
37	87%	45%	32%	32%	32%	51%	57%	27%	36%	40%	40%	40%	36%	53%	59%	39%	54%	54%	54%	66%	33%	15%	45%
38	44%	57%	57%	28%	28%	30%	49%	55%	26%	12%	12%	12%	33%	45%	53%	24%	71%	71%	71%	100%	26%	26%	42%
39	50%	54%	58%	39%	39%	45%	34%	34%	36%	36%	36%	36%	33%	40%	30%	31%	45%	45%	45%	59%	53%	53%	42%
40	73%	51%	55%	51%	51%	47%	39%	40%	37%	42%	34%	34%	34%	40%	33%	32%	36%	36%	36%	38%	43%	47%	42%
41	51%	52%	55%	55%	55%	38%	41%	35%	28%	31%	37%	37%	50%	40%	33%	36%	32%	32%	32%	40%	41%	41%	41%
42	63%	46%	46%	46%	46%	83%	64%	43%	15%	27%	27%	27%	52%	63%	47%	54%	22%	22%	22%	22%	22%	22%	40%
43	36%	45%	49%	49%	49%	70%	9%	12%	24%	39%	39%	39%	50%	69%	7%	11%	51%	51%	51%	62%	62%	-2%	40%
44	53%	43%	45%	45%	45%	50%	51%	39%	37%	46%	46%	46%	50%	32%	36%	38%	26%	26%	26%	30%	31%	31%	40%
45	29%	100%	100%	71%	71%	71%	80%	14%	14%	14%	14%	14%	14%	83%	83%	-5%	-5%	-5%	-5%	9%	38%	38%	39%
46	87%	83%	65%	49%	49%	43%	28%	60%	47%	12%	12%	12%	24%	23%	40%	45%	27%	27%	27%	30%	31%	33%	39%
47	43%	49%	53%	53%	53%	18%	21%	21%	23%	26%	26%	26%	47%	71%	50%	54%	30%	30%	30%	41%	43%	43%	39%
48	52%	55%	53%	53%	53%	76%	50%	52%	-2%	13%	13%	13%	13%	23%	23%	25%	33%	33%	33%	44%	51%	74%	38%
49	92%	73%	47%	47%	47%	50%	51%	55%	59%	6%	6%	6%	33%	33%	36%	48%	17%	17%	17%	22%	26%	30%	37%
50	52%	54%	57%	57%	57%	27%	30%	36%	15%	17%	17%	17%	41%	25%	32%	8%	37%	37%	37%	62%	68%	30%	37%
51	19%	32%	32%	32%	32%	37%	39%	24%	27%	35%	35%	35%	44%	49%	28%	37%	47%	47%	47%	47%	48%	38%	37%
52	6%	6%	6%	6%	6%	6%	6%	6%	11%	69%	69%	69%	94%	67%	28%	33%	33%	33%	33%	58%	100%	67%	37%
53	51%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	47%	48%	58%	38%	38%	38%	38%	46%	46%	37%



Managing for Availability – Where to focus?

The Managerial Effort – the profile of the SKUs of the pilot





4. Challenges for MTA

Injection 1 – Mindset and the measurements

- Commitment to availability
- Higher inventory turns (lower DIOH)

Injection 2 –

- The concept of Stock Buffer, initial size and DBM
- Giving the control to the Plant Warehouse by replenishing consumption
- Very short horizon production plan (more Ad-Hoc).

Injection 3 – setting priorities to WOs (“disruption to the production plans”)

Injection 4 – BM for recovery actions

- What to do with too many WOs in the Black and in the Red

Injection 5 – Availability of Row Materials and components



4. Challenges for DTA

Injection 1 – Mindset and the measurements

- Commitment to availability and to higher inventory turns (lower DIOH) at the CWH or at the downstream link.

Injection 2 – Warehouses and shops

- The concept of Stock Buffer, initial size (concerns of shops) and DBM
- Giving the control to the Downstream Warehouse by replenishing consumption
- Uncertainty of the sales (stop pushing)
- Fears of shortages

Injection 3 – Getting daily consumption figures – “they will not agree due to fear of exposure”

Injection 4 – Frequent replenishment – “fear of increased transport costs”, “concerns about the contacts with vendors”, “changes to the current routines”.

Injection 5 – Resizing – the desire to resize before the learning is completed

Injection 6 – BM for recovery actions – “it is out of our control”



5. The Pilot

The role of the pilot is to provide the learning experience of what changes are needed for running the system the TOC Way:

- To the technical procedures
- To the managerial processes and decision making

To ease the learning many times companies develop their own software for the pilot – usually using Excel. (In recent cases files were ready within one or two days). The pilot should help in checking available software packages or determining the specifications for own built system.

The number of SKUs in the pilot should be limited so that there is a room for learning.

The pilot should show that it is possible to ensure higher level of availability with the existing level of inventory or with even less (depending on the starting situation).

It is not guaranteed that the pilot will demonstrate increase in sales due to higher availability!



5. The Pilot – Living the Solution

The initial reaction of interested management to the TOC Solution of MTA/DTA can be:

- Skepticism that the solution will bring the expected results (Layer 3) or that it is relevant for their specific environment (Layer 5). Or,
- Total belief and enthusiasm in the magic of the solution (everything is going to be perfect as in the book...)

The first group has many concerns, hesitations, obstacles – they need to see that the system is not that difficult, that it works, that it is easier to manage, is focused and actually enjoyable and rewarding.

The second group behaves the opposite direction – they do not have fear to go to the solution and may take hasty decisions that may end up with negative implications. The role of the pilot is to ensure the implementation is done in a controlled way while trying to avoid potential NBRs.

The reality is somewhere in between these two groups – there is a need to learn how to handle different aspects of the system while avoiding NBRs



6. What can be learned during the pilot

Typical managerial issues (partial list)

- 1. Setting up the Buffer Sizes and managing them.**
- 2. Changes to the production planning.**
- 3. Daily meeting for recovery actions. Getting support of all involved.**
- 4. Handling MTO together with MTA.**
- 5. Dealing with downstream links – internal and external.**
- 6. Dealing with suppliers – especially long lead time suppliers.**
- 7. Measurements, KPI and people motivation.**
- 8. Financial implications for the solution.**
- 9. The Financial implication of availability in the feeding link (potential short term reduction in sales to the next link due to no need for the next link to over buy).**
- 10. The changing role and approach to selling (stop pushing).**

and more...



7. Areas of Potential NBRs

1. Short term loss of sales
2. The impact of the MTA parts and products on the MTO SKUs
3. Overloading the production area with orders for filling up the buffers
4. Can the company support the increased inventory in order to achieve the target level of all MTA SKUs?
5. The reaction of the external downstream links to increase in availability and in reliability (order less and use for money that is released for something else)
6. Impact of MTA on production and assembly departments
7. The link between availability and increase in sales – understanding the conditions under which this will happen.

Our Recommendation - Do Not Skip the Pilot!!!

Make it short, focused and learn fast how to manage the new way.