

Innovation – where necessities and trends come together



Domus Line

Demand Driven Introduction and Application

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FORTI IN GESTIONE D'IMPRESA DAL 1985





Domus Line is an Italian company specialized in the **designing and production of lighting devices for the furniture industry**. Five brands put together the widest offer of lighting systems and control devices of the furniture lighting sector. Ongoing **research, innovation, design, reliability** and **brand reputation** are the distinctive values of our company.

Based near Venice in the North-East of Italy, in a region with strong industrial traditions, DOMUS Line is known throughout the world for its pragmatic approach, creativity and technological expertise. A selected sales network distributes DOMUS Line appliances in over **70 countries in all continents**, from the Americas to Oceania, guaranteeing the client expertise and assistance. The company's international commitment is constantly driven by its presence at both regional and international industry fairs.

The established collaboration with designers made possible the discovery of innovative ways and solutions that integrate the best Italian creativity to functionality. Innovation, design and environmental sustainability are values that are part of our DNA and that are perfectly expressed by the products.



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Numbers

Sales Amount (K Euro)

2017	12.800
2018	15.600
2019	19.000*

Order Rows 2017	13.000
Order Rows 2018	30.000
Order Rows 2019	36.000*

* Projection based on the first quarter



Purchased Lead Time Max 4 months

Shipped SKU's 2018	1.350.000
Shipped SKU's 2019	1.420.000*



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Products and Variability

The product range is increasingly large. 20% of Finished Products have MTS policy, 80% MTO policy with Raw Materials in Stock.

The Bill Of Material is composed by many finished products with customization, some semi-finished products and many purchase components, often shared with different finished products.

Nr. Finished Products	7.200 + Customization
Nr. Semi Finished Products	1.800
Nr. Purchased Items	6.000

The average life of the products is short, due to different causes: new regulations, new technologies and new design trends. The delivery time required by the market is definitely shorter than the cumulative lead time of the products, and can reach four months. Needless to say, compliance with delivery times is particularly important, also due to a fierce international competition.



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Digital has transformed every organization, and a corporate strategy enabled by innovation is fundamental to catch the opportunities offered by the market. Renovo Business Unit of Omega Gruppo, after having acquired the strategic lines, accelerates the development of Operations with the Digital Transformation, giving shape to the future, combining Business Models and Technology thanks to the deep knowledge of the flows and processes of the firms in the Manufacturing and Distribution sectors.

With our expertise and the DDMRP Model compliant software, applicable to any ERP, we offer to our customers a competitive advantage and the differential to be able to excel in the VUCA world.

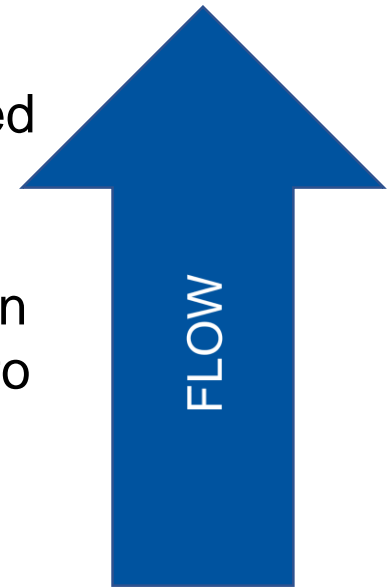


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The continuous challenge of Operations

Operations are managed by a team focused on finding innovative solutions to reduce time, minimize errors and waste, and make work smooth. Some improvements introduced in recent years:

- # **Lean Manufacturing**: the internal assembly department is organized according to lean manufacturing techniques, and allows to quickly change the layout from cells to lines to adapt to the needs;
- # **MRP II**: the planning of materials and resources is carried out with the combination of an MRP + APS system;

