

CUSTOMER REFERENCES

VOLUME 4



TABLE OF CONTENTS

P.3

AUTOLIV

P.4

CENTERLINE (WINDSOR) LIMITED

P.8

LABORATOIRES M&L

P.12

LA MOINNAIE DE PARIS

P.16

MITSUBISHI CHEMICAL PERFORMANCE POLYMERS (MCCP)

P.20

NYRSTAR

P.24

SAFRAN AIRCRAFT ENGINES

P.25

SPEED GROUP

AUTOLIV



Autoliv, a Fortune 500 Tier 1 supplier of airbags and safety systems to all of the global automotive OEM's, sought to better manage quality and material flows, achieve greater traceability and drive consistent, Lean continuous improvement across all of its manufacturing plants. In order to improve their growing markets in airbags, seatbelts, and steering wheels, they needed to improve their operational and commercial businesses processes in one integrated system. Learn more in this video.

Autoliv has been creating safety systems for more than 60 years.

WATCH THIS VIDEO TO DISCOVER MORE

CENTERLINE (WINDSOR) LIMITED



“Our customers value the fact that we’re going to give them good equipment, but also they’re looking for us to provide systems that are going to make them competitive and keep production going.”

— Marc Levesque, Director of Corporate Marketing, CenterLine (Windsor) Limited

Challenge:

Canadian industrial automation process and technology company CenterLine (Windsor) Limited aimed to optimize robotic work cell designs through digital simulation prior to deployment of physical equipment on factory floors.

Solution:

CenterLine implemented DELMIA on Dassault Systèmes' 3DEXPERIENCE platform to virtually simulate products, processes and factory operations for optimized robot movements, plant layout, material flow and ergonomics.

Benefits:

Since implementing DELMIA for every robotic work cell, CenterLine has reduced tooling-related issues and rework by up to 90% and programming time on the floor by up to 75%—delivering on-time, on-budget solutions while enhancing customers' business competitiveness.

SAVING DEPLOYMENT DOLLARS WITH ROBOTIC WORK CELL SIMULATION

No manufacturer wants to deploy equipment on its factory floor only to discover that the swing of a robotic arm will bump into an adjacent machine, or fail to reach the object it's supposed to manipulate, or in any way endanger a worker. Factory setups can cost millions of dollars, and the most expensive time to fix design errors is after built-out systems physically exist.

As a provider of advanced production and technologies, Canadian-based CenterLine (Windsor) Limited innovates better ways for manufacturers to avoid costs, maximize productivity and accelerate time-to-market. CenterLine specializes in advanced automation processes and joining technologies for resistance welding, metal forming and cold spray applications. Its vertically integrated product offerings range from welding consumables to fully automated production systems.

"Our customers value the fact that we're going to give them good equipment, but also they're looking for us to provide systems that are going to make them competitive and keep production going," said Marc Levesque, director of corporate marketing at CenterLine (Windsor) Limited. "The systems CenterLine designs require little maintenance and are often designed to enable them to be scaled up if the production requirements are increased."

Since CenterLine's inception in 1957, the company has seen massive changes in the industries it serves. In recent years, its main customers—original equipment manufacturers (OEMs), the Tier 1 and 2 suppliers, and machinery integrators in the automotive, mass transit, aerospace and defense industries—have seen consolidation, new technologies, new industry players and the rise of competition. CenterLine views simulation as a competitive necessity.

"Over the past 12 years, there's been a significant shift in the way companies view simulation," Luciano Mancini, robotics simulation lead at CenterLine (Windsor) Limited, said. "We used to simulate maybe one or two robot work cells, or it used to be done on the floor. Today, we simulate and understand every robot, every process and every piece of machinery before it's on the floor. We can design, build and manufacture something upfront in a digital world rather than design, build it, then run into issues on the floor and have to redesign significantly."

A COMPETITIVE NECESSITY

To meet its simulation goals and customer needs, CenterLine chose DELMIA Robotics on Dassault Systèmes' 3DEXPERIENCE® platform to enable creation of digital models that virtually simulate products, processes and factory operations. DELMIA allows CenterLine to visualize and verify robot movements to optimize use of shop floor space, material flow and ergonomic safety.

"DELMIA Robotics helps us visualize and conceptualize our designs before they're manufactured on the floor," Mancini said. "That helps us resolve issues upfront and gets the product out right the first time. DELMIA Robotics allows us to give our customers peace of mind. By building virtually, we demonstrate that we can produce their complicated systems on time and on budget, and exactly how it will improve their operations."

CenterLine has already experienced impressive success by utilizing DELMIA on robot work cells. "Since implementing DELMIA Robotics for every work cell that contains a robot, we haven't had to move a single robot on the floor," said Mancini.



"Since implementing DELMIA Robotics for every work cell that contains a robot, we haven't had to move a single robot on the floor. That's a significant time savings."

— Luciano Mancini, Robotics Simulation Lead

"That's a significant time savings. We have reduced our tooling-related issues and rework by up to 90%, and our programming time on the floor has been reduced by as much as 75%."

Mancini says that CenterLine is completing offline programming (OLP) in DELMIA Robotics. By transferring robot system programs to the factory floor and the robot without tying up physical resources on the floor, they are seeing substantial time savings in the commissioning phase.

"DELMIA OLP has cut down our teach time on the floor significantly," Craig Clayton, robot simulation technician at CenterLine (Windsor) Limited, said. "It's a great tool when we download a program or when we get reengineered jobs and need to upload robot paths to make sure the fixtures are actually where a 2D footprint says they are. If we didn't give them a path they would have to decide the order of, say, welds. With DELMIA OLP, we can switch that around easily and then give the floor the actual path so they don't have to worry about sequencing."

CenterLine also uses simulation to show customers how new products and processes can give them a competitive advantage prior to purchasing.

"We've used DELMIA Robotics to showcase innovative products from our mechatronics and gun divisions," Clayton said. "If our customers want to see a visualization of a design concept, we can put kinematics on it and create a video to show them what it's going to actually look like and how it's going to help their industry."

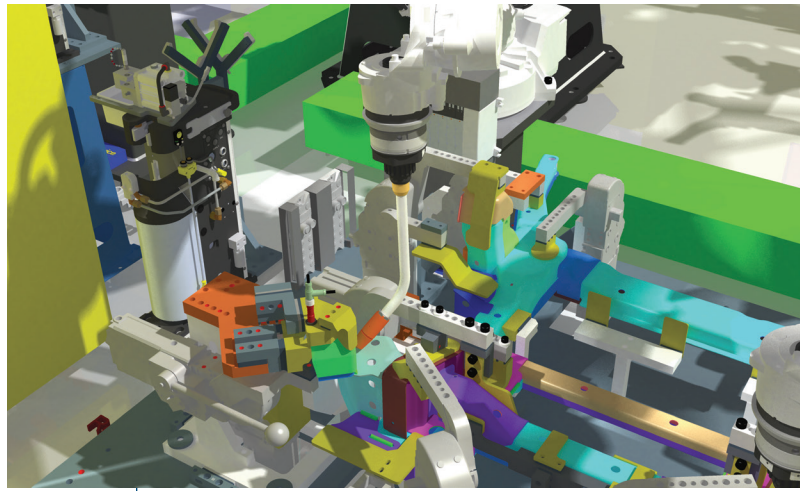
GETTING THE ANGLE RIGHT

Once CenterLine upgraded from DELMIA V5 to the **3DEXPERIENCE** platform with DELMIA Robotics, they have reaped many benefits including a 15% productivity gain, thanks largely to the solution's intuitive graphical user interface (GUI).

