

**GLOBAL OPERATIONS
DELIVERING DIGITAL CONTINUITY
ACROSS THE VIRTUAL AND
REAL WORLDS OF OPERATIONS**

A NOTE FROM GUILLAUME VENDROUX

DELMIA CEO



Today is a golden age for innovation. Unprecedented opportunities now exist to design, build and deliver exceptional products and services that can change our lives to promote well-being across the globe.

DELMIA is committed to helping companies transform their business to better design, build, deliver and support products and services as remarkable experiences. The first step is to digitalize the operational process – from design to build to support to service. With this vision, companies can better see, control and synchronize their operations as a global, best-in-class solution.

We can help companies operating in nearly every industry to transform their operations to deliver the right product and the right service to the right audience at the right time for the best price.

Our experienced team of industry experts is dedicated to making customers successful in a world of new possibilities.

A handwritten signature in black ink that reads "Vendroux". The signature is fluid and cursive, written in a professional style.

Guillaume VENDROUX
DELMIA CEO



DELMIA: ORCHESTRATING VALUE NETWORK OPERATIONS

DELMIA solutions optimize operations for the entire value network, including all industrial and service stakeholders.



Serving value networks demands a solution based on experience, delivered and supported to help companies compete globally.

Dassault Systèmes DELMIA® has long served in a wide variety of discrete, process and hybrid industries. DELMIA customers include many leading enterprises in the world representing industries of both goods and services.

The applications we learn from one industry can be applied to others, continually helping our customers improve operations and achieving global consistency and excellence. For example, lean production began in the automotive industry. Over the years, we have helped other industries with these concepts, including consumer goods customers, in their move toward lean best practices.

Adding DELMIA Quintiq to the portfolio, we provide customers with real-time insights into their operations enabling them to make better decisions, unlock new possibilities and deliver a better customer experience.

Industries we serve

- **Transportation & Mobility**
- **Aerospace & Defense**
- **Marine & Offshore**
- **Industrial Equipment**
- **High Tech**
- **Home & Lifestyle**
- **Consumer Packaged Goods - Retail**
- **Life Sciences**
- **Energy & Materials**
- **Construction, Cities & Territories**
- **Business Services**

TODAY'S OPERATIONS CHALLENGES

Each company has its own unique challenges. In the Age of Experience, however, all sectors now face a growing list of common issues that are reverberating throughout their entire value network. Those that can best meet these hurdles will be the winners in the coming years. Dassault Systèmes offers a robust set of solutions that can help industries and services to not only overcome these challenges, but to operate with greater agility, innovation and operational excellence. Leverage these solutions to address the following capabilities:

Capture knowledge and collaboratively implement transformation – A platform for all needs, from strategic to tactical collaboration. Apps that enable seamless digital interactions, structure and retain corporate knowledge, and enable the workforce with intuitive apps.

Right first time and available to promise – Create a virtual model that is operational to see the art of the possible. Validate plans virtually and in real time – value networks, factory layouts, transportation plans, process plans, logistics plans and workforce plans to ensure the real world accuracy without the time and cost.

KPI-based planning for all value network activities – Record-breaking optimization processing speed to solve diverse and different problems. Real-time analytics for efficient decision-making and dynamic, continuous rescheduling of any activity. Artificial intelligence-driven analytics for root cause analysis and corrective action.

Standardized, lean, repeatable performance in every activity and task – Visibility, orchestration and performance across operations for execution in factories, warehouses, logistics hubs, service centers, retail and public services with business process-driven best practices.

Increase responsiveness – Since the Industrial Revolution, manufacturing has been one of the most stable sectors. Processes that used to last for years now quickly become obsolete. Consumer demand can change overnight, new technologies are disruptive in a heartbeat and processes once cast in stone must now be flexible and easy to change. Agility, whether local or global, is now crucial.

Drive operational excellence – Competition and consumer demand put relentless pressure on operational performance. By now, most global manufacturers have addressed the “easy” fixes, such as lean production. But continuous improvement means never-ending change. Manufacturers need more than a commitment to continuous improvement; they need resources and technology to achieve it.



