3DEXPERIENCE®

VISIBILITY AND CONTROL OF MANUFACTURING OPERATIONS
HOW A MANUFACTURING CONTROL TOWER DRIVES EFFICIENCY IN INDUSTRIAL EQUIPMENT MANUFACTURING

TAKE CONTROL IN INDUSTRIAL EQUIPMENT MANUFACTURING

Industrial Equipment companies are under more pressure than ever to run a tight ship in manufacturing and operations in order to maintain the productivity required to keep pace with today's market demand. But to do this, the person in charge needs to be aware of everything that goes on in operations at any given moment—delayed information on disruptions on the shop floor could waste precious time and productivity and increase costs.

How often do you find yourself asking these questions during daily operations?
• Why is this operation not being executed as planned?
• How is our performance against the plan?
• How is this asset performing today, compared to previous weeks?
• Where can I get a consolidated view of all manufacturing information?
• Can this task be performed safely in the current work cell configuration?
• What happened at the station when this issue occurred?
• Are we on track with all our KPIs?

This is where a Manufacturing Control Tower (MCT) could create tremendous value in your manufacturing operations. The MCT seamlessly integrates all manufacturing data sources in near-real-time to give you a unified view of the current conditions of your factory and operations in a 3D virtual twin. This enables all stakeholders to collaborate effectively in a timely manner so you can make informed decisions in all manufacturing operations.

Learn more about the MCT, its capabilities and its benefits in an Industrial Equipment manufacturing context. Continue reading this whitepaper to discover:

✓ **Industrial Equipment business drivers that make MCT a necessity**

✓ **The benefits of leveraging the MCT**

✓ **The key capabilities of MCT with DELMIA**

KEY TRENDS AND BUSINESS DRIVERS IN INDUSTRIAL EQUIPMENT

Many industries learned valuable lessons from global supply chain disruptions in recent years about the necessity to modernize systems and processes in manufacturing and operations. As all these industries recover and ramp up manufacturing operations, Industrial Equipment manufacturers find themselves facing not just increasing demand, but also demand for more customized and sustainable products.

For Industrial Equipment companies to build a durable competitive advantage in their market, they need to pay close attention to some of the key business trends that are starting to pick up in the industry:

Production of One
Rising customer demand for customized products requires manufacturers to be more flexible and agile.

Self-Aware Software-Driven Systems
Having a smarter, more connected system supports autonomous equipment to improve production performance.

Enterprise Agility
Agile enterprises can respond quickly and effectively to changes in market demand and increase the speed of delivery.

Equipment-as-a-Service
Equipment-as-a-Service offers more effective business operations and a simpler financial model based on pay-per-use or pay-per-outcome.

Enterprise Risk Planning
In a highly disruptive business environment, more effective risk management has become a necessity for companies.
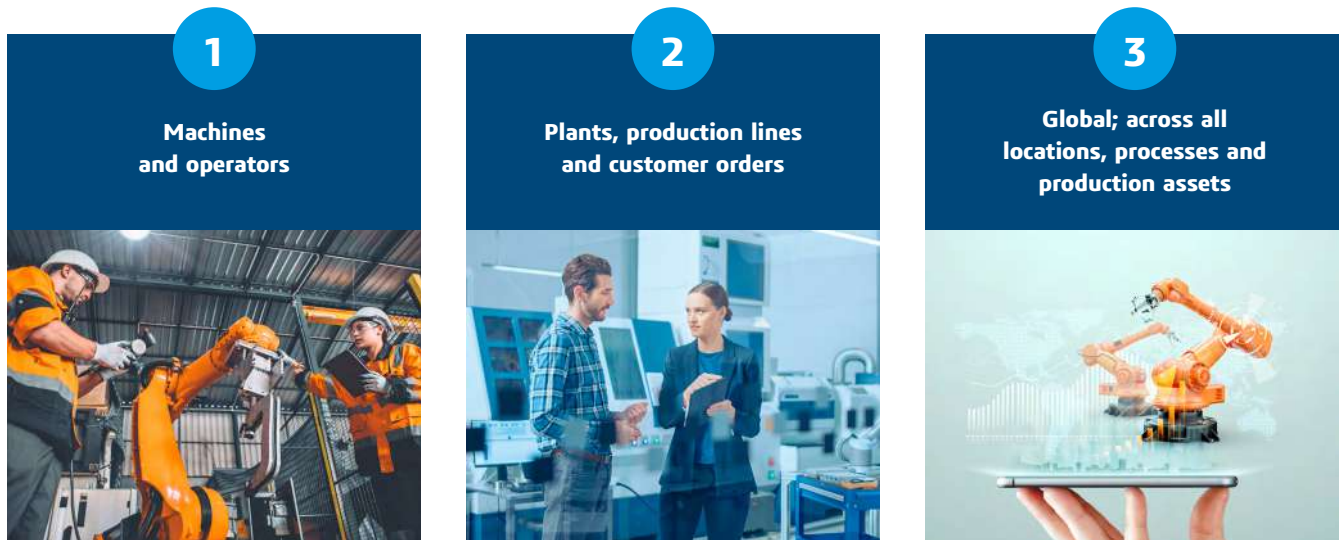
Circular Innovation
With the world shifting towards sustainability, companies need to meet the increased demand for sustainable equipment and products.