Using the GUI of DELMIA Robotics Arc Welding, CenterLine automatically generates robot arc welding tool paths based on the geometric design of the seam to be welded.

"A customer that comes to us with an arc welding project usually has certain parameters of the angles of welding," Clayton said. "The arc trajectory function allows us to stay within those parameters. If we have to deviate, we can give the customer an exact degree and measurement of how far, and if this is still okay for their process."

"One of the main process changes for us was bringing simulation more upfront," Mancini said. "For an arc welding cell, we would produce all the torches on a bare product first and give that to our designers so all torches are at the optimal angle. We've saved at least 15-20% of the time to market for simulation and design and reduced iterations between design and tooling from six different iterations to two to three."



Top image: Simulation allows CenterLine to transfer robot system programs to the factory floor and the robot without tying up physical resources on the floor.

Bottom image: Using the GUI of DELMIA Robotics Arc Welding, CenterLine automatically generates robot arc welding tool paths based on the geometric design of the seam to be welded.

CONNECTED DATA PROVIDES SINGLE SOURCE OF TRUTH

Among the powerful capabilities the **3DEXPERIENCE** platform brings to CenterLine is a single source of truth incorporating many different CAD data imports from customers—regardless of format—as well as legacy data from previous CAD releases.

“All the data is centrally integrated on the **3DEXPERIENCE** platform. We can reuse standard items, and leverage product design and processes from previous projects,” Mancini said. “Having the data in one place allows me to be more efficient as a leader. I can focus on day-to-day operations of the simulation department rather than on managing data and products.”

The ability to integrate data from any family of robots allows CenterLine to keep up with customer requirements and to diversify into new industries, Mancini added. What’s more, DELMIA is user-friendly for creating simulation paths for users who don’t know the native language of a particular robot.

A LOOK TO THE FUTURE

Understanding how important simulation is to its success, CenterLine plans to continue to drive customer value through innovation to be competitive.

“A future goal from a simulation perspective is to support the digital twin,” said Mancini. “We see this as a growing need, especially from OEMs down to the tier supplier. The idea with virtual commissioning is to have a complete model of your system, down to the safety, PLC (programmable logic controller) and robotics all interacting in the digital versus the real world. This will allow our customers to identify the systemic impact of engineering changes up front.”

“Dassault Systèmes solutions have really helped us when designing pieces of equipment to simulate the assembly in a virtual setting and really anticipate any type of problems that we could run into when selling the equipment and programming the robots,” said Levesque. “It really gives us a leg up before we put the steel to the floor.”

Focus on CenterLine (Windsor) Limited

CenterLine (Windsor) Limited is a family owned Canadian company that builds custom automated welding and assembly lines as well as standard brand products for fastener welding, resistance welding (steel, high strength steel, hot-stamped steel, and aluminum), metal joining, metal forming and metal coating applications.

Revenue: Privately held

Headquarters: Windsor, Ontario, Canada

For more information

www.cntrline.com

LABORATOIRES M&L



“Thanks to DELMIA’s real-time KPIs, the quality of execution and our capacity to better manage our resources improved our industrial performance. Moreover, we’ve reduced disruption to our supply chain and slashed the rate of non-quality and waste by 50%.”

— Richard Vinardi, Industrial Director, Laboratoires M&L, L’Occitane Group

Challenge:

To satisfy growing global demand for natural cosmetics and fragrances, Laboratoires M&L, the manufacturing division of L'Occitane Group, needed to improve production planning flexibility to deal with the fluctuations in natural raw materials and to deliver its products on time to support its solid sustained growth.

Solution:

The company uses Dassault Systèmes' DELMIA Apriso to help optimize its global production and logistics operations from raw material reception, weighing, production, packaging, and storage as well as to anticipate early, issues that can adversely affect the quality and delivery of its products to market.

Benefits:

With real-time availability of information, Laboratoires M&L has more foresight thanks to better planning and the availability of information in real time, which also improve decision-making, while reducing the rate of non-quality, waste by 50% and production interruptions for inventory purposes. Employees find themselves offered new career opportunities thanks to improvements in their day-to-day productivity.

A DREAM ROOTED IN HIS LOVE OF PROVENCE

In the early 1970s, 23 year-old Olivier Baussan wanted to put forth the benefits of his native Provence in France by distilling rosemary to create essential oils that he sold in local markets. In 1976 he realized his dream and founded L'Occitane en Provence, manufacturer of cosmetics, soaps, oils and fragrances made with natural ingredients. One might say that his dream was premonitory: over 40 years later, consumers are more conscious than ever about their health and the products they use. It is no wonder that L'Occitane Group has blossomed into a high-end global brand seducing consumers not only by their natural products - every 3 seconds a tube of Shea Butter hand cream is sold somewhere in the world - but also by the eco sustainability of its sourcing and production methods.

L'Occitane has its own distribution network as well as 3,000 boutiques in 90 countries worldwide, which gives them direct access to their consumers. All product formulas are produced on 20 production lines in their Manosque and Ardeche factories in France and shipped to their three regional logistic platforms in Asia, Europe and the United States for distribution to their boutiques. "L'Occitane commercializes six international brands

and our products are identical regardless of where they are sold," Richard Vinardi, Industrial director of the Laboratoires M&L, said.

"More than 90% of our business is generated abroad. We control the entire value chain from receipt of more than 300 types of plant-derived ingredients, which are provided by local artisans, to the sale of our products in our stores. Our strength is our ability to frequently launch new products - we release a new product everyday - and, hence, provide our consumers with an incentive to keep coming back to discover our latest creations."

Raw material discrepancies can impact quality

"For many years, we have been experiencing double digit growth, which put pressure on our factories to satisfy increasing global demand. However, as our raw materials are provided by artisans and farmers whose harvests are climate-dependent, we have to make sure the quality of their productions are up to par and in sufficient quantities. In effect, too much rain or on the contrary, drought, both have an impact on the quality and quantity of raw materials we receive and use to manufacture our products.

We need to ensure consistent quality despite these changing conditions. For example, lavender may not have the same color from one year to another or not be as potent, which obliges us to strictly control every batch because there may be differences between them.

In 2013, Laboratoires M&L adopted DELMIA for its manufacturing operations. "Our major challenges were traceability and security from raw material procurement all the way to delivery of the finished product to our boutiques," Vinardi said. "DELMIA is able to manage a large spectrum of activities related to the way we work."

"Keeping track of over a thousand suppliers of raw materials, managing the frequent launch of new products, as well as numerous quality controls to ensure consumer safety and delivery to our regional platforms - in essence our entire manufacturing execution system (MES) and our logistics execution system (LES). It was, and still is, the most flexible tool on the market."



"More than 90% of our business is generated abroad. We control the entire value chain from receipt of more than 300 types of plant-derived ingredients [...] to the sale of our products in our store."

— Richard Vinardi, Industrial Director, Laboratoires M&L

"For example, with DELMIA we control the entire raw material process from reception to selecting and analyzing samples to weighing and labeling each raw material," Vinardi said. "Raw materials then continue on to production where 2 to 3-ton batches are produced and packaged in jars or tubes which are then sent to our distribution centers around the world. This traceability, entirely managed by DELMIA, is essential to maintaining the quality required by our consumers."

Foresight as well as flexibility were needed to allow a quick response to consumers' changing demands and these qualities were delivered by DELMIA. However, it also required internal process improvements and employee training to enhance the company's industrial performance. "The difficulty with any new approach was two-fold: we needed to increase the maturity of the software solutions placed at our employees' disposal and to improve their skills so that they use these new solutions efficiently," Vinardi said. "With the help of DELMIA's experts, we can proudly say we've reached our goal."