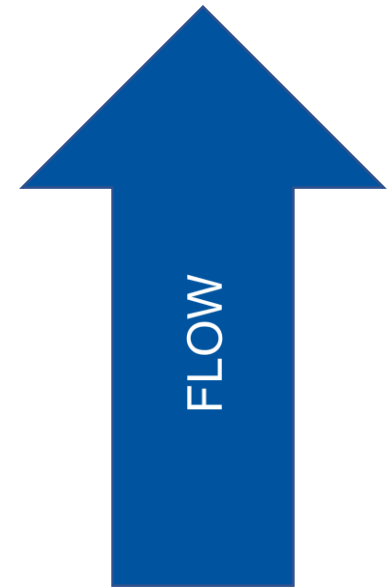




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The continuous challenge of Operations

- # **E-procurement:** contractors are reliable partners who access the informative system through a web portal where they receive priorities and state the progress, receiving and delivering goods on a daily basis;
- # **WMS RFID Package Tracking:** each package that comes out of the assembly line is identified by a unique RFID, and the progress is traced using special portals in the various storage and preparation areas, making it possible to organize and track shipments quickly, automatically and without errors.



2018 at the beginning of the Project



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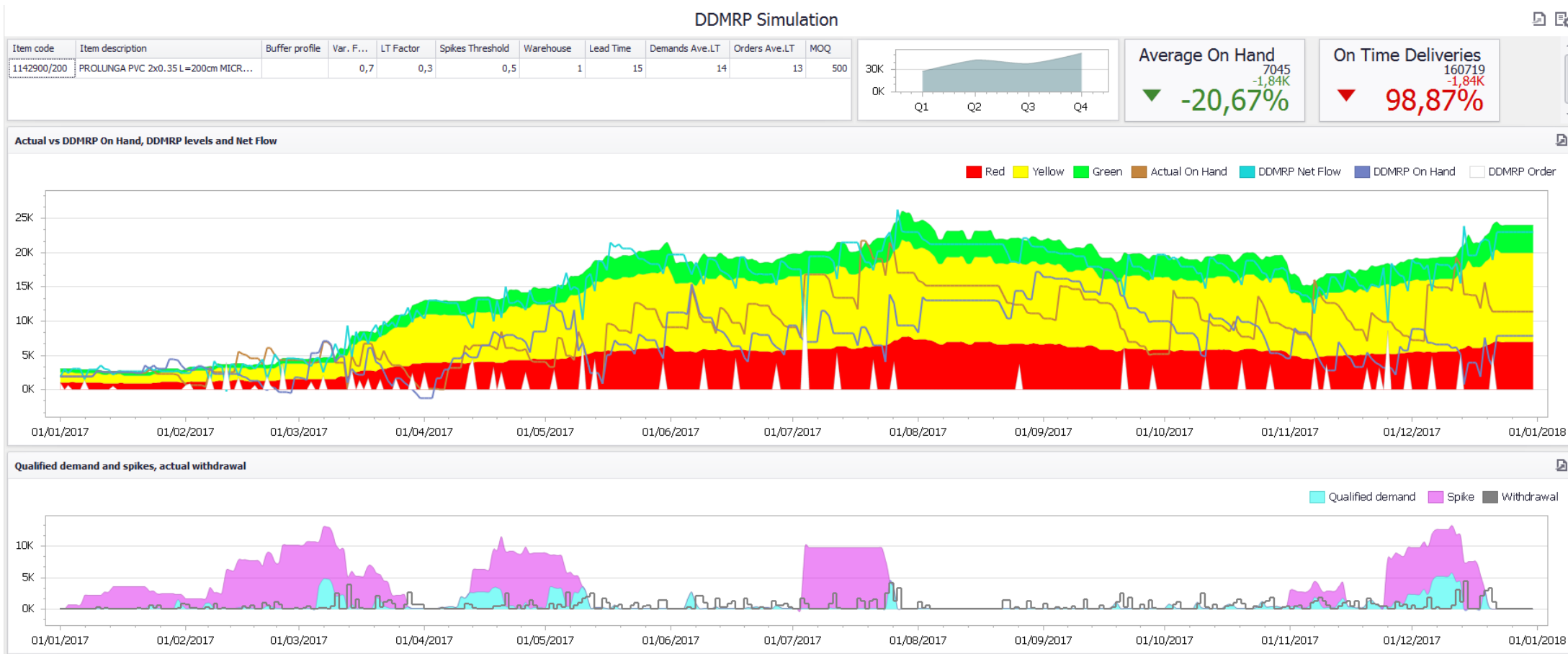
“The system we have is reliable, but very time-consuming. We don't just want to buy and produce what is needed and when it is needed, but we want to free up our time so we can buy and produce at the best.”

