IVAR produces innovative items for heating systems and bathroom fixtures, completely made in vertically integrated production sites in the province of Brescia, Italy. With 12 branches around the world they are a global player in their industry. With over 30,000 SKU, up to ten layers in the BOM, and 2,500+ buffer positions their environment is full of complexity. Paolo Bertolotti, CEO and COO, and Daniele Serlini, IVAR Planning Department will tell their DDMRP story.
The company

Vision

To make life easier for our clients, our clients’ customers and our employees, thanks to our ability to be constantly innovative.

Mission

To design and manufacture advanced hydronic solutions that reduce installation complexity and energy consumption.

https://www.youtube.com/watch?v=6G0ENTQDnw4
The Group

60 Countries where IVAR trades
IVAR in numbers

155.000.000 €
*IVAR GROUP aggregated turnover*

15.000.000 €
*IVAR GROUP EBITDA*

430 employees
*ALL AROUND THE WORLD*

11,000
*PRODUCTS*
Vertical integration

Research & Development
Assembly
Design
Quality Control
Moulding
Storage
Mechanical Processing
Sales
Product lines

LINEE DI PRODOTTO // PRODUCT LINES

Valvole per Radiatori e Fan-Coil
Radiator and Fan-Coil Valves

Tubazioni e Raccorderia
Pipes and Fittings

Collettori
Manifolds

Sistemi Radianti
Radiant Systems

Componenti per centrale termica e caldaie
Components for Thermal Power Station and Boilers

Regolazione e Controllo
Regulation and Control

Bilanciamento Idraulico
Hydraulic Balancing

Contabilizzazione
Metering Systems

Satelliti di Utenza
Satellite Modules

Impianti Sanitari
Sanitary Systems

Sistemi per il Gas
Systems for Gas

Sistemi Solari
Solar Systems

MADE IN ITALY
• PwC performed a warehouse relayout study in 2017, in light of the site expansion
• In this context, preliminary opportunities of inventory reduction were identified *(we were looking for space!)*
• IVAR decided to investigate the correctness of planning parameters and processes. Preliminary analysis identified improvement gaps to be filled
• Among proposed improvement action items, a **S&OP implementation** process was identified as the next **best action** to take.
• **We were preparing the field, when…**
Why high benefit estimation?

Vertically Integrated:
- Foundry (Control / Influence)
- Primary Processes (mostly in-house)
- Assembly Processes (in-house)
- Packaging Processes (in-house)
- Sales Companies (Control / Influence)

Up to 10 Level BOMs (and very well done!)
- A lot of decoupling options

Preliminary identified potential in inventory level and Service Level improvements

A mix of Demand Profiles to be fulfilled, coming from product catalog, contracts with OEMs, special/custom products:
- MTS
- ATO
- MTO
- PTO
- ... and not always easy to be planned through “formal planning rules”

“Supply Chain culture” was needed to sustain growth

Main objectives

1) INCREASE the service level to our Customers
2) REDUCE the stock level
Why high openness/readyness?

Our «pilot» product family...

Not in this picture:
- Material Planner (Procurement)
- Primary Processes Planner
- Assy Processes Planner
- Masterdata manager
- PwC OPS Manager

Project kick-off

... and its product value stream

CFO (!!)

Head Of Planning

COO

CEO

(... and by the way, the owner of the company)

Head of IT

DDPP trainer

DDPP trainees

... and its product value stream
How we work together….

Steering Team
Paolo Bertolotti
Stefano Bertolotti
Ivan Lavatelli (Associate Partner PwC)

IVAR Core Team
• Sales
• Order Management
• Operations Management
• Planning & Scheduling
• Procurement

PwC team
• Engagement Leader
• Project Manager
• Consultant

DDTECH
Analyst
Functional Consultant
Executive

Steering Team Role:
▪ Provide overall guidance, problem resolution, and executive decisions

Core Team Role
▪ Targeted expertise in specific function areas
▪ Support of prototype design and testing:
  – Aggregation & hierarchies approach
  – Data assumptions
  – Process flows

PwC / IVAR Joint Responsibility:
▪ Design and manage the integration
▪ Define buffers positioning rules and buffer profile
▪ Process mapping, findings, conclusions, and recommendations
▪ Support the change management process across the overall implementation

Provide technical advise and support on R+ solution.
Promptly resolve the issue and critical ticket.
Project approach and where we are today

Phase 0 - Evaluate Potential on Service Level and Inventory Turns improvement

Phase 1 – Pilot Go Live

Phase 2A – Go Live of the DDMRP extension

Phase 2B – Design and Go Live DDS&OP

Phase 3 – Expansion to other plant/subsidiaries

Activities completed
Next Steps
Extension phase: strategic buffering positioning
Understand the value stream map

Assembly process
- Distributed product
- Finished product
- Packaging
- Assembly
- Machining
- Surface treatment
- Foundry
- Raw mat

Primary process
- Purchased components

Peculiarity
- 11,000 finish parts out of 32,000 items
- More than 10 product family
- Different routings for each product family and inside each family
- Many shared components
- Significant setup time difference between primary process and assembly process (primary longer than assembly)
Extension phase: strategic buffering positioning

Assembly process buffers positioning

Our customer/MFG strategy:
- Domestic market (MTS)
- Strategic group’s distributors (ATO5)
- Non strategic distributors (ATO10)
- Private label customer (ATO20)
- OEM customers (PTO)

Finished parts mapping criteria:
- For each part we assigned the shorter CTT (customer tolerance time) in function of the customers that bought it
- The MTS parts obtained with the application of the first criteria have been reclassified in function of the popularity

Buffer positioning:
- Analysing each product family the buffers have been positioned in the deeper level of the product structure in compliance with the CTT assigned
- The buffers have been placed for finished, semi finished parts and purchased components.
- For the purchased component has been taken in account also the critical suppliers
Extension phase: strategic buffering positioning
Primary process buffers positioning

Requirements:
• Not transfer the demand variability of the assembly process
• Optimize the inventory target value

Constraint to the optimization:
• The minimum order quantity placed in the foundry and machining level

Buffer positioning:
• The buffers have been placed at the upper level of the primary process
Extension phase: Go live

Just after the Go Live the stock increased....

Along our journey we discovered that we are living the worst year in term of demand variability.

Also the fulfillment of the buffered positions of the primary process leaded to an inventory increase.

In order to reduce the reactivity of the system we extended the ADU calculation to 4 months backward and since July the stock started to decrease!

...but was a «good stock» leading to higher service level !!!
Extension phase: Results
Inventory Value
Extension phase: Results
Overall Service Level

AVG 61.4%
Target 80%
Extension phase: Results
Domestic Market Service Level

AVG 66.8%

Target 80%
In order to ensure a smooth transition a strong management commitment and alignment on the key objective is needed alongside with a specific education on the DDMRP methodology for the key and end users of R+.

**Lesson learned**

- IVAR’s Executives were involved since the earliest stages of the project to ensure the commitment and facilitate the change management.

**Achievements**

- Obsolete planning parameters were updated.
- Re-discuss with the key users the consolidated ways of working and apply the sector best practices.
- Process formalization and standardization.

**DDMRP Education**

- It is critical for the success of the project that the key users attend the DDPP training in order to increase their knowledge and awareness.

**IVAR’s transition towards a mature understanding of Supply Chain planning dynamics is now irreversible.**
Now we feel confident about the solidity of the operating model in place, nevertheless we need to manage the variability using the better available information, so now we are ready for the introduction of the DDS&OP.
Case Study

Plumbing and Heating Components

Demand Driven World

AMSTERDAM 2019

Survive, Adapt and Thrive in the VUCA World

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