WHY DOES INDUSTRIAL EQUIPMENT NEED MCT?

MCT enables Industrial Equipment companies to have a central overview of everything that happens in manufacturing and operations—in the past, in the present, and what is planned for the future. MCT is cross-functional, serving as the central link between plants, warehouse, distribution and customers.

MCT establishes stronger links between all stakeholders to facilitate timely and more effective communication. By providing real-time data and metrics in manufacturing and operations, teams are empowered to make critical decisions faster.

The MCT empowers visibility and control at three levels of manufacturing operations:

1

Machines and operators

2

Plants, production lines and customer orders

3

Global; across all locations, processes and production assets

By establishing this end-to-end visibility and control, MCT creates real value for Industrial Equipment companies in terms of the following benefits:
• Decreased mean time to acknowledge (MTTA)
• Reduced costs from poor quality through better root cause analysis
• Operational cost savings from improved visibility of field operations
• Minimize disruptions with real-time visibility into the impact of disturbances across all areas
• Improved throughput from earlier identification of issues and disruptions

MAKE IT HAPPEN WITH MCT AND DELMIA

MCT plays an important role within DELMIA solutions, powered by the **3D**EXPERIENCE platform. By taking a model-based, data-driven approach that connects the virtual and real worlds of manufacturing and operations, DELMIA leverages the MCT to **improve operational visibility and control** through a comprehensive experience. Use the solution's 4D virtual experience of manufacturing to contribute to **root cause analysis** by **detecting and triggering corrective actions**. Most importantly, drive **improved decision making** by using external information to **enrich the 3D context** in the virtual model.