A CAREFULLY EXECUTED BIG BANG

With DELMIA, Laboratoires M&L manages production and procurement flows with real-time output of KPIs and reports of actual on-site activities. "Before switching to DELMIA, we created test scenarios with "Go/No Go" decisions along the way, which were executed in the two months before the final "Go Live". Once validated, we proceeded to train everyone - over 800 people - at the same time on our new ERP solution and DELMIA. We then gave ourselves one weekend before transitioning from our old system to DELMIA without the possibility of turning back. We were confident, however, because all scenarios were already tested and approved and in five weeks everyone was operational," Vinardi said.

Thanks to DELMIA, production planners have information such as how much was produced, when the products will be available, where they stand with raw material procurement, all in real time. "DELMIA is the heart of our operations and even feeds our ERP system, Vinardi said. "Moreover, we have total control over supply management, allowing us to limit the risk of shortages. Without real-time knowledge of where we are, this would not be possible," he said.

Examples of common issues and their solutions are as follows: "A quality control engineer who detects a problem with a raw material will now block it from being used in all products, thereby reducing waste due to rejected batches. By the same token, information about an operator who drops a container, thereby rendering it unusable, is communicated in the system in real time. By seeing right away that this raw material is no longer available, planners can anticipate and adjust production accordingly," Vinardi said.

Vinardi also mentioned, thanks to better inventory flow, that they are now able to perform inventory management without interrupting production.



Top image: A quality control engineer who detects a problem with a raw material will now block it from being used in all products, thereby reducing waste due to rejected batches.

Bottom image: Inventory management is operated without interrupting production.

BETTER INDUSTRIAL PERFORMANCE, LESS WASTE, NEW CAREER OPPORTUNITIES TO SUSTAIN GROWTH

In all, Laboratoires M&L derived considerable benefits with DELMIA. "The quality of execution and our ability to better manage our resources improved our industrial performance by more than two digits per year for the first three years since implementing the solution," Vinardi said. "Moreover, we've reduced disruption to our supply chain thanks to real-time analytics. We also slashed the rate of non-quality and waste by two. Finally, we've enabled our employees to evolve to new, more value-added careers that are necessary to support our exponential growth."

After more than five years using DELMIA, Laboratoires M&L wants to improve its capacity to anticipate even more by implementing a digital factory of its physical production entity. "In the past, we would do something and if there were any issues, we would detect them too late," Vinardi said. "Now our objective is to make the right decisions early and anticipate any events before they happen in the real world. Therefore, we are currently creating digital models of our plants that we will use to virtually pre-test our production lines before physical set-up. This digital factory will be the reference for all our production sites," he said.

As of today, for Vinardi and his team, a new era in manufacturing and logistics planning has been ushered in and there is no turning back. "We are 100% paperless, all our reports, daily KPIs and operator updates go through the system. From the start, managing change was something we all took to heart, it

Focus on Laboratoires M&L L'Occitane Group

Manufactures and markets cosmetics products derived from natural ingredients.

Products: Creams, oil, soaps, for hands, body and hair as well as fragrances

Employees: 8,500 (WW) 1,400 (France)

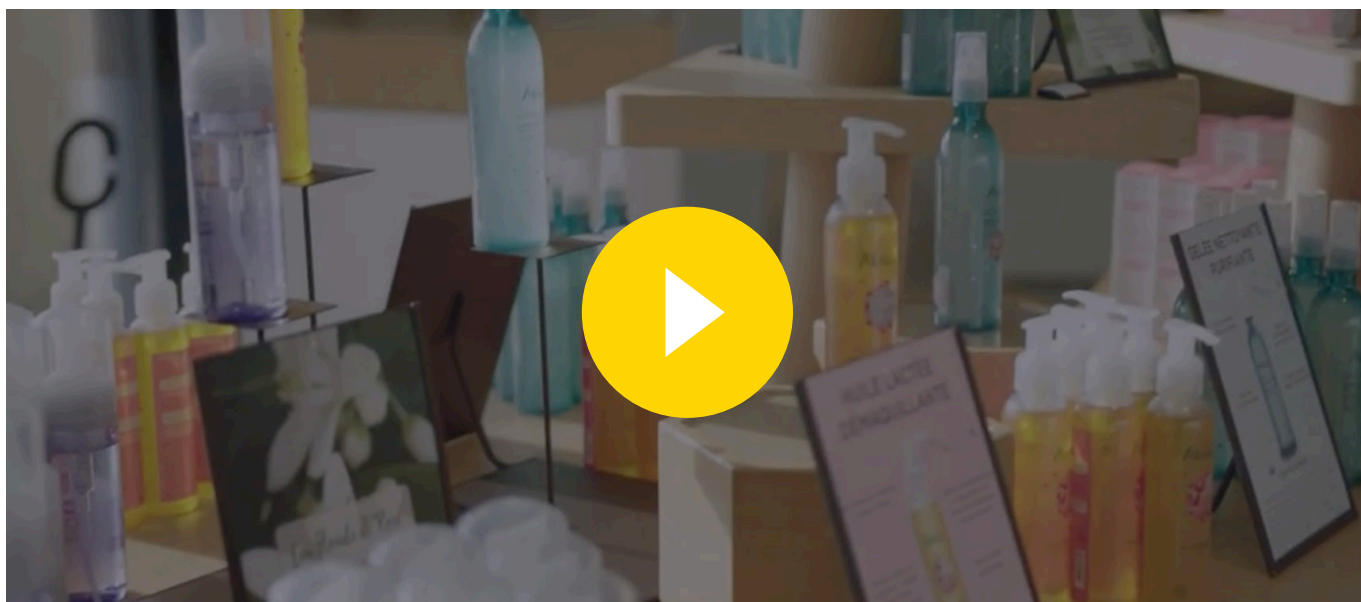
Revenue: 1.3 bn€ (Group 2018)

Headquarters: Manosque, France

For more information
www.loccitane.com

encouraged our teams to move forward and view the transition in a global way.

In effect, our approach was to change both our internal processes and the tool required to manage them. We had everyone on board all sharing common goals and we provided them with the necessary training to help them get to where we want them to go. This not only motivated them, it improved their performance and provided them with new career opportunities. We know we made the right choice with DELMIA. It is a strong foundation upon which we can rely to face the challenges of our fast-moving business" Vinardi said.



WATCH THIS VIDEO TO DISCOVER MORE

LA MONNAIE DE PARIS



“We were looking for a solution that would allow us to better track our supplies of raw materials and finished products. We needed a powerful planning tool, linked to our ERP SAGE X3.”

— Jérémie Sourbé, Supply Chain Manager, and manager of the DELMIA project

Challenge:

To offset dematerialization, contactless purchases and the fact that the French use fewer and fewer coins, the Monnaie de Paris wanted to strengthen its axis of development abroad, in order to improve responsiveness toward international tenders.

Solution:

Monnaie de Paris chose DELMIA Ortems to rationalize all of its industrial processes, improve its production monitoring, clean up its technical data and integrate its procurement information into its ERP.

Benefits:

Project teams saw a real improvement in the monitoring of production and better synchronization between production and supplies, with the key success factors being the optimization of 20% of cut changes, a better reliability of the information being fed into the computer system and rationalization of production monitoring.

TWELVE CENTURIES OF FRENCH KNOW-HOW

The Monnaie de Paris (MDP) is responsible for coining everyday currency. Officially founded in 864, the Monnaie de Paris is the oldest French institution and one of the first companies in the world. It is Louis XV who decided to build the building currently used on the quai de Conti, in the 6th arrondissement of Paris.