Valentino Del Simone, COO

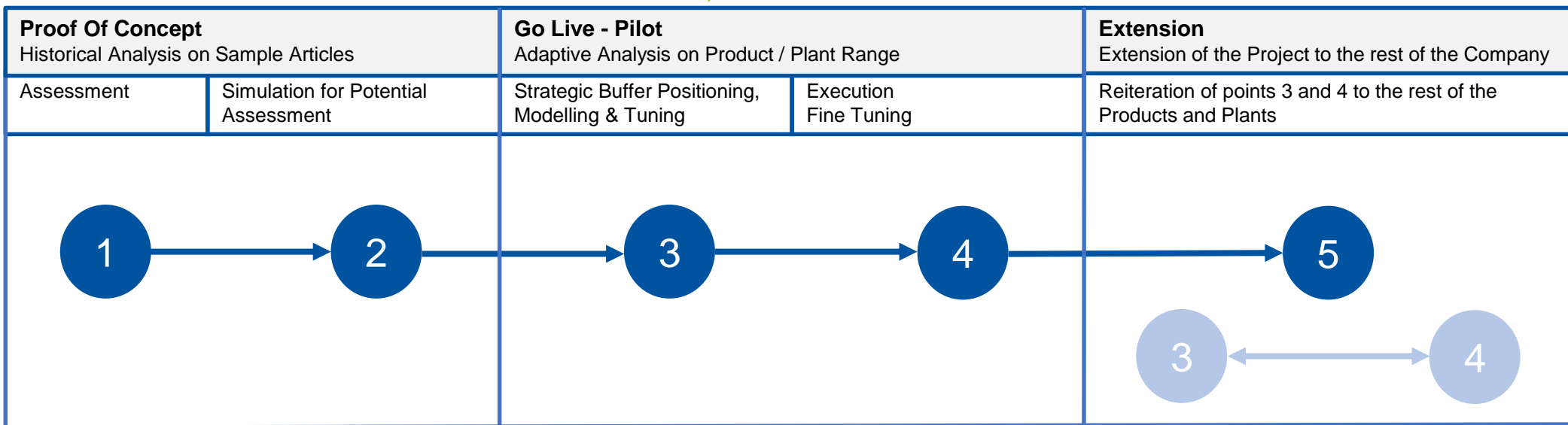


- # Extreme Demand Variability;
- # Increasingly fickle, unpredictable and with greater expectations customers;
- # Continuous request for product and service customization;
- # Unreliable suppliers and Long Lead Times;
- # Continuous pressure to reduce working capital.

Have led the Management to rethink Operations with the goal of being more efficient and effective. After a brief Diagnostic, Renovo defined the Proof of Concept activity with the introduction of the Agilis DDMRP APP.



The system is stable even in the presence of Part Numbers with great variability.



March 2018

April 2018

December 2018

Simulation requires reliable input data. It is necessary to discriminate the relevant information from those that are not or that are inaccurate. The objective of this activity is to obtain reliable and clean data, both for simulations and for subsequent processing..

Activity with customer

- Transfer of basic concepts;
- Sample Definition (Peaks, Seasonal, Ramp-Up, Ramp-Down);
- MRP, Kanban & DDMRP Dashboard Comparison

