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Eli Goldratt's Legacy in the World
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<http://www.yamaha-motor-georgia.com/>



Yamaha Motor works to realize
our corporate mission of creating Kando



MOTORCYCLES



SCOOTERS



ATVS



SIDE-BY-SIDES



OUTBOARD MOTORS



WAVERUNNERS



YAMAHA BOATS



SKEETER BOATS



G3 BOATS



BENNETT MARINE



SNOWMOBILES



POWER PRODUCTS



GOLF CARS



PARTS & ACCESSORIES



POWER ASSIST BICYCLES



NAVI MOBILITY SYSTEMS



REMOTELY PILOTED HELICOPTERS



SMT INNOVATIONS

[Yamaha Motor Co., Ltd.](http://www.yamaha-motor.com)

[Yamaha Motor Corporation, U.S.A.](http://www.yamaha-motor.com)

About me

- First job in Yamaha Motor Japan - Manufacturing Engineer at a parts factory
 - Cut metal → Measure → Data → Adjust → Cut metal → Measure
 - The beauty of factory - “Synchronization of works”
- Transferred to Yamaha Brazil to start new factory.
 - Start with 10 new hiring people → increased to 500
 - Cost control, Investment planning
 - Global recession (Lehman shock) → pile of stock, many people left the company, a few remained
- Back to Japan → A manager of a engineering dept, traveling around the world.

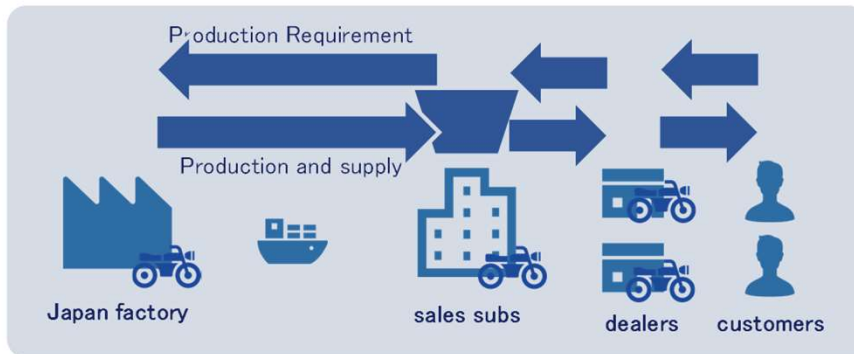
1. New Supply Chain Management division (Before TOC)

- In January 2016, I assigned as a GM of SCM division newly built at Yamaha Japan.
- First mission was “Maximize distribution speed and minimize inventory”.
- Basic understanding of motorcycle business at that time.
 - “Fun item”, demand limited to warm seasons
 - Strong competitors / yearly new models → turn into hot-selling or slow-selling
 - 1-2 months logistics time to warehouse (Trailer→ Ocean freight →Trailer)
 - “Production Order” from Sales
 - Production control by MRP (1990’s -)
 - 300 suppliers and thousands of parts
- I needed tangible outcome in 3 years.
- My first direction to new team was “Correct data on warehouse inventories and sales forecast, and visualize them. Then stop ‘Production Order’, and change our work process to replenish inventory.”



1. New Supply Chain Management division (Before TOC)

Before – Supply based on “Production Requirement” (DTO)

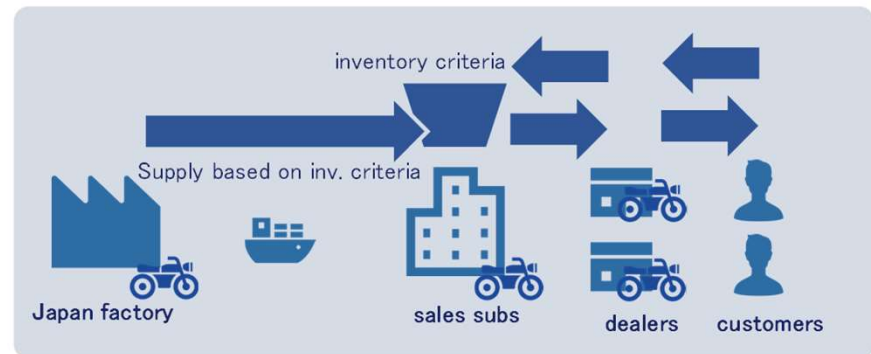


Supply characteristics based on Production Requirements

- (1) Production can operate like MTO
- (2) Sales is responsible for shortages and excess inventory

If Production Requirement does not match market demand, it causes problems of stock shortages and excess inventory

After – Supply based on basic stocks (DTS)



Problems solved by changing the form of supply

- (1) Excess inventory at sales bases
- (2) Unutilized capacity by inappropriate allocation

Problems remained

Concerns about understocking
 DTS still rely on sales forecast.
 Sales is concerning understocking, while Production failing to follow the sudden sales increase.