The Monnaie de Paris was officially installed December 20, 1775. The production of arts and crafts according to ancestral know-how and methods passed down from generation to generation, still practiced today, make this institution the first and last factory in activity in Paris.

In 1958, faced with the increasing volume of coins to be minted, it was decided to decentralize production. Thus, the new factory located in Pessac in Gironde manages since 1973 industrial minting of current currencies. The Paris site maintains the activity of art production and small limited collections.

Attached to the Ministry of Economy and Finance since 1796, the Monnaie de Paris becomes a public industrial and commercial establishment (EPIC) on January 1, 2007. Its current turnover is around 138 million euros and relies on 470 employees, at both sites.

THE INDUSTRIAL SITE OF PESSAC

Pessac produces the current currency that circulates on French territory for 650 million pieces in Euros manufactured per year. A multidisciplinary team of 170 employees manufactured 1.5 billion pieces in 2018, 55% of which are for export in local currency. The Paris Mint mints current currencies of more

than 40 countries worldwide (Asia, Africa, Middle East, Latin America). The Pessac site also provides storage and spare parts services for the Banque de France. The site has three workshops: two for collector's currencies and one for the realization of monetary instruments.

Technological innovation is decisively at the heart of the company's development strategy and the production of money is almost completely automated. 850 coins are minted every minute, by 24 monetary presses, in perfectly orchestrated key stages.

It all starts with a metal coil of about 3 tons which is cut by stamping to give birth to a blank. This little piece of circular material is then "degreased". Then a cord on the turn of the blank is made for coins of 1, 2 or 5 centimes, before the coppering operation; the coin blank is then polished. A visual inspection operation to verify the dimensions and the qualitative aspect of the coating is then realized. The blank is now ready for minting. Then begins the minting operation carried out using 24 presses, for the manufacture of 6 to 7 million pieces per day, before proceeding to the packaging phase. Many quality controls are performed throughout this process. The site also stores current currencies intended for export; maritime containers represent several hundred million pieces.

NEW STRATEGIC STAKES

The Monnaie de Paris was dependent on the delivery of the metal coils and on its raw material supplier, about 1000 tons per year. This adversely impacted smooth running of production and impacted the profitability of the company increasingly turned to international markets.

Because of the dematerialization of payments and to contactless purchases, the French use fewer and fewer coins. To mitigate this situation, the Monnaie de Paris decided to strengthen its development in foreign markets, which required it to have a better responsiveness in terms of response times to international tenders.

A scheduling and supply planning cell was thus created at the beginning of 2016 with a clearly defined objective: to plan the production and supply of all of Pessac from the ERP.



"DELMIA Ortems gives me real reliability of supplies and a secure schedule, which allows us to limit the risk of rupture which is essential."

— Nicolas le Goarant, in charge of procurement and planning

"When I came to the company in 2016, production planning was done on EXCEL," Jérémie Sourbé, manager of the Supply Chain and manager of the DELMIA Project, said. "There was no sequencing in the true sense of the word. The PMP (Production Manager Program) evolved daily, which implied a daily check of the correlation between components, tools, labor and PDP EXCEL, without an effective synthesis tool. This process offered us a very low visibility in real time on the situation of supplies of raw materials, which represent between 80 and 90% of the cost of production. "

The manufacture of metal coils and blanks indeed requires from 3 to 6 months. The Monnaie de Paris had to anticipate its orders and have the necessary storage space in the factory. "We were looking for a solution that would better regulate our supplies of raw materials and finished products," Jérémie Sourbé continued. "We needed a powerful planning tool, linked to our SAGE X3 ERP".

FROM EXCEL TO DELMIA ORTEMS

The production manager was until now in charge of planning. All the packaging lines were displayed on an EXCEL table on which the commitment decisions were colored. The logistics department suffered from this situation because the last change orders impacted the performance of the production and further delayed the next steps. It was necessary to centralize the supply part to avoid having each foreman order his own consumables, components and raw materials.

"We did not have visibility on the consumption of our resources or our stocks and our information was unreliable," Jérémie Sourbé added. "To move forward and plan better, we needed to invest in scheduling software that would allow us to visualize our finished capacity. We had to clean up our production monitoring and technical data. The Needs Calculation was unreliable because everything was done by hand. Following DELMIA project launch meetings, we became aware of the need to work on these parameters and to integrate our procurement data into our ERP. The Monnaie de Paris thus decided to feed Ortems, scheduling software, from SAGE X3, to streamline all industrial processes. "The DELMIA Ortems solution met all our needs and had a certified interface with SAGE X3, facilitating integration," Jérémie Sourbé continued.

PILOTING INNOVATION

The first step was to synchronize a production and procurement planning to avoid surplus inventory and link the in house MES * with the ERP. Much of the key information was not captured in real time in SAGE X3 or was missing. "It is now possible to enter the order from the tender that is associated with a forecast order, launch the production orders and track production. All of our keyed in information has been made reliable and we now have the actual operating times entered by the operators," Jérémie Sourbé said.

Transforming and innovating to be more competitive requires changing user practices. Accompanying change also means supporting teams prior to project deployment.



The manufacture of metal coils and blanks requires a period of 3 to 6 months. Anticipating its orders and providing the necessary storage space in the factory was paramount.

"We involved management, all decision-makers and future users very early, to make them aware of new ways of working that are free of old organizational models. We have also trained the maintenance operators who provide the time spent to make the adjustments and who validate when operations are finished. This information feeds the scheduling software that tells us exactly when the machine is ready to start a minting operation," Jérémie Sourbé said. The experience of the project manager ensures that the objectives sought by MDP are matched with the specifications of the DELMIA solution. Project monitoring was ensured by a project committee and a steering committee.

ALREADY TANGIBLE BENEFITS

Since the deployment of DELMIA Ortems in January 2019, the project teams have seen a real improvement in the monitoring of production and a better synchronization between production and supplies, with the following being the main key success factors:

- Optimization of monetary changes estimated at 20% (setting times are long, between 4 and 12 hours depending on the machine)
- Reliability of the feedback of information in the computer system
- Streamlining of production monitoring
- Establishment of meetings and a production planning led by the Supply Chain with a single reference for the company; before implementing the scheduling software, each foreman issued his POs (production order) without consultation and there was 1 PO per mint that grouped several machines.

"The interface with DELMIA Ortems gives us a real advantage in process understanding and in monitoring the activity," Nicolas Le Goarant, in charge of procurement and planning, said. "I have much better daily visibility on my production schedule, for all workshops. I am able to tell at any moment which bill or coin is being minted on which press. The tool provides real reliability of supplies and a secure schedule, which allows us to limit the risk of disruption, which is essential."

While it is still difficult to measure precisely the benefits generated by the software, DELMIA Ortems has undeniably become a reference and a structuring tool for the various departments of the company. The reliability of the delivery dates has a positive impact on the activities of the sales and marketing department. The tool, in addition to its technological prowess, allows a much more fluid communication and creates real synergy between the various newly interconnected trades

About La Monnaie de Paris

Assures the public service mission of minting Euros for France and other foreign currencies.

Products: Coins, jewelry, gifts, decorations, art objects

Employees: 470 on the Paris and Pessac sites

Revenue: 138 millions d'euros

Headquarters : Paris, France

For more information:

<https://www.monnaiedeparis.fr/en>



NEXT STEPS

The Monnaie de Paris is now working to exploit the other functions of DELMIA Ortems and more particularly:

- The integration of the "ARIM" tooling, Money Instruments Realization
- Workshops, in the planning and, Establishment of a CIP (Continuous Integration Platform) process to establish a sales forecasting process
- Manufacturing Execution System (MES) or the management of industrial processes

MITSUBISHI CHEMICAL PERFORMANCE POLYMERS (MCCP)



“Until recently, we were working on a wall planning with small paper cards that would at times fly away or fall down sometimes preventing tasks from even being processed.”