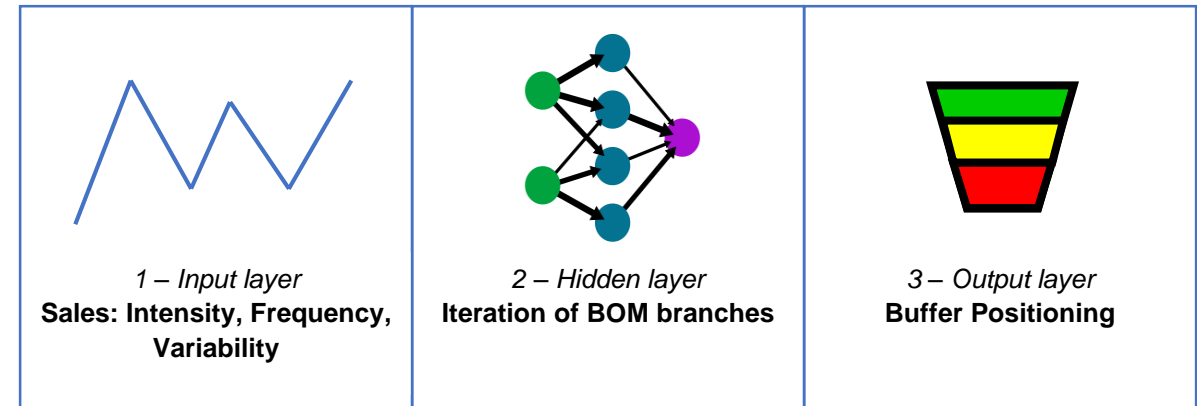
Application of AI for the buffers identification. Strategic activity to obtain the greatest benefits. The criteria used are:

- Market tolerance in delivery times and consequent opportunities;
- Demand Variability and Sales Horizon;
- Picking frequency and popularity of components and semi-finished products;
- Critical work centers or bottlenecks.;
- SMART Metrics Introduction.

Extension to all products and plants

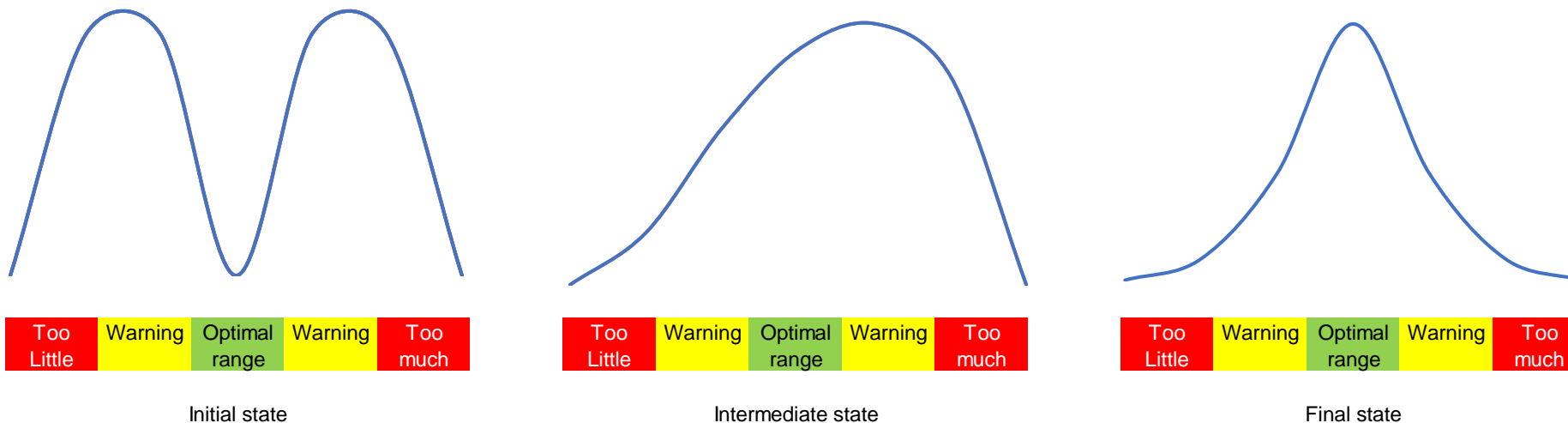
To facilitate the positioning of the Buffers, based on the criteria suggested by the DDI, an *Artificial Intelligence multi objective feed-forward neural network Algorithm* was introduced in Agilis.

