

BUILD RESILIENT, SUSTAINABLE MANUFACTURING & OPERATIONS WITH SUPPLY CHAIN PLANNING & OPTIMIZATION



VISIBILITY AND AGILITY: THE FOUNDATION OF A RESILIENT, SUCCESSFUL BUSINESS

Customer expectations for better product experiences have created enormous pressure for manufacturers to design, build, deliver and support products at a level not previously considered or accomplished. In this “Age of Experience,” change and disruption require a level of visibility and agility in operations to succeed and even survive. Disparate and old approaches to supply chain planning are no longer sustainable and severely impact a company’s market competitiveness.

DELMIA has a proven track record in assisting companies with business transformation and innovations that improve responsiveness to market and performance, optimize resources and deliver a higher level of customer service. DELMIA has over 20 years of experience across industry sectors in providing transformative supply chain planning and optimization solutions for global operations at scale and speed.

Today’s challenge will not be tomorrow’s challenge, next year’s disruption will not be last year’s disruption. DELMIA provides reality-based planning and scheduling using the right combination of **Artificial Intelligence (AI)** and **world-class optimization technologies** to enable you to find the optimal business-based solutions faster.

“ DELMIA Quintiq’s streamlined approach to scheduling gives us full visibility of our present situation, enabling us to better anticipate demand, lead time and potential bottlenecks. This allows us to be more resilient against unforeseen disruptions. Increased assurance of on-time in-full deliveries also enables us to maintain the trust and satisfaction of our customers.”

Dobra Gheorghe,
General Director, Alro





TODAY'S SUPPLY CHAIN PLANNING CHALLENGES DEMAND A NEW APPROACH

Each industry and company have their own unique challenges. However, manufacturers and service providers in all sectors now face a growing list of common issues that are reverberating from operations to corporate headquarters. The enterprises that can best overcome these hurdles will be the winners in the coming years, but inadequate supply chain solutions stand in the way. Today, companies face a broad set of challenges that must be addressed in their supply chain planning, consisting of:

- 01 A lack of visibility across the end-to-end value network
- 02 Extended supply chains impacted by global disruptions
- 03 A lack of agility to adapt supply chains to changing demands and innovations
- 04 Competing business goals and constraints (sustainability, profitability, resources, material)
- 05 Supply chain plans disconnected from real-world operations
- 06 Increasing complexity in supply chains and value networks, making manual planning more complex
- 07 The use of manual processes and legacy planning tools, inhibiting flexibility and efficient planning as well as the rapid and continuous development of optimal plans
- 08 A lack of collaboration between internal disciplines and across the value network

“ Our ability to react has significantly improved through the implementation of this collaborative scheduling solution—our people can work much more effectively.”

Gerd Refflinghaus,
Manager Production, Aleris

DELMIA offers a robust supply chain solution that can help companies to not only overcome these challenges, but to operate with greater agility, efficiency and operational excellence. DELMIA provides reality-based planning, scheduling and optimization for complex business processes within supply chain, logistics and workforce operations, across all future planning horizons:



Enabling sustainable business operations by optimizing critical resources, people and energy



Building resilient supply chains by empowering companies to confidently plan for the future and react instantly to disruptions



Achieving business-based outcomes by optimizing financial and corporate goals

DELMIA delivers a holistic approach to intelligent and resilient supply chain planning by helping you:

- Accurately model your business, including capacities, constraints, preferences and goals.
- Consistently align decision-making with stated business goals.
- Reflect and adapt to the current (and changing) state of the business based on real-time feedback.
- Arrive at superior plan results human planners are unable to achieve, thanks to world-class optimization.
- Gain flexibility, allowing planners to modify plan results based on soft knowledge and unexpected events.
- Bring unique sustainable experiences to market that are “change ready.”
- Foster transparency, visibility and collaboration across the value network.



THE FUTURE OF MANUFACTURING & OPERATIONS IS VIRTUAL

To meet today's challenges, manufacturers need to leverage new technologies to bring together the virtual worlds of modeling and simulation with the real worlds of supply, production and fulfillment. Until recently, these two worlds were largely separate, unable to interact and communicate.

**CONNECT THE
VIRTUAL AND
REAL WORLDS
TO PLAN,
EXECUTE AND
OPTIMIZE**

DELMIA Virtual Twin Experience for Sustainable Supply Chain Resiliency

The **Virtual Twin Experience**—as part of the **3DEXPERIENCE** platform—addresses critical challenges faced in both the virtual and real worlds. It can both “model” the art of the possible and “perform” real-world manufacturing, connecting the two worlds in a closed-loop collaborative process with shared data and learning experiences while reducing the amount of waste and time spent on reworking physical assets.