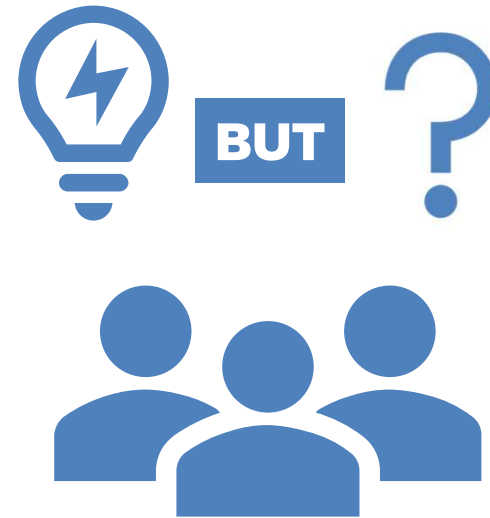
2. Problem with MRP - “There may be another way” (Before TOC)

- After new process, I started to have some doubts about MRP.
- Problem was about “hot-selling”.
 - “Boss, I don’t know exactly how much we can increase this product.”
 - “Boss, If we change this product, bad things will happen.”
- In the lead-time improvement activity:
 - “Why everyone is so nervous to shrink LT ?”
 - “Why we couldn’t shorten frozen period for more than 20 years?”
- A joint project with an automotive company:
 - “It’s completely different from us.”
 - “Not all company in the world runs MRP.”



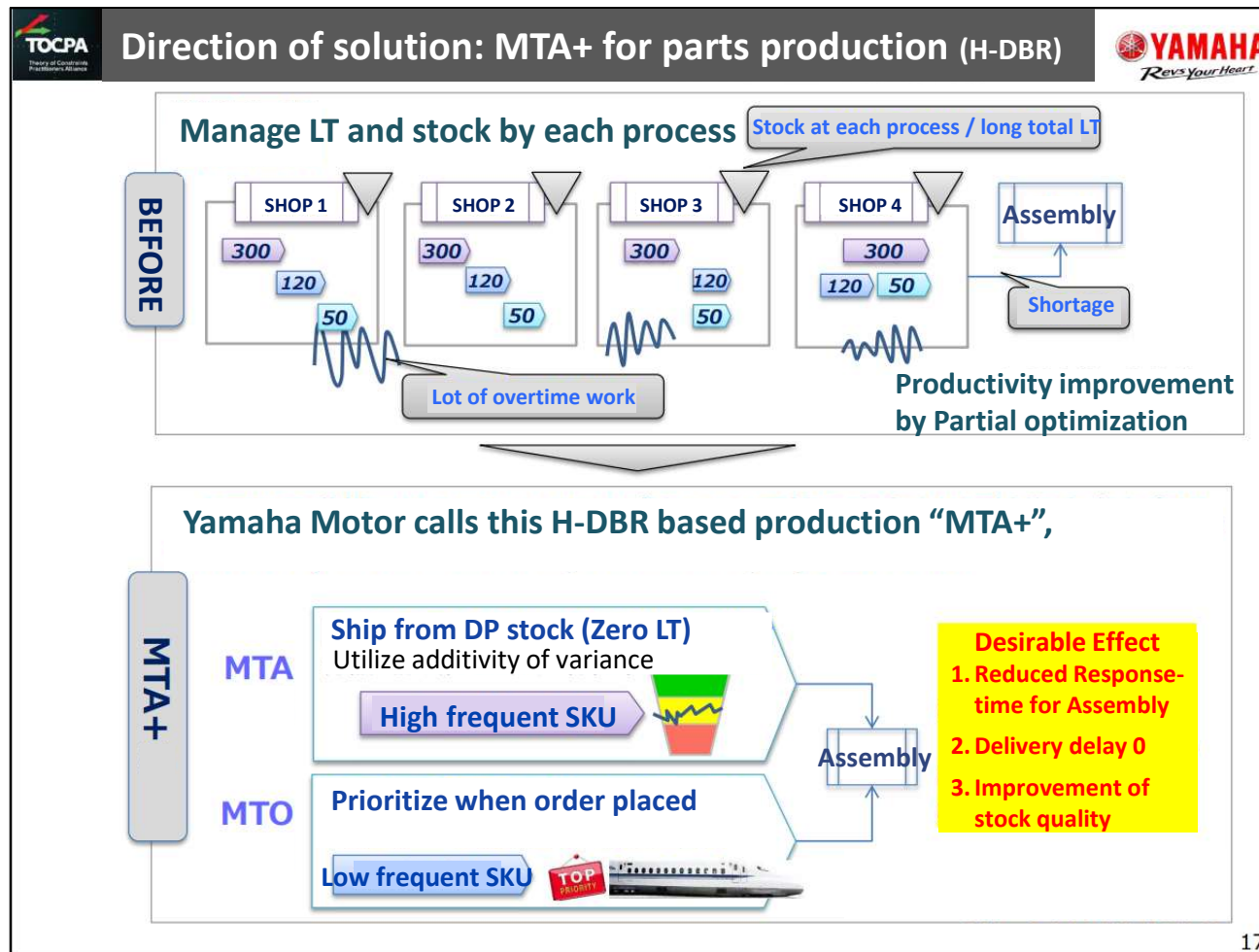
3. In-house parts Decoupling (Prologue)