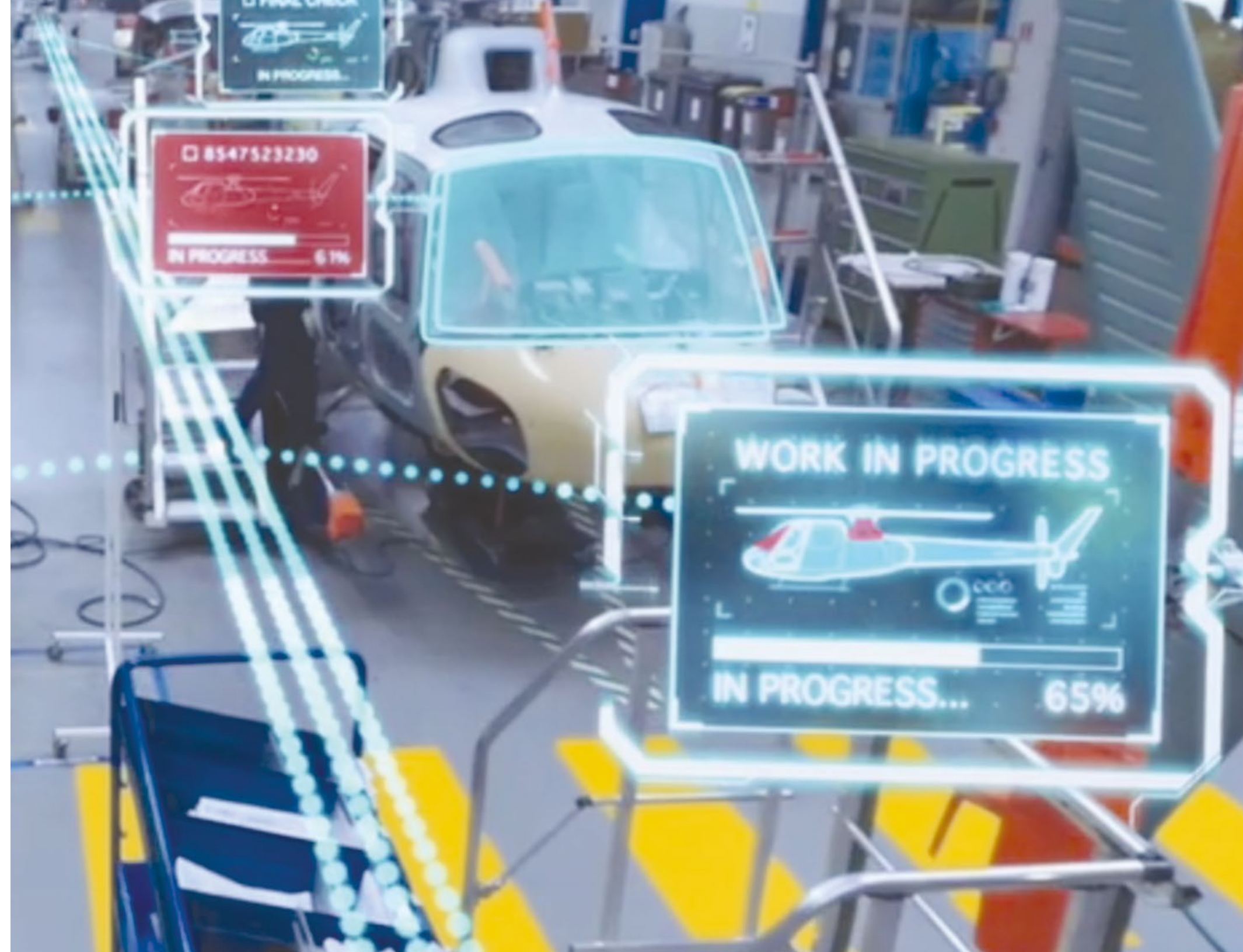
GLOBAL OPERATIONS

CONNECT THE VIRTUAL AND REAL WORLDS OF VALUE NETWORKS TO COLLABORATE, MODEL, OPTIMIZE AND PERFORM

In the Age of Experience, customer expectations create enormous pressure for industry and service providers to design, build, support, transport, schedule and distribute at a level not previously considered. Now is the time to leverage new technologies to bring together the virtual world of modeling and simulation with the real world of operations – from factories to logistics to the workforce. DELMIA offers a way to transform operations with a digital framework that can connect these worlds, and establish a holistic strategy.