By implementing DELMIA with MCT in Industrial Equipment manufacturing and operations, companies can generate tremendous value through **more effective planning, unparalleled optimization and improved reactivity.**
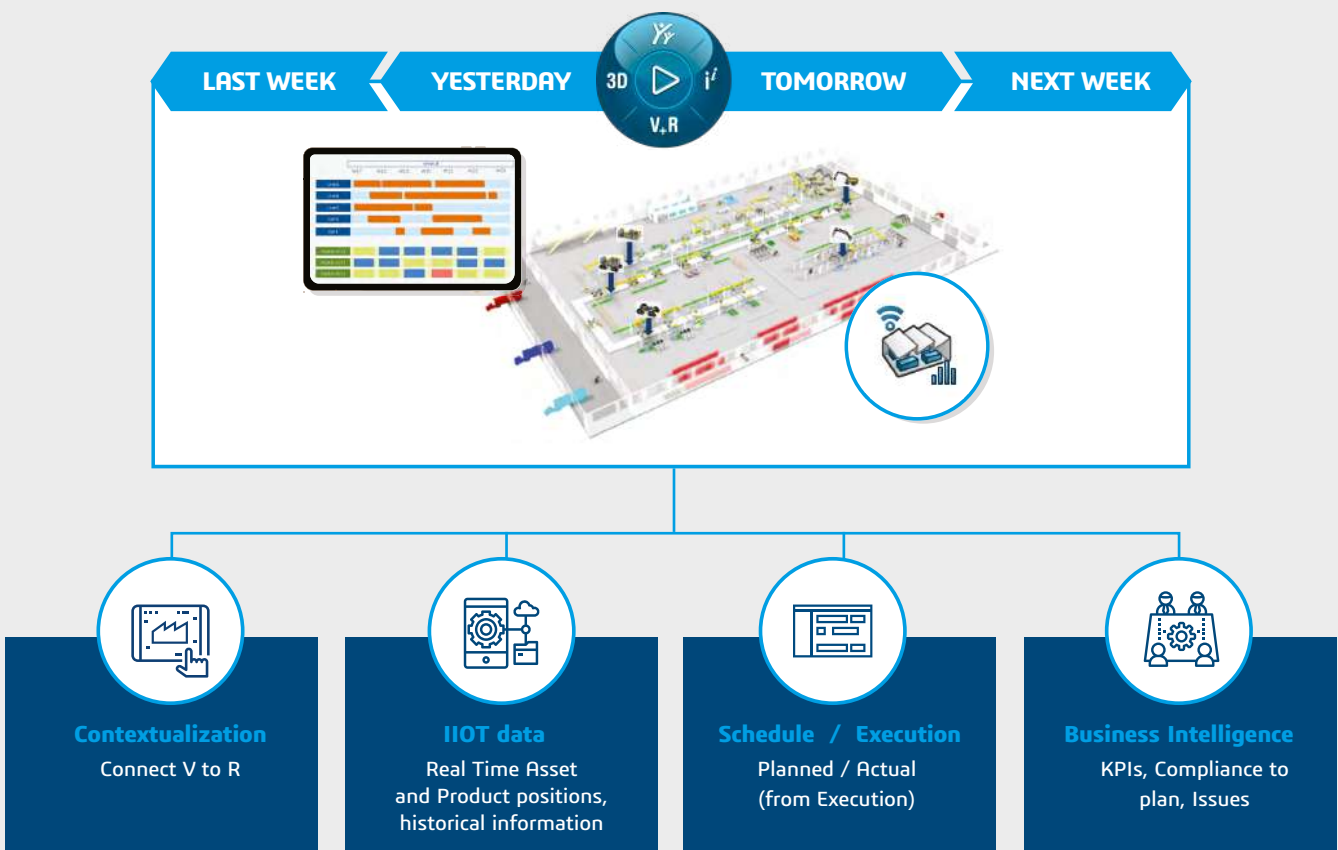
MCT CAPABILITIES IN INDUSTRIAL EQUIPMENT

MCT within DELMIA covers three important areas in manufacturing and operations:

SUPERVISE OPERATIONS
Monitor assets and operations, use alerts and events to anticipate disruptions

IDENTIFY & INVESTIGATE ISSUES
Investigate disruptions by replaying the past in the context of real world data within 3D virtual world and identify issues