- Brainstorming camp with factory managers – “How to reduce in-house parts LT?”
- It was obvious for me that MRP doesn’t solve problems (BC it’s caused by MRP).
- The concept of DBR seemed to be simple, but no one exactly knew specific solution.



4. Parts MTA+ , Ryoma and Oded

- Ryoma, a TOC consultant, explained what to change and what to change to after the survey.
- Project members were assigned and they started developing solutions for in-house parts.



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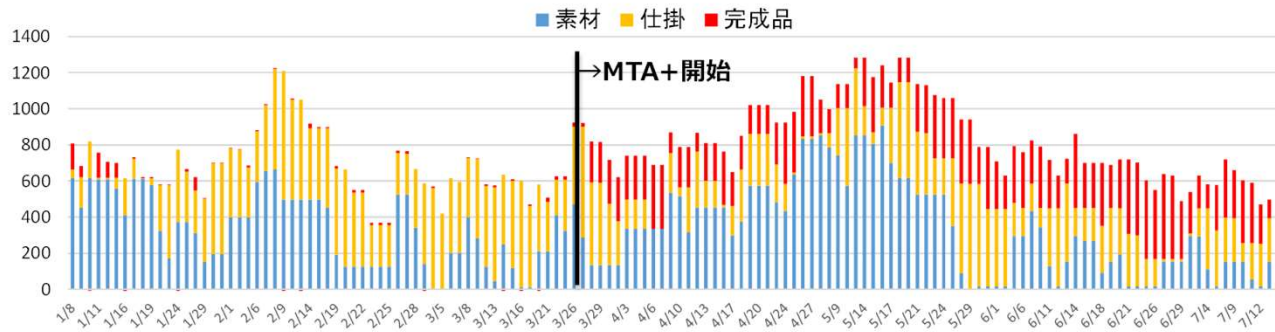
4. Parts MTA+ , Ryoma and Oded

MTA+ Result of pilot line

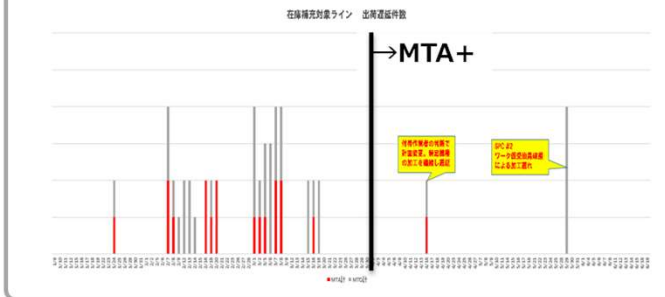
 **WIP was reduced, and delivery delay was significantly improved.**

1. Stock movement

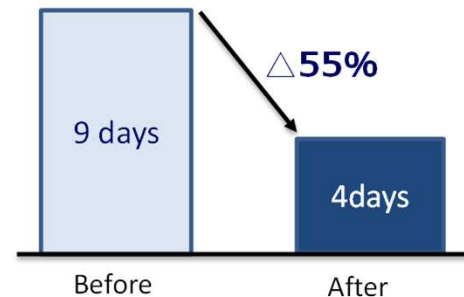
WIP (detention) was reduced and turned into finished parts. Total Inventory is reducing.