- **Collaborate** – Collaboration is at the heart of value network operations. All stakeholders work together and share a common understanding. Technology enables that collaboration by bringing the right information to the appropriate individuals when it is needed and by providing the tools to help them make the right decisions, quickly. Collaboration delivers situational awareness that speeds up decision-making and captures knowledge that contributes to progress on the road to digital transformation.
- **Model** – Value network operations is built on the idea that modeling processes and activities across the supply chain provides a level of insight and intelligence that cannot be achieved in any other way. The digital model acts as a surrogate that can be manipulated and tested such that decision-makers can actually predict what is most likely to happen and pre-experience the result of any contemplated management actions – with absolutely no risk in the real world.

- **Optimize** – Artificial intelligence is a combination of data, analytics and optimization. Information can be extracted, interpreted and turned into knowledge – which is then used to support decision-making. There is an infinite number of possible solutions in any scenario. Optimization technology rapidly calculates and recommends the one that best meets KPIs and keeps the value network running at peak performance. In addition, robust continuous optimization means that plans are re-optimized as newly ‘learned’ data comes in. Real-time analytics enable efficient decision-making, root cause analysis, and dynamic, continuous monitoring and control of operations. The result is increased customer satisfaction, better on-time delivery and reduced waste.
- **Perform** – Manufacturers, logistics operators, service providers, support operations, civil service providers and other value chain participants carry out the plans and adjustments that were developed through modeling and simulation. As each stakeholder performs their task or activity, real-time data feeds back into the model to allow the system to detect any variance or unfavorable developing trend for early warning. The variances may translate to adjustments, corrections or a new set of priorities that may be required. Visibility, orchestration and performance across all operations greatly improve operational efficiency, reduce cost and cost of quality, tightly control inventory, increase on-time delivery performance and improve the customer experience.



DASSAULT SYSTÈMES

3DEXPERIENCE® SOLUTIONS FOR ENTERPRISES

The vision of what global operations should be keeps evolving. Today, leading companies want a coordinated, synchronized landscape they can manage globally to meet fluid, dynamic marketplaces.

As a DELMIA customer, you have access to the family of Dassault Systèmes' brands with capabilities and resources to meet your unique, multifaceted needs for complex scientific innovation, simulation, design, product planning, manufacturing, services or operating activities. With access to CATIA®, SOLIDWORKS®, ENOVIA®, SIMULIA®, EXALEAD® and BIOVIA®, you will be able to close the gap between design and production, optimize products and processes, and address challenges across a spectrum of operations.



CATIA is the world's leading solution for product design and experience, used by leading organizations in multiple industries to develop the products we see and use in our everyday lives. CATIA delivers the ability to model any product, and do so in the context of its real-life behavior. CATIA helps manufacturers drive engineering excellence by enabling any type of 3D design for practically all mechanical engineering processes, helping to accelerate innovation from 3D sketching to 3D printing. CATIA enables and supports cross-disciplinary systems engineering development from systems definition to modeling, simulation, verification and business process management. These capabilities can then be applied to production plans to help accelerate new product introduction.



SOLIDWORKS offers extensive 3D software tools to create, simulate, publish and manage your data. SOLIDWORKS products are easy to learn and use, and work together to help you design better, faster and more cost-effectively. The SOLIDWORKS focus on ease-of-use allows engineers, designers and other technology professionals to take advantage of 3D to bring their designs to life. Designers and engineers can focus on their designs, solve complex problems, streamline parallel design processes and fast-track designs through manufacturing.



ENOVIA offers collaboration software that drives innovation across manufacturing disciplines, including Product Planning and Program Management, Global Product Development, Quality and Compliance, and IP Classification and Protection. ENOVIA enables your innovators to benefit from collaboration. Easy to acquire, quick to learn and effortless to master, ENOVIA is reliable and robust enough to manage even the most sensitive and mission-critical data.