DISPATCH DECISIONS
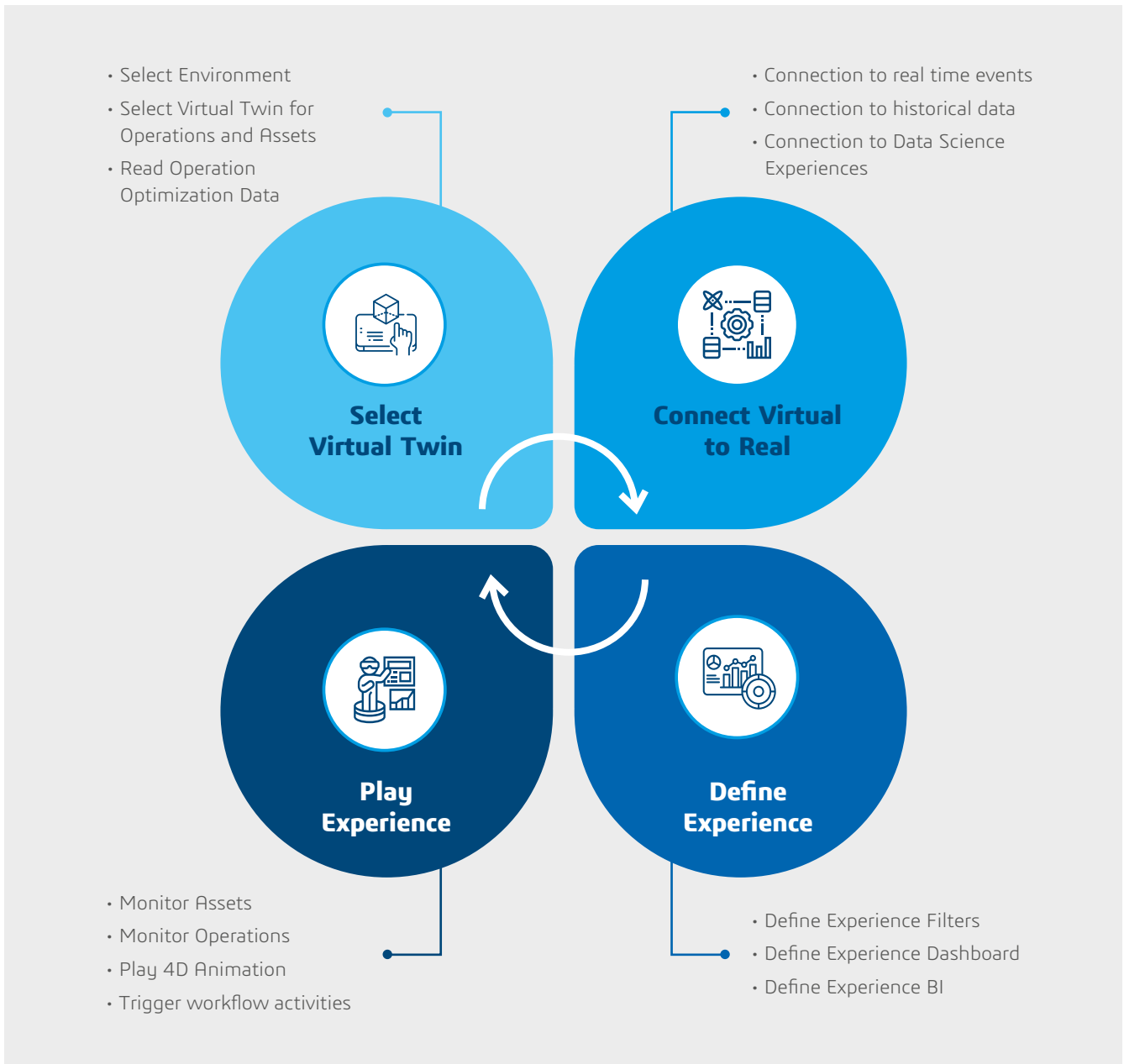Trigger workflow activities for maintenance, safety, quality, planning, scheduling etc

MCT with DELMIA gives manufacturers a key advantage by providing near-real-time visibility on all operations and assets, allowing for evidence-based governance that can help companies avoid or mitigate operational issues. This also creates value in terms of:

- Improved efficiency of manufacturing equipment across the factory and internal logistics, including mobile robots and AGV
- Reduced excess work in progress (WIP) and inventory
- Improved overall quality level
- Increased efficiency in rework if needed
- Lower overall manufacturing costs
- Increased manufacturing capacity and revenue

With MCT and DELMIA, Industrial Equipment manufacturers can review past events to make continuous improvements at any planning horizon, from hours to weeks ahead of time. DELMIA connects the virtual and real worlds of manufacturing and operations through data gathered via IIoT and other shop floor systems in near-real-time, enabling teams to have end-to-end visibility and control over production, quality, materials and assets. Manufacturers can also compare planned and actual data from execution to ensure that production stays on track while resolving issues and striving to meet company KPIs.

LAST WEEK · YESTERDAY · 3D · V+R · i' · TOMORROW · NEXT WEEK

Contextualization
Connect V to R

IIOT data
Real Time Asset and Product positions, historical information

Schedule / Execution
Planned / Actual (from Execution)

Business Intelligence
KPIs, Compliance to plan, Issues

BUILD AND PLAY EXPERIENCES WITH MCT

- Select Environment
- Select Virtual Twin for Operations and Assets
- Read Operation Optimization Data

- Connection to real time events
- Connection to historical data
- Connection to Data Science Experiences

Select Virtual Twin

Connect Virtual to Real

Play Experience

Define Experience

- Monitor Assets
- Monitor Operations
- Play 4D Animation
- Trigger workflow activities

- Define Experience Filters
- Define Experience Dashboard
- Define Experience BI

CONCLUSION

For Industrial Equipment manufacturers to successfully meet their business targets and KPIs, it is crucial to know the present status of manufacturing and operations on the ground at all times. MCT makes this possible by serving as a centralized platform where teams can review and analyze all manufacturing and operational data to resolve issues and improve efficiency in equipment, processes and workflows.

DELMIA, powered by Dassault Systemes' **3D**EXPERIENCE platform, empowers MCT by supplying near-real-time data gathered through IIoT and integration