2. Delivery delay



3. Lead-time



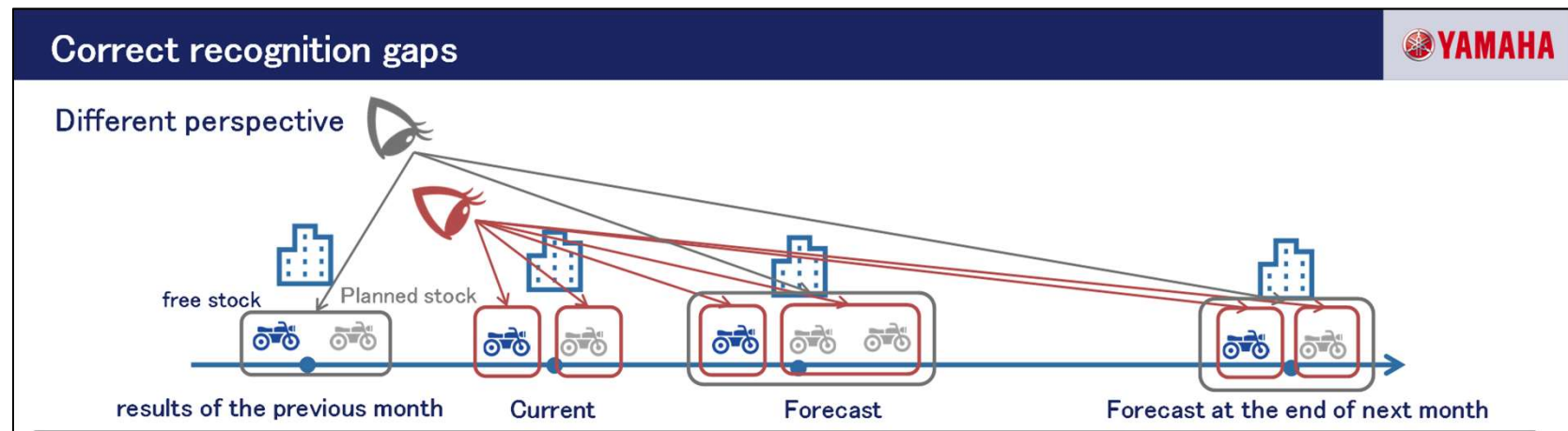
4. Parts MTA+ , Ryoma and Oded

- Result of MTA+ was much better than I expected.
- I understand:
 - “MRP deals with lead-time as static parameter but MTA deals with it as dynamic.”
 - “This concept can be applied to distribution.”
- This project gave me an opportunity to know Oded.



5. “Tentative Reservation”, Japan Sales

- We started developing solutions for distribution, using the concept of MTA.
- We first contacted to Japan Sales (distance, language, and risk).
- The first discussion - "After all, what is the problem of Sales ?"
- We identified - “Sales often cannot give an answer on the delivery date to the dealer.”
- Solution: “Tentative Reservation” (of production capacity for potential hot selling)



5. “Tentative Reservation”, Japan Sales

- Solution: “Tentative Reservation” (of production capacity for potential hot selling)

PoC Implementation and Outcomes
YAMAHA

Try first
The purpose of the initial PoC is to “confirm the procedure”

Result of the PoC

Contributing to eliminating backorders and curbing production without increasing finished vehicle inventories