- Customer tolerance in delivery times
- Market opportunity as a result of reduced delivery time
- Demand Variability
- Supply Variability
- Inventory Lever, for Common Components
- Protection of Critical Centers

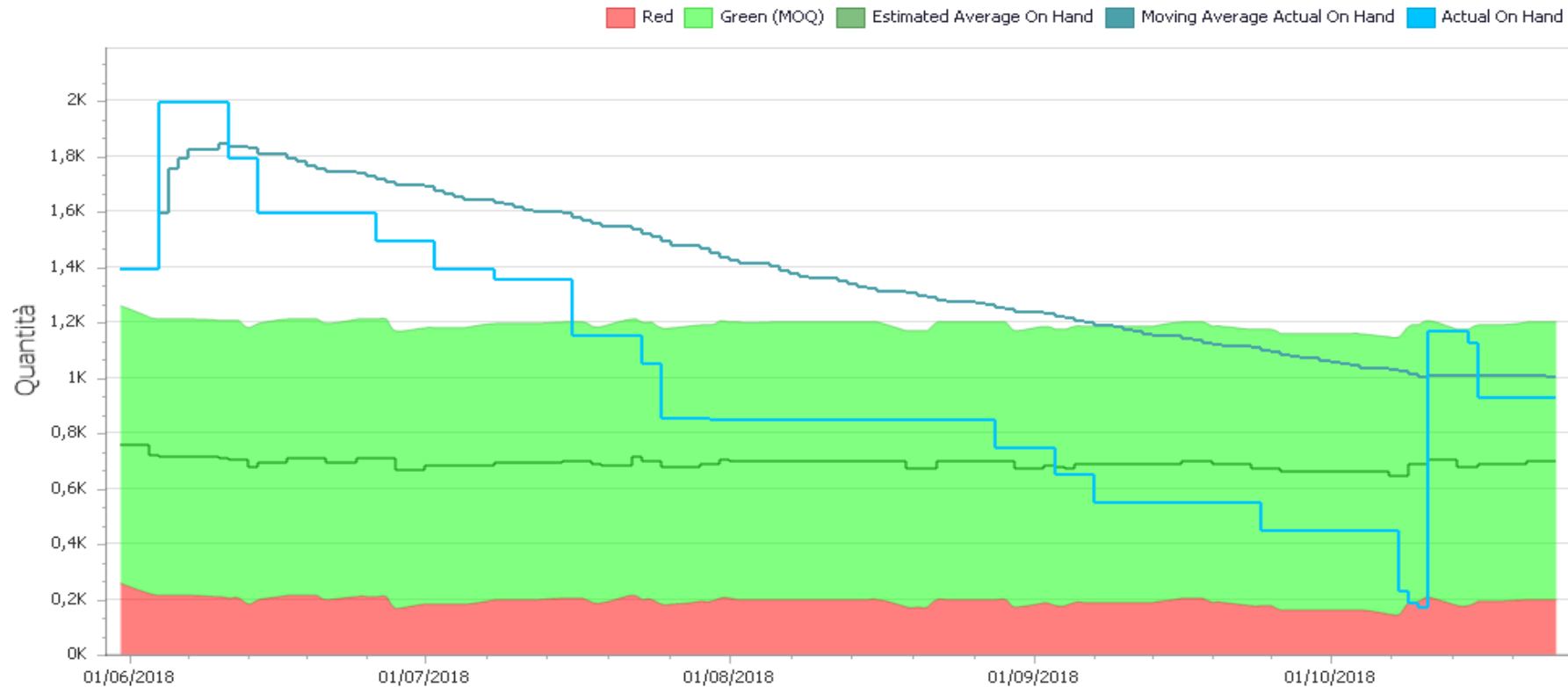


Logistic Model	MTO	MTS Replenished	MTS Min-Max	
Item Type	Manufactured	Purchased	Intermediate	Distributed
Lead Time	Long	Medium	Short	
Variability	High	Medium	Low	

Due to the increase in sales volume, and to the *Long Purchasing Lead Time* of many items, there was no decrease in stock.



In the transition from the initial bimodal distribution to the final state, in the period immediately following the introduction of the technique, the stock increased slightly, and began to reduce after two months.



The behavior is the desired one. The P/N had a higher than normal stock and the DDMRP algorithm led it to oscillate in the optimal zone.