— Frédéric Gaborieau, responsible for TPE Market Planning at MCCP France

Challenge:

Mitsubishi Chemical Performance Polymers had difficulty managing its production rates due to the conduct of two parallel business activities that were managed by manual wall planning boards, which hindered planners' capacity for proactive management.

Solution:

The company chose Dassault Systèmes' DELMIA Ortems Supply Chain Planning and Optimization solution to manage its global production facilities.

Benefits:

Digital planning with DELMIA Ortems has reduced the time spent on planning activities by 25% (2 to 3 hours per day for each planner). Collaboration between the workshop manager, planning managers and the purchasing, procurement, production, IT and sales teams has improved resulting in less stress at work. Delivery commitments are better kept, resulting in an increase in customer satisfaction.

INTERNATIONAL INFLUENCE

Since the historical manufacture and production of shoe soles, Mitsubishi Chemical Performance Polymers (MCPPE) France, a subsidiary of the Japanese group Mitsubishi Chemical, has considerably diversified to become one of the market's leading manufacturers of thermoplastic elastomer (TPE) and polyvinyl chloride (PVC) products in advanced sectors.

The MCPPE group has developed a network of production sites in the United States, Brazil, Asia Pacific and Germany and relies on three large plants in Poland and in France, the latter of which is MCPPE's largest manufacturing site. The group serves the automotive industry (airbag covers, seals, etc.), which is its leading market with a turnover of approximately 60% of its total activity as well as the building (shutters, pool covers), packaging, cable, consumer goods and medical industries.

Looking for a simple and collaborative scheduling and planning solution interfaced with SAP

MCPPE France was finding it difficult to optimally manage its production rates due to the conduct of two parallel business activities, TPE and PVC. Two wall planning boards were required to manage these two activities, resulting in two daily manual data updates with SAP. [Image 1]

"Until recently, we were working on a wall planning with small paper cards that would at times fly away or fall down sometimes preventing tasks from even being processed. You

can imagine the loss of time and the consequences caused by late deliveries or forgotten production," Frédéric Gaborieau, responsible for TPE Market Planning at MCPPE France, said.

These planning boards were difficult to manage because volumes were large and it was hard to make schedule changes caused by unexpected, last-minute or seasonal orders. This lack of flexibility prevented planners from being proactive, negatively impacting production deadlines. Moreover, the absence of an interface with SAP rendered management of raw materials tedious. What made things even worse was that only two experts mastered the wall boards, creating bottlenecks when they were not available.

"Controlling manufacturing deadlines and reducing cycle times are at the heart of our daily concerns," Christophe Delafosse, IT manager at MCPPE France explained. "Poland has its own planning tool and there is no identical information system in Europe; we cannot rely on a single common reference model today, which complicates data management for MCPPE Europe". To remain a leading provider of TPE products, it is crucial to take into account the production constraints of complex industrial environments and to work together with our colleagues in other departments.

To have better visibility on production planning while streamlining collaboration throughout the organization required questioning the company's processes and work habits. MCPPE France needed a simple and collaborative scheduling and planning solution that produces a single interdepartmental planning combining both its TPE and PVC activities and that would interface with SAP. The solution also had to optimize planning reliability for a period of more than two weeks, and to enable the company to anticipate seasonal orders and overall workload in order to meet delivery commitments while contributing to a harmonious relationship between the company's various departments. MCPPE France opted for Dassault Systèmes' DELMIA Ortems Supply Chain Planning and Optimization solution to define a single interdepartmental planning repository to improve visibility and management of its global facilities.



"With DELMIA, we estimate a planner's time savings to be around 25%, from two to three hours a day thanks to a reliable planning and better visibility."

— Christophe Delafosse, IT manager, MCPPE France

DELMIA: A COLLABORATIVE SOLUTION BASED ON A SINGLE REPOSITORY

Processes are modeled and capitalized in the system along with planners' expertise, ensuring the continuity of MCPP's operations even when unexpected situations arise and the expert planners are not available. "When planners deliver by the end of the week the schedule for the weekend's production activities and on Saturday there is an issue with delivery of a certain material or a machine breaking down, we need to retune the planning," Frédéric Gaborieau said. "Since processes are capitalized in the system and thanks to DELMIA's intuitive interface, we don't need to call our expert planners in from their weekend to reschedule. The workshop manager can step in and use the system in a matter of minutes and can even perform the necessary simulations before actually reorganizing production. Since the system is linked with SAP, production can continue and everyone can go home less stressed. DELMIA helps us easily resolve many difficult situations," he said.

Moreover, efficiency and responsiveness are increased within the various purchasing, supply, production, logistics, IT and sales teams. "We now save 50% of our time, which was previously spent on the phone between trade and supplies," Frédéric Gaborieau said. With DELMIA, the workshop manager can now anticipate his workload and his material and staff needs. This is all the more crucial as it takes at least three weeks to train an operator. From now on, alerts concerning shortages can be used to optimize orders in advance. A real breakthrough has been made within the company in a matter of weeks since DELMIA was implemented.

"It's much easier to plan, it's visual and the solution interfaces well with SAP, which saves us a lot of time," Frédéric Gaborieau said.

In effect, we can now manage 150 sheets per TPE machine, impact management is under control and we can more efficiently group our orders together. DELMIA helps us make better decisions," Frédéric Gaborieau said.

Substantial Productivity Gains

Time savings were significant and immediate. DELMIA optimally schedules orders to reduce machine cleaning times between two productions. In addition, the solution, by reorganizing MCPP production, makes it possible to limit the number of changes and optimize preparation, cleaning and mass production times. The interface with SAP enables the company to anticipate raw material shortages. Moreover, it is now possible to take into account orders for the next six months.

"We estimate our time savings to be around 25%," Christophe Delafosse said, "because each planner can save two to three hours a day and can consider evolving toward other missions in the short and medium term. We have a reliable planning for each of our two activities - TPE and PVC - and this, with better visibility."

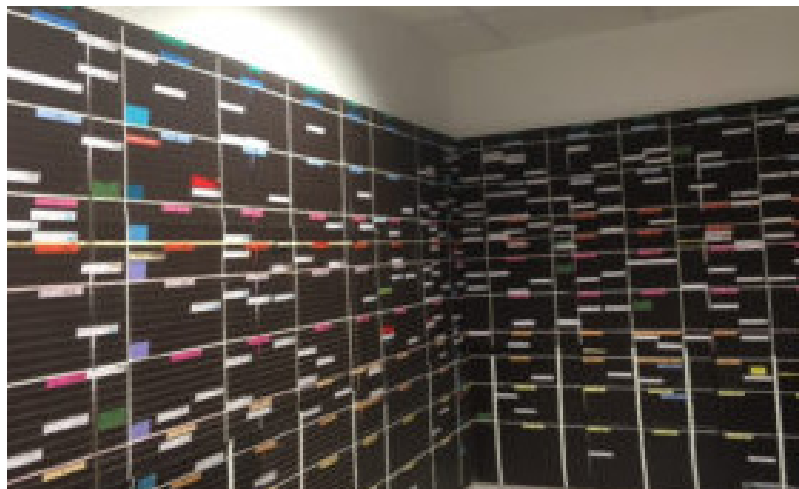


Image 1: Before implementing DELMIA Ortems digital planning : Two wall planning boards were required to manage MCPP's two parallel business activities.