Learning from the PoC

Inventory to have > Available inventory

Current

long response time

Inventory to have < Available inventory

Solution

short response time

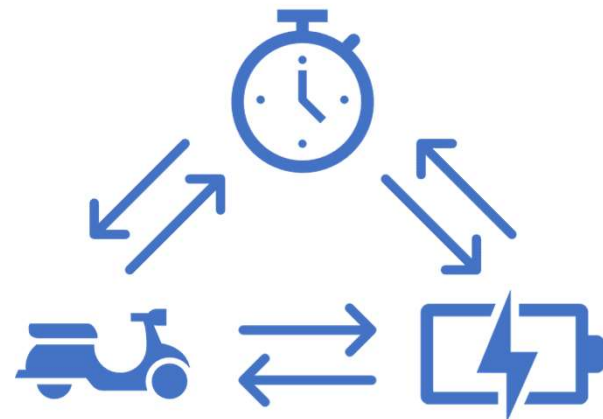
Documented in CRT and FRT

CRT – Current Reality Tree
FRT – Future Reality Tree

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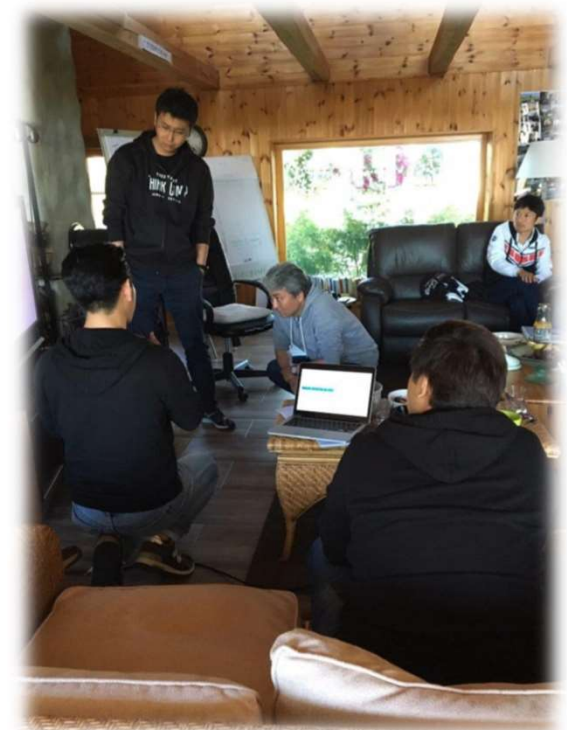
5. “Tentative Reservation”, Japan Sales

- Result of “Tentative Reservation” was simple and straightforward - the stock of trial product reduced and the back-order was completely erased.
- My team learned a lot as experience:
 - “Problem converge, No conflict between local and global, Importance of respecting perspectives of others”
- I understood:
 - “We can convert stock, time, and capacity.”
 - “Try, measure, adjust - It's basically the same way I worked as an engineer.”