The **3DEXPERIENCE** platform provides what the business market is increasingly seeking. Across the product lifecycle, from ideation and design through to manufacturing and in-service support, the **3DEXPERIENCE** platform provides a digital backbone that organizations can leverage to deliver the solutions needed at each stage.

Modeling in the Virtual Twin Experience allows innovation in **three key areas**:

- 1** The modeling of **physical facilities and resources**, such as manufacturing plants and production lines, machines and other physical objects to simulate capital investment strategies.
- 2** The modeling of the **products to be manufactured**; taking engineering models and developing manufacturing bills of materials and process plans to determine optimal build strategies.
- 3** The modeling of the **supply chain itself**—here, it is possible to simulate unlimited scenarios of supply, demand, capacity and all other aspects of the key components in the Virtual Twin Experience to optimize business goals.

These three types of modeling can interact beneficially. For example, simulating and validating a new production facility may mean we can now optimize the supply chain to better meet customer demands. A simulated change in product design could mean that more facilities can now manufacture products locally, requiring a change in delivery optimization.

In addition, the Virtual Twin Experience facilitates continuous improvement. As real-world information and experience impact your virtual model, the Virtual Twin Experience allows simulated plans to be flexibly modified based on real-time updates. For example, updates from manufacturing can be captured to inform the virtual twin, enabling you to continuously refine and optimize processes for a longer-term strategy.

The ability to develop accurate supply chain models and optimize against all other critical aspects of the Virtual Twin Experience enables a digital framework for better decision-making. It makes it possible to establish a **plan, optimize and execute** strategy that can be implemented with Dassault Systèmes' set of industry solutions to deliver sustainable operational excellence.

THE DELMIA ADVANTAGE FOR PLANNING & OPTIMIZATION

1. End-to-End Supply Chain Modeling

DELMIA Planning & Optimization provides optimized planning for operations execution across your entire value network. Taking a holistic but modular approach, DELMIA enables intelligent supply chain planning and optimization for every stage of your supply chain journey and time horizon—whether it is operational, tactical or strategic—to achieve sustainable operational efficiency across your manufacturing, workforce and logistics operations.

End-to-End Supply Chain Modeling delivers value by:

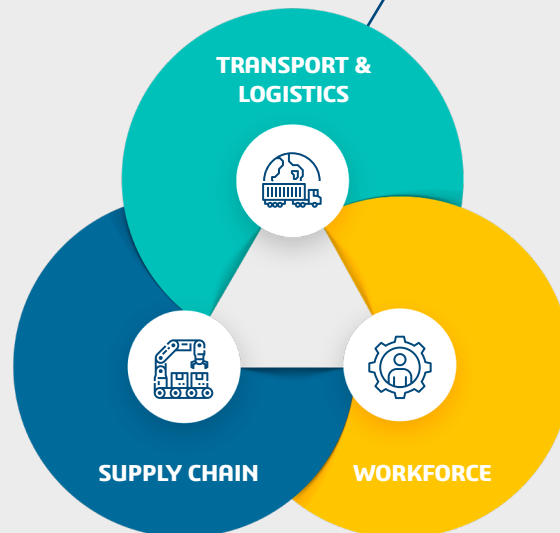
- Accurately modeling your business to drive better decision-making at all levels of strategy and tactics for manufacturing and the supply chain, transportation/logistics and the workforce
- Representing the largest global scope down to the smallest operational detail, if needed
- Including partners and other markets as well as in-network capabilities
- Leveraging real-world data to inform and update the virtual model

“To reach our goals for resource utilization, we decided to implement an integrated advanced planning solution which would optimally schedule both our rolling stock and crews in a single application. DELMIA Quintiq has solutions to all our demands.”

Björn Rosell, CIO, Green Cargo

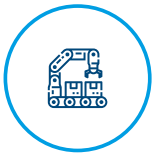
“We’ve found the right technology partner to help us plan and control our supply chain. DELMIA Quintiq provides us with integrated supply chain management, an approach that is demand-driven and optimized based on Jumbo’s business goals and constraints.”

**Karel de Jong,
Director, Supply Chain,
Jumbo Supermarkten**



“As a technology provider that has planned multinational workforces in other demanding service-oriented sectors, DELMIA Quintiq proved that its solution had the necessary capabilities to meet our requirements.”

**Poul Mortensen,
Executive Vice President,
COO, Falck**



Supply Chain

Model and optimize your entire supply chain network scenarios—from inbound supply to manufacturing to outbound delivery and transport. Gain control, insight, visibility and lasting resiliency across your entire value network.