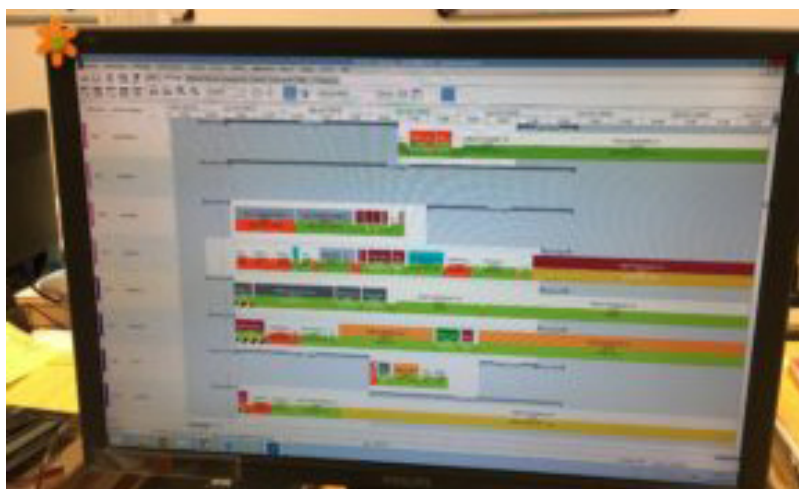


Image 2: After implementing DELMIA Ortems digital planning : improved collaboration between all stakeholders thanks to better visibility of the planning.

Improved collaboration between all stakeholders thanks to better visibility of the planning also enhances productivity and reliability in terms of meeting delivery dates. This is because decisions are based on common, shared and up-to-date information. [Image 2]

Even the Sales Administration department, which manages its working methods differently, assimilated the changes brought about by the new solution. The sales department now enters the delivery time given to the customer as soon as the order is placed, which positively impacts the way sales teams manage their time.

Improve Cash Flow

Extending the solution to MCPP's Polish facilities would drive productivity up even further.

"Implementing DELMIA in our factory in Poland would allow us to have a global planning solution since we manufacture the same products as in France," Christophe Delafosse said. "Moreover, we soon plan to use this tool to measure the impact of the way the plant is managed. Thanks to this solution, we could even reduce our inventories and, thus, better manage our cash flow."

A Fast ROI in Less Than 10 Months

The implementation of the DELMIA Supply Chain Planning and Optimization solution was a real success due to the strong involvement of the MCPP and DELMIA Ortems teams. "We worked hand-in-hand with real solution experts," Christophe Delafosse said. "The solution was deployed and operational in less than 10 months."

"Overall, the specification and optimization phases went well "to such an extent that only two days after the launch, we decided to remove the wall panel even though we initially planned to keep it as a back-up solution for one month," Frédéric Gaborieau said.

The project continues to move forward thanks to a very efficient team of third party maintenance experts, who always provide pertinent answers and regularly present us with new opportunities for improvement," Christophe Delafosse concluded.

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NYRSTAR



Solving a Metals and Mining Puzzle in 7 Countries

Nyrstar is a global multi-metals business, with a market leading position in zinc and lead. It has growing positions in other base and precious metals, which are essential resources that fuel rapid urbanization and industrialization, and its mining and smelting operations are located in Europe, North America and Australia.

THE CHALLENGE

Nyrstar, which previously concentrated its operations in Europe, began to experience a steep increase in operational complexity when it acquired mines in North and South America – and hence a large change in feed mix. The different production sites owned by Nyrstar have different characteristics, which make some sites better at, or even uniquely capable of, extracting certain metals from the input materials. Across these production sites, the unique complexities of each location involved many feedback loops and multi-period time optimization requirements to run efficiently.

Then, one of Nyrstar's major suppliers in Australia was about to be depleted. Instead of getting its raw materials from one supplier, it now had to contend with sourcing materials from many smaller mines. This already complex operation was further exacerbated by the vastly different time zones Nyrstar's operations are located in, which spanned from Australia to the western coast of Canada. These complexities presented a serious computational challenge.

Furthermore, its key metal, zinc, underwent volatile price swings that made planning an uncertain endeavor. This situation added more demands to the already variable nature of the business.

All of these challenges were handled by a spreadsheet system coupled with an optimizer model, but it proved too much to bear for the system.

First, the spreadsheet system was good enough when Nyrstar was still mostly supplied from a single big mine. However, when that mine was depleted and supplies were being delivered from many smaller mines, the puzzle size increased drastically and surpassed the capabilities of the system.

Second, the system could only handle single-period optimization, where the consumption for one full year was optimized and then disaggregated evenly over twelve months.

As aforementioned, the business of Nyrstar is variable by nature, and thus a single-period plan was insufficient for the company. Over time, different production mixes which should have been run were not, and the system could not capture this. As a result, there were many deviations in the plan that created a loss in value to the tune of millions of Euro annually.

Third, there was a lack of visibility of information across different planning teams as the many spreadsheets in the system did not contain accurate and up-to-date information.

THE CHOICE

Nyrstar needed a better solution than a spreadsheet system. It needed a solution that was very agile, efficient and, in this particular case, had to fulfil a payback period of three months. Nyrstar's search for an answer saw it shortlist of potential vendors across the globe. It kept a stringent list of requirements for things that needed urgent attention:

- Vast improvements to computing power were needed to run various scenarios quickly, especially in case of sudden supply disruptions, and this was something that exceeded their present capabilities.
- Nyrstar needed a solution that would be able to accommodate the SAP integration. An integration with SAP was critical to maintain a consistent, single authoritative source of information that would be used throughout its operations as well as be included the value-in-use decisions in the future. It would also improve treasury's forecasting ability for inbound materials.
- Nyrstar needed proven technology, which was critical to avoid lengthy learning periods. The business case focused at first on early avoiding incorrect allocations and unnecessary spot purchases that were traced back to the use of spreadsheets instead of a more robust system.

In the end, DELMIA Quintiq edged out the competition as other solutions were not proven technology or were too complex. Instead, DELMIA Quintiq provided the ability to handle complex calculations quickly, was proven technology in various industries the world over, and was cost-effective for the task at hand.

The task at hand was elaborate, as it involved the buying of raw materials at the mines, selecting the best input mix at all production facilities and deciding where to further treat intermediate products or to sell them. It also had to take into consideration the complex feedback loops and multi-period time optimizations involving different production sites.

DELMIA Quintiq presented itself as the top choice for Nyrstar as it had proven technology and the experience providing solutions to industries that operate internationally. Moreover, DELMIA Quintiq was able to solve Nyrstar's enterprise resource planning (ERP) deficiencies by immediately and seamlessly integrating its solution with Nyrstar's choice ERP, SAP.



THE IMPLEMENTATION

The DELMIA Quintiq implementation team recognized the problems it had to solve and decided early on to split implementation of the overall solution into two phases.

Both phases were aimed at maximizing margins by optimizing the availability and cost price of input materials, production site constraints, costs of transportation and the value of the output products with the ability to take estimates of the fluctuating metal prices into account.

The Phase 1 model is used by Nyrstar to plan the actual movement of material, either between multiple mines who supply Nyrstar and the many production sites, or internal flows between these production sites.

The Phase 2 model saw the rolling out of a consumption plan that defines the inputs required at the different production sites. The blending optimizer finds the best mix of input materials for each production site, including the decision on quantity of raw material to purchase, and where to further treat it.

The first site to start using DELMIA Quintiq was the Nyrstar Headquarters in Zürich, Switzerland, where high-level planning decisions that affect the purchasing and material divisions of the company's various production sites throughout the world.

Nyrstar is currently in the process of rolling out the DELMIA Quintiq application to the other production sites, where the system will also be used to plan day-to-day operations. It will then be used in Europe (three sites), the United States (one site) and Australia (two sites).