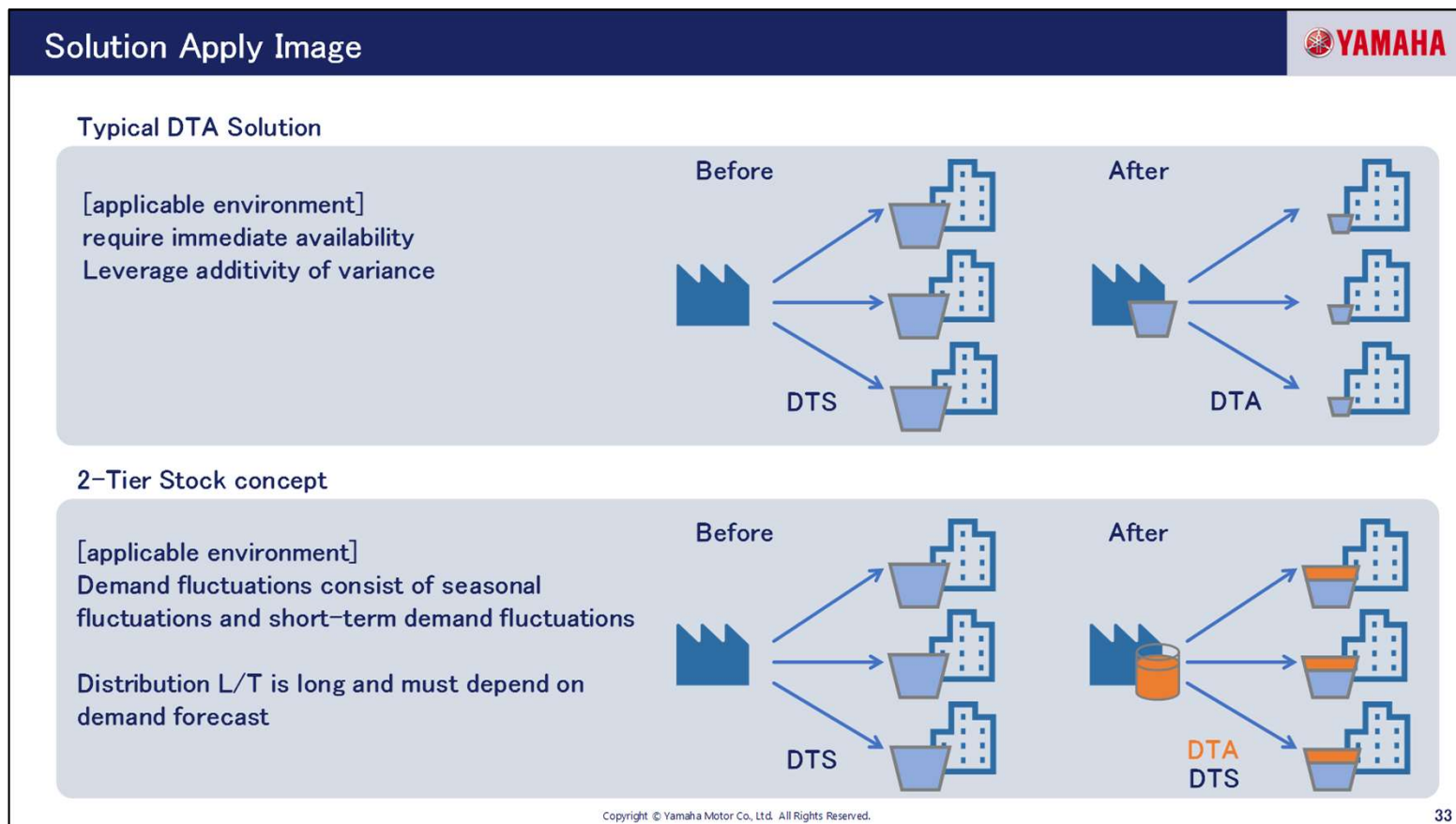
6. “Think Camp”, Europe Sales, Jelena

- We started developing solution for EUR Sales – the largest market of motorcycle
- Obstacle - “EUR Sales has negative image about what we’d done - ‘DTS’
- We gathered in Estonia for “Think Camp” – The first time to know Jelena
- Identified UDE: “There is temporal stock shortage and overstocking simultaneously after season starts.”
- Direction of Solution:
 1. Shorten the ordering process
 2. Increase the flexibility of factory workers
 3. Provide opportunity of production change to Sales
- I understood - “Current sales process is built on our production system”
- And I decided - “Change production system before Sales”



7. “2-tier stock concept” for EUR Sales

- We were stacking in the middle of solution development for a couple of months.
 - EUR Sales insisted - “Shrinking 1 month will not give us tangible effect.”
- Oded came to Yamaha again and helped us for break through – “2-tier stock concept”
- A director of Production got rid of the last obstacle – financial risk when failed.



8. S&T Tree, my new assignment, and my succession

- In the beginning of 2020, I suddenly got a announcement of my transfer to the U.S.
- “How can I hand over my experience precisely to my successor?”
- Personal solutions for my succession risk:
 1. Hand over my experiences using “logic”
 2. Hand over “skeleton of strategies and tactics”
- In July, I suddenly got 2 month blank due to COVID-19.
- “Virtual Think Camp” was executed in those 2 months to build our S&T Tree with my Thinking team, Ryoma, Oded and Jelena, and I handed over it to my successor.



Closing word

1. About my personal goal and given missions:

- My (secret) personal goal - “protect my buddies in factories forever”
- My given missions as a leader - “reduce inventory, reduce cost, increase sales, improve profit and cash flow, manage future risk, , etc.”
- I will continue challenging to synchronize my personal goal and my given missions no matter what situation I’m in.

2. About my luck:

- I’ve always been supported by human relationships in my life.
- “Buffer in heart exploits sudden opportunity of good human relationships.” (PA)

Thanks for listening.