Benefits

- Reflect real-world events and their potential business impact
- Increased visibility of global performance
- Increased accuracy of supply chain plans, driving improved customer service levels
- Informed strategic sourcing decisions for better buy/make tradeoffs
- Better strategic decision-making for new product development and market expansion
- Reduced waste and cost of supply chain operations to increase profitability



Logistics & Transportation

Optimize your logistics and transport network; gain full control over the fleet and align transport with manufacturing and customer demand and collaborate more closely with customers across the supply chain.

Benefits

- Improved delivery performance
- Improved capacity through the more efficient use of vehicles and drivers
- Seamless alignment of logistics and transportation across demand and the supply chain
- Improved utilization of assets by up to 80%–99%



Workforce

Improve staff utilization and employee productivity by striking the right balance between operational efficiency, demand, regulations and employee and customer satisfaction.

Benefits

- Increased employee productivity
- Optimize staff utilization
 - Improve employee satisfaction
 - Increase staff retention

Enhanced workforce planning accuracy

- Reduce staff planning time
- Improve planning cycle time
- Gain more oversight and confidence for improved decision-making



2. Business-Based Outcomes

Efficiency is more than throughput and can be quite complex. It's about being able to model and optimize the right mix in your operations and supply chain network to maximize efficiency based on different business metrics and ever-changing constraints. DELMIA solutions, leveraging the power of the **3DEXPERIENCE** platform, bring a holistic approach to help you optimize operations while considering corporate financial and sustainability objectives.

Stakeholders can collaborate to optimize against any business objective and using KPI-based planning to:

Rapidly analyze the potential impact of global events and disruptions

Increase the agility and speed of decision-making

Consistently align planning with stated business goals

3. World-Class Optimization and Analytics

Recognized as the leading company in optimization technology, DELMIA provides world record-breaking optimization to drive the best course of action in your operations on a continuous basis, which directly translates to increased efficiency, asset utilization and ROI. DELMIA offers a broad set of best-of-breed and proprietary optimization technologies and experience to optimize your world and provide the right level of automation.











Artificial Intelligence (AI) and Machine Learning (ML) can help unlock the next frontier of exponential impact to businesses. Given that 70% of supply chain transformations fail, Dassault Systèmes, with our suite of world-class optimization, can be your ideal partner in helping you to unlock the next wave of productivity improvements.

Conventional planning fails to account for external shocks or influences, such as oil trade wars, unpredictable transportation disruptions, labor shortages in the US workforce, financial recessions, natural calamities, and most notably the recent COVID-19 pandemic.

Using AI/ML, we can achieve resiliency through smarter, better calibrated decision-making to reflect these dynamic, evolving conditions. DELMIA's proprietary technology helps determine the mathematically optimal solution, considering all relevant constraints, business rules, regulations and preferences.

It is critical to match the right technology to business problems in the context of all relevant factors. Our decades of work with customers and understanding their operational goals has enabled us to master the "when" and "how" of applying the correct technologies to achieve their desired business outcomes.

Our distinctive performance is due to the right combination of people, process and technology, empowering our customers with these capabilities to achieve sustainable impact:

-  **Continuously optimize against multiple criteria simultaneously**
-  **Demand sensing**
-  **Iterative optimization using a combination of technologies to continuously seek improvement**
-  **Optimize against KPIs to balance business goals**
-  **Easy KPI comparison between scenarios**
-  **Execute what-if scenarios and analyze impact on KPIs**

“ The DELMIA Quintiq solution supports us in managing our complex supply chain process requirements. It empowers us by delivering full transparency regarding essential KPIs as well as material flows and inventory data. Optimized weekly schedules at each facility and interaction of company planning and scheduling strengthen an in-depth information flow. Thus, it supports us to immediately handle improvements or deteriorations in delivery performance to focus on our customer’s requirements.”

Tobias Neitzel,
Head of Process Management SCM,
Thyssenkrupp Steel Europe

DELMIA delivers accurate business-based outcomes and enables your planners to manage them at the scale of your business today and into the future. Insights can be gained from unlimited data sources supporting data integration from internal and external data. Data integration and management enable the use of channel data to translate market shifts without latency. With DELMIA, the harmonization and synchronization of data across functional silos enables a focus on business process alignment across functions, through horizontal processes like revenue management, sales and operations planning (S&OP), inventory management, new product introduction (NPI) and suppliers to drive better results and optimal supply chain planning performance.