THE RESULTS

The availability and visibility of planning data was a main concern, which was addressed by the DELMIA Quintiq implementation. DELMIA Quintiq provided a faster and more accurate optimization due to the multi-period optimization, and taking a greater level of detail into account.

Planning discussions are now much easier, since all planners have access to the same input data. As a result, errors had completely disappeared overnight; what was once the daunting prospect of losing millions of Euros annually due to errors was now no longer a concern.

Integration with the SAP system brought certainty and transparency to the company's operations. Developments and issues along the supply chain could now be picked up and dealt with instantly. What's more, the sharp increase in computing power afforded by the DELMIA Quintiq solution greatly sped up scenario projections on disruptions; where it once took two days to compute such scenarios, it now only took a couple of hours.

Nyrstar was also able to realize various soft benefits from the implementation. Transparency was added to the flow of high-quality, accurate and fast data and it brought alignment between the commercial and operations teams in Nyrstar.

Less time was spent on requesting for more and better data, and the ability of poor data to disrupt the trust and confidence of teams to work together simply disappeared.

In fact, where planners once spent 30 percent of the time planning and 70 percent of the time gathering data, they could now spend 80 percent of the time planning and 20 percent of the time gathering data.

Nyrstar's treasury management was positively impacted by the implementation and it was able to reap several working capital benefits as a result. The data provided by DELMIA Quintiq's solutions gave it better control of variable costs as well as its inbound supply chains. Not only was there more data, the quality was also higher, giving the company the ability to well-manage inbound supply chains towards profitability. Also, where once treasury could only forecast its cash flow for the next five to six days, it could now extend that to over six months.

In all, DELMIA Quintiq became a large enabler of Nyrstar's supply chain improvements. It has also gained the confidence to pursue strategic plans in the future.

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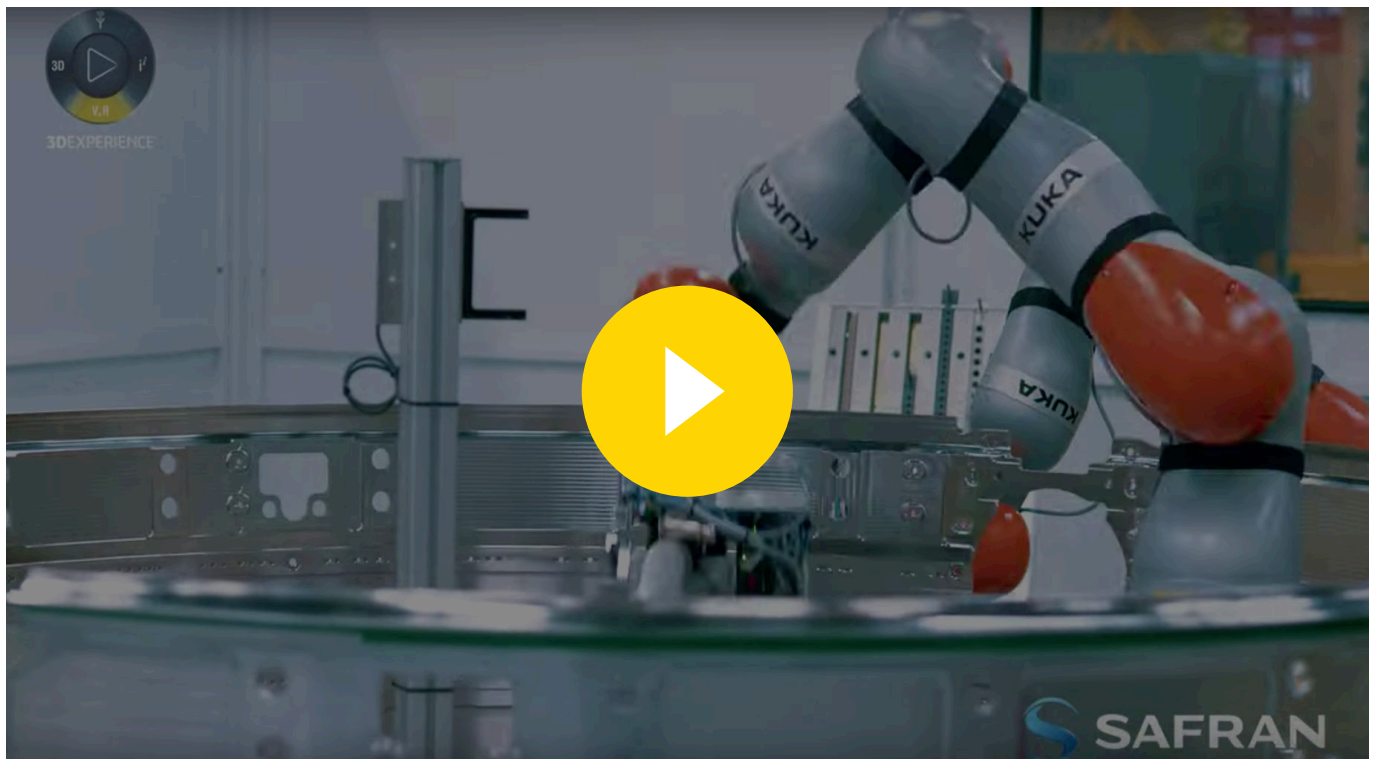
Employees: 4,100

Revenue: €3.53 billion (2017)

Headquarters: Zürich, Switzerland

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SAFRAN AIRCRAFT ENGINES



Learn from the experience of Safran Aircraft Engines. They implemented DELMIA Digital Manufacturing and DELMIA Apriso solutions across their manufacturing plants around the world. In fact, Safran had a two-fold challenge and selected DELMIA to help solve these challenges. Safran can now accelerate development to shorten their cycles and can also increase traceability with the digitization program. Discover more in the video "Driving Global Manufacturing Excellence - Safran Aircraft Engines."

WATCH THIS VIDEO TO DISCOVER MORE

SPEED GROUP



“In the past we were manufacturers that did not know how to sell a half pallet [...] We needed to transition to a model that would allow us to manufacture products specifically tailored for a particular customer in the desired quantity [...] ready to be delivered to the store shelf.”

— Jean Kasapyan, industrial director, Speed Group

Challenge:

To satisfy changing customer buying habits and deal with increased competition, Speed Group, leading extruded synthetic monofilament manufacturer, needed to improve flexibility and production efficiency by adapting its business model to fulfill smaller, more frequent orders from its customers.

Solution:

The company uses Dassault Systèmes' DELMIA Ortems solutions to help optimize its production and balance resources as a function of incoming customer demands.

Benefits:

Through better production planning, Speed has increased productivity allowing it to commit to delivery dates with confidence while reducing stock, waste and costs.

INNOVATIVE AGRICULTURAL APPLICATIONS

French-based Speed Group, global manufacturer of extruded synthetic monofilaments, produces and markets monofilaments primarily aimed at agricultural applications such as trellising, vineyards, or fencing. "We transform polyamide granules and other plastic raw materials into monofilaments through extrusion," Jean Kasapyan, industrial director, Speed Group said. "We master the entire integrated process from purchasing the raw materials to shipping the finished product to the customer. We even design and build the extrusion equipment used here in France and in our production facilities in the US, Chili, Morocco and South Africa. We sell to OEMs, to wholesalers or professionals in the landscaping business, and to retailers that sell to private consumers (B to C)."