SIMULIA delivers a scalable portfolio of realistic simulation solutions to explore real-world behavior of products, evaluating performance, reliability and safety of materials and products early in the design cycle. SIMULIA can help manufacturers better simulate, model and manage new product and process designs, helping to improve design and collaboration; create, assemble, mesh, model, complete and learn about simulation models and their results; and improve product design and foster collaboration with specialists. Design optimization helps improve the quality, efficiency, performance, weight and cost of product designs early in the development process, saving valuable time, resources and effort to bring new products to market faster.



EXALEAD enables organizations to gather, align and enrich Big Data — whether internal or external, structured or unstructured, simple or complex — and deliver that information the way users want to receive it. EXALEAD solutions transform large volumes of heterogeneous, multi-source data into meaningful, real-time information intelligence to help users improve business processes and gain competitive advantage.



BIOVIA develops and delivers informatics and technology solutions for scientific innovation in materials and processes, playing a key role in bringing new products to market. BIOVIA solutions help manufacturers model, simulate, manage and better understand how their products can interact in harmony with nature and life. BIOVIA serves a range of industries, including pharmaceutical and biotechnology; chemical; consumer packaged goods; food and beverage; energy, semiconductor and electronics; transportation including automobile and aerospace; and academic and government.



TYING IT ALL TOGETHER WITH DIGITAL CONTINUITY

Digitalization is not only transforming manufacturing, services and logistics; it holds the key to managing and leveraging that transformation. Best-in-class operations recognize the value of the **3DEXPERIENCE®** platform from Dassault Systèmes to create digital continuity from ideation to the final customer experience.

DELMIA solutions are at the center of this transformation. By providing customers with a common platform and central data repository, they have a digital Single Source of Truth (SSOT) to holistically manage value network activities and connect the virtual and real worlds of operations.

Companies can track every detail across global operations on every product, process and service to help drive continuous improvement, decision support and customer satisfaction.

Digital continuity can help you achieve new levels of collaboration, operational excellence and agility. Our customers are ushering in a new approach to operations.

Digitalization is the future of operations. DELMIA is empowering customers to build that future today.



COLLABORATE OPERATIONAL PROCESSES

Collaborative operations enables a common understanding for all stakeholders. This solution provides a holistic, model-based and data-driven digital backbone that breaks down the silos between diverse functional users from engineering, manufacturing, operations and service providers. It delivers a common, up-to-date view of the enterprise that facilitates problem-solving and enables efficient root cause analysis. By digitally connecting these users, customers can have visibility into, control over and synchronization across their enterprise and value network. Integration between all planning levels is essential for understanding and managing bottlenecks. Successful companies schedule what they plan and execute what they schedule.

DELMIA collaborative operations include:

- **3DLean** – Bring lean practices to the shop floor by providing a digitalized solution that empowers managers and teams to communicate, organize and solve problems more effectively.
- **Platform for worker empowerment** – Capture knowledge and know-how.
- **Real-time information and dashboarding** – Collaborate to make and implement the right decision at the right time with visibility across all planning horizons.
- **Collaborative real-time planning and re-scheduling** – Develop accurate plans and schedules that are validated by multiple stakeholders across the organization.

MODEL OPERATIONS TO UNDERSTAND THE ART OF POSSIBLE

Operational excellence begins with modeling. Today, modeling is best done in the digital realm. DELMIA creates digital models that simulate and validate plans virtually for value networks, factory layouts, transportation plans, process plans, logistic plans and workforce plans. Customers can adjust plans to quickly respond to the competition, take advantage of the next market opportunity, improve new product introduction or to respond to last-minute disruptions with minimal impact to the business.

Improve and validate your plans virtually and mitigate risk with a single 3D data model across operations spanning engineering, manufacturing, logistics and service.

DELMIA modeling solutions are the first step in creating digital continuity of intelligence –extending from the virtual world to the real world. You can connect these activities to your extended value network and customers while ensuring that every detail is available to view and manage for business success. DELMIA solutions is a 100% fit to operations, taking into account all the individual constraints relevant to each unique business, including logistics and workforce.