Simplification of the Decision-Making Process

One day a week two people were dedicated to checking all the MRP proposals.
Now the system is leaner and the decision is guided and taken in a quarter of the time.

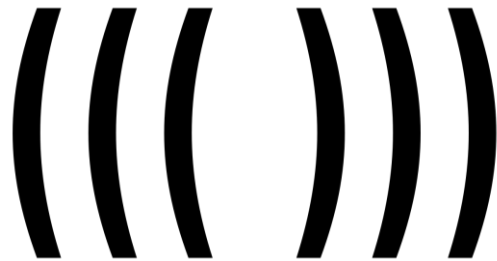


	March 2018	March 2019
Average weekly time for material programming	16 Hours	4 Hours

Deeper Knowledge and Quicker Answers

Before we needed two levels of response, one gross the next day, and one accurate one week later.

Now we can provide the accurate answer the day after.



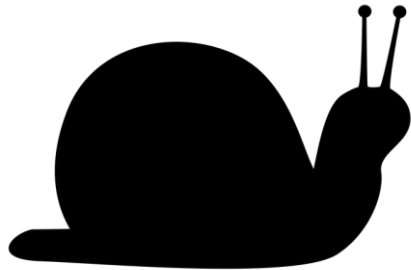
	March 2018	March 2019
Average response time to the Sales Department	7 Days	1 Day



Less delays to the Customer

Delays in scheduled deliveries are measured each week for the next one, and the sales department receives notifications about it.

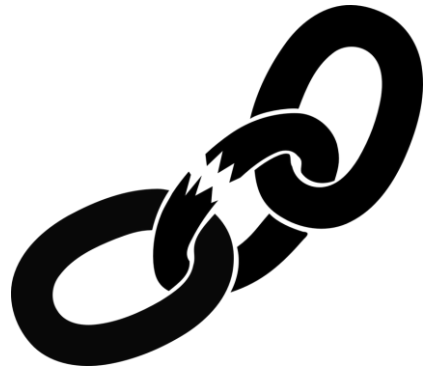
From 2018 to 2019, the order lines have tripled: 1500 positions a week instead of 500, representing a market that requires more different products in smaller quantities.



	March 2018	March 2019
Positions late for deliveries to customers compared to the promised date	4 %	0.5 %

Less critical in Supplier Deliveries

This parameter was measured on long lead time products.
Each ship arriving from the Far East brings about 80 items, and the ones needed in assembly lines during the following week are considered critical.



	March 2018	March 2019
Critical positions in deliveries arriving from suppliers	25 %	12 %



The Main Advantages are Organizational

The same structure supports a 22% increase in turnover without stress.



	Note	March 2018	March 2019
Average time for material programming	One day a week two people were dedicated to checking all the MRP proposals. Now the system is leaner and the decision is guided and taken in a quarter of the time.	16 Hours	4 Hours
Organizational stress in view of strong increased sales	Sales increased by 22% compared to the previous year, on partly different products, with the complexity of shared products. <i>Sales increased by 39% in 2019 from June to July.</i>	Run-up to the data and operational suffering. Stress	System adaptivity has already sized and positioned the orders correctly. <i>An increase in sales of 39% would have created stock-breaking problems.</i> No Stress
Average response time to the Sales Department		Rough cut planning: 1 Day Fine planning: 7 Days	Fine planning: 1 Day
Number of Late deliveries to customers compared to the promised date.	Delays in scheduled deliveries are measured each week for the next one	20 / 500 (Delays / Deliveries) 4%	3 / 600 (Delays / Deliveries) 0,5 %
Number of Critical positions in deliveries arriving from suppliers	This parameter was measured on long lead time products. Each ship arriving from the Far East brings about 80 items, and those that are needed in assembly in the following week are considered critical.	20 / 80 (Criticals / Deliveries) 25%	10 / 80 (Criticals / Deliveries) 12,5 %



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“After having studied and applied the DDMRP methodology, I can say that it is the most beautiful supply chain project I have ever dealt with.
Thanks to Renovo Team we have achieved results that we would never have imagined.”

Valentino Del Simone, COO