Whereas wholesalers were for years a major revenue source for Speed, changes in customer buying habits and increased competition have modified the way Speed does business. In effect, these wholesalers no longer commit to ordering huge quantities and running up their inventory; they prefer ordering only what they can sell right away. Thus, Speed realized it could fulfill smaller and more frequent orders itself if it reengineered its business model by taking on the entire process from sales, production, packaging, and labeling all the way to picking and shipping. This just-in-time model proved to be more economically advantageous. "In the past we were manufacturers that did not know how to sell a half pallet; we were organized to produce in tons and let our customers deal with selling to their end-clients. We needed to transition to a model that would allow us to manufacture products specifically tailored for a particular customer in the desired quantity, with their brand logo and packaging, ready to be delivered to the store shelf" Kasapyan said.

Fine-tuning production with precise forecasting

Organizing production in a climate-sensitive business environment is another one of Speed's major challenges. "Grass only grows six months out of the year," Kasapyan said. "If we wait to launch production of a wire brush cutter when we receive an order, which is most probably in February, we would basically have six months to produce all our customers' annual needs, which is impossible except if we buy equipment to do the job that then remains idle for the rest of the year. It's not a viable solution. We found that by more closely working with our sales force and increasing the accuracy of our forecasts, it would help us fine-tune and optimize production by grouping orders from different regions for like-colored or same-shape monofilaments," he said.

Kasapyan illustrated his point with some numbers. "We have 2,800 product references for approximately 100 clients. This means we handle 400 references each day and, for example, produce 8,500,000 items each year in France, which are then shipped all over Europe. In total, we have 23 extrusion machines around the world each producing 350 Kg of monofilaments. This represents less than one day of production per machine, which is a considerable amount of manufacturing orders processed in one day, and which can lead to bottlenecks," Kasapyan said.

"With these quantities, there was room for improvement by, for example, grouping manufacturing orders and having them processed by a machine that is not occupied 100%. We, therefore, chose Dassault Systèmes' DELMIA Ortems Production Scheduler in 2013 to manage our extrusion process, which is considered the Achilles heel of our entire operation. All our downstream operations like packaging and labeling depend on having a finished product ready to go. In only 8 days, Production Scheduler was up and running, primarily because there was literally no customization, unlike other competitive solutions we looked at. We use it out of the box and not once have we regretted our decision. Only certain interfaces between DELMIA and our ERP solution were developed by our team with Dassault Systèmes' help. Thanks



"DELMIA has helped us reduce our stock by 27%, increase our productivity by 18% and reduce waste by 35%."

— Jean Kasapyan, industrial director, Speed Group

to DELMIA Ortems, we better anticipate and plan production, which has lowered our costs because we have less waste and reduced stock,” he said.

For years we had a dedicated full-time resource to manually manage our production relying only on her expertise and spread sheets to do the job. Unfortunately, this person has since left so we modeled our set-up times, profile and material matrices in DELMIA Ortems, allowing us to use this technology to optimally manage the extrusion process in our French installation.

In effect, waste was a major issue for Speed. “In the past when we extruded a red monofilament and right after produced a yellow one, the result in between was neither red nor yellow. So the intermediate fibers had to be thrown away.

Thanks to DELMIA, we reduced our stock and waste by 27% and 35% respectively.

“In the six years since we implemented the DELMIA solution, we were able to transfer two of our large capacity production lines from France to our new factories in the US and Chili while still ending up improving our productivity at our French installation by 20%. All this was possible simply by grouping our orders and optimizing our production flows,” Kasapyan said.

INTELLIGENT RESOURCE MANAGEMENT

Now that the company optimized its main extrusion line, the question that remained was how to commit to a customer delivery date with confidence? How to make sure there are sufficient resources available to satisfy peaks in customer orders? “Today, we regularly have 2,500 order lines in production with 1 order line per end-product, and to verify that we are able to deliver when we say so, we cannot turn to our ERP solution because it’s not able to provide us with our plants’ workloads,” Kasapyan said.

“So we implemented Manufacturing Planner from DELMIA to organize our production as a function of our customers’ orders and desired delivery dates, in other words what, when and where we can produce the product. The entire integrated process is managed with DELMIA Ortems Manufacturing Planner, which provides us with dashboards that help us make decisions on how we should attribute resources in order to meet delivery commitments. The solution is for now only used in our French plant but without it, I would have to dedicate a full-time resource to manage this activity, a resource that can be put to better use elsewhere,” Kasapyan said.

For the time being, DELMIA has enabled Speed to centralize production information in its French installation and to make measureable productivity gains. “We have entered 80% of our know-how into the system and obtained a 18% gain in productivity,” Kasapyan said.



Bottom image: Polyamide granules and plastic raw materials are transformed into monofilaments through extrusion machines.

"The most important lesson we've learned during these past six years is the importance of not underestimating the change brought on by a project of this nature. Those whose job it is to handle this activity are the first to be resistant to the change brought on by using a system such as DELMIA. This is why it is important to associate these experts every step of the way to help define the objectives, identify what needs to be analyzed, and to enter the right data with the right degree of granularity in the system so that the results are pertinent. In doing so, they see that even though this changes their way of working, that a system like this will free them from tedious tasks and help them gain time overall. It can only increase the odds of success," he said.

For the future, diversification is Speed's recipe for sustainability. For example, in an agricultural sector that has experienced repeated dry spells over the years, demand for brush cutters has waned, requiring Speed to come up with other uses for its plastic fibers.

"We've come up with new business opportunities in the sports industry," Kasapyan said.

"In effect, after three years of research and development, we have produced a new type of monofilament used in tennis rackets that have been adopted by world ATP-ranked champions."

Focus on Speed Group

Global manufacturer of extruded synthetic monofilaments.

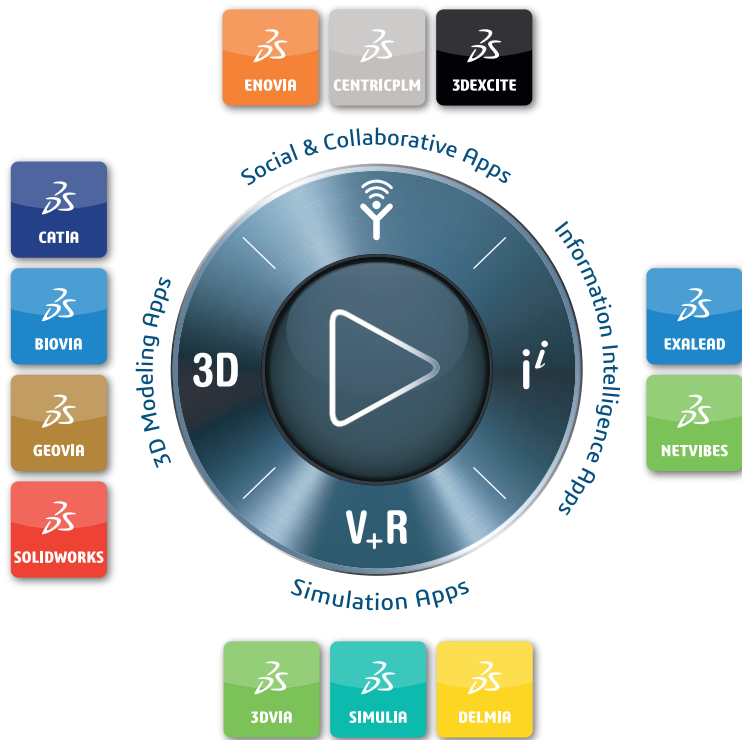
Products: Fibers designed for agricultural applications such as trellising, support lines for shade screens, vineyards, greenhouses or fencing

Employees: 96 employees (France), 60 (USA), 15 (Chili), 27 (Morocco), 15 (South Africa)

Headquarters: Arnas, France

For more information

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