DELMIA operations capabilities include:

- **Center of excellence** – Create, deploy, manage and improve global best practices
- **Process engineering** – Design, validate and document process plans
- **Virtual factory** – Create and simulate a 3DEXPERIENCE® twin of your factory
- **Additive manufacturing** – Virtually experience, validate and optimize additive manufacturing projects
- **Fabrication** – Program and simulate machining
- **Robotics** – Program and simulate industrial robots, behavior and placement
- **Ergonomics** – Design human-centered production and workplace environments
- **Logistics, service and distribution networks** – Plan and optimize value networks



OPTIMIZE OPERATIONS IN THE VALUE NETWORK FOR CUSTOMER SATISFACTION

Continuous improvement of operations is not a goal; it's a mindset, a commitment and a challenge that never ends. Industries and services can meet this challenge through the digitization of all value network activities and beyond. Combining the virtual world of optimization and the physical world of operations creates a closed loop for continuous optimization needed in today's world.

As we usher new levels of collaboration into our value networks, does your business have the flexibility and agility to unlock these opportunities? You can achieve your business goals with KPI-based planning rooted in the realities of your business.

DELMIA optimizing capabilities include:

- **Sales and operations planning** – Advanced modeling and optimization capabilities to simulate any number of what-if scenarios, then recommend the best one to meet business KPIs and support effective decision-making to deliver the most value every time.
- **Master planning** – Drive global decision support with real-time visibility and predictive analysis for master planning and scheduling and material requirements planning.
- **Detailed production scheduling** – Reduce lead time and inventory by optimizing production within and across production lines, work cells and assembly operations, while improving asset utilization and supporting customer due dates.
- **Logistics operations planning and optimization** – Managers, planners and dispatchers gain full visibility and control over the entire planning and optimization process – from long-range network strategy planning to daily workforce scheduling and route planning.
- **Transit operations planning and optimization** – A solution to handle every challenge – from crew and fleet scheduling to winning new bids through open tenders. The solution works for operations big and small, and seamlessly integrates with a broad range of third-party systems.
- **Workforce operations planning and optimization** – Built on a 100%-fit business model that includes all of your organization's unique constraints, such as employee skills and qualifications, contract-specific requirements, labor regulations and resource availability. You define your efficiency, satisfaction and profitability targets; we empower your planners with the tools and insights they need to improve the results that count.





PERFORM OPERATIONS WITH SYNCHRONIZATION AND EFFICIENCY

Every plan must perform with precision across your extended enterprise. A common platform to ensure visibility and control of operations in a rapidly changing world while adapting easily to local and regional requirements. This is how DELMIA solutions excel, providing a continuum of performance, traceability and execution of operational activities. Achieve process and operational consistency to drive new levels of operational excellence.

- Leverage extensive traceability and genealogy data for quality and regulatory requirements
- Manage all aspects of the operations from Industrial Internet of Things (IIoT) aware equipment utilization to worker coordination for improving efficiencies in operations
- Tightly coordinate and execute corporate functions across your distributed enterprise — and monitor progress via user-defined dashboards to efficiently manage progress

DELMIA operations capabilities include:

- **Logistics monitoring** – Real-time tracking of all assets and resources
- **Production** – Improve visibility, control and synchronization of global production processes, schedules and resources from workers to IIoT-enabled equipment
- **Quality** – Unify and enhance quality across manufacturing operations while extracting the data for regulatory compliance and continuous improvement
- **Warehouse** – Synchronize manufacturing, inventory and logistics, just in time
- **Delivery** – Plan and optimize routes to ensure first and last mile agility
- **Maintenance** – Maximize asset performance and uptime; avoid unplanned disruptions and service disruptions
- **Workforce** – Increase labor efficiency and productivity; people with the right skills in the right place at the right time
- **Traceability** – Contain product and compliance issues quickly, across locations
- **Intelligence** – Support global decision-making with data, analytics and optimization

Our 3DEXPERIENCE® platform powers our brand applications, serving 12 industries, and provides a rich portfolio of industry solution experiences.

Dassault Systèmes, the 3DEXPERIENCE® Company, provides business and people with virtual universes to imagine sustainable innovations. Its world-leading solutions transform the way products are designed, produced, and supported. Dassault Systèmes' collaborative solutions foster social innovation, expanding possibilities for the virtual world to improve the real world. The group brings value to over 170,000 customers of all sizes in all industries in more than 140 countries. For more information, visit www.3ds.com.