Optimization Value

- ✓ **Balance and optimize financial objectives with operational and sustainability goals**
- ✓ **Reduce planning cycle times with effective collaboration**
- ✓ **Reduce lost sales and better serve high-margin demand**
- ✓ **Improve capacity utilization and productivity across the supply chain**
- ✓ **Gain global supply chain control and visibility**



THE VALUE OF END-TO-END SUPPLY CHAIN PLANNING & OPTIMIZATION WITH DELMIA

“DELMIA Quintiq is an enabler of excellent results. It allows you to measure many KPIs and drive improvements in the critical ones. DELMIA Quintiq has exceeded our expectations every step of the way.”

Buddy Stemple,
Vice President & General Manager, Novelis

DELMIA provides manufacturers visibility of global performance, predictive insight and control over their entire global operations and supply chain networks.

Most of the challenges faced by manufacturers and service providers stem from a common factor: a lack of visibility over what happens throughout their supply chains. End-to-end supply chain visibility through a single source of truth, combined with advanced optimization technology, gives manufacturers and service providers the insights they need to achieve synchronization across every part of their supply chain, helping them to better align their decision-making with their business KPIs.

Improved collaboration across the supply chain through a single integrated platform helps decision-makers better understand their supply, manufacturing and distribution networks and make the right business decisions for sustainable growth and future competitiveness.

UNLOCK END-TO-END SUPPLY CHAIN VISIBILITY AND PLANNING



One solution for end-to-end supply chain planning and optimization

DELMIA uniquely offers one end-to-end optimization platform for your entire value network of supply chain, workforce, transportation and logistics.



World-class decision support across all planning horizons

DELMIA provides support for every stage of your supply chain journey—whether strategic, operational or tactical.



Model and optimize scenarios based upon critical business goals

Leveraging DELMIA's world-class decision support, you can model and optimize for business-based outcomes across any scenario.



Collaborative platform

DELMIA can be accessed not only by internal stakeholders, but also by suppliers and customers, enabling better collaboration both internal and external.

Take your supply chain planning to the next frontier with DELMIA solutions for planning and optimization.

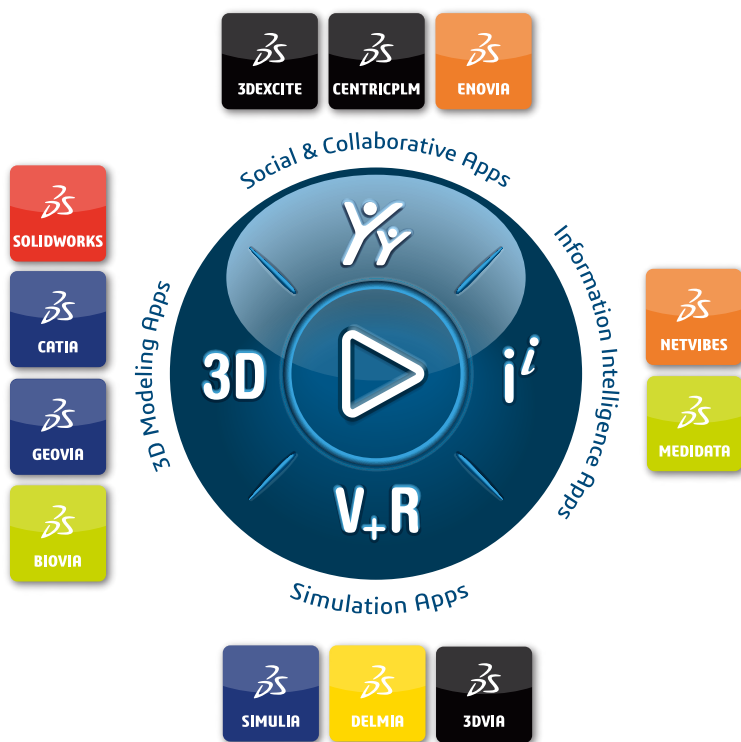


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Continue the conversation at DELMIA Communities:

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Our 3DEXPERIENCE® platform powers our brand applications, serving 11 industries, and provides a rich portfolio of industry solution experiences.

Dassault Systèmes, the 3DEXPERIENCE Company, is a catalyst for human progress. We provide business and people with collaborative virtual environments to imagine sustainable innovations. By creating 'virtual experience twins' of the real world with our 3DEXPERIENCE platform and applications, our customers push the boundaries of innovation, learning and production.

Dassault Systèmes' 20,000 employees are bringing value to more than 270,000 customers of all sizes, in all industries, in more than 140 countries. For more information, visit www.3ds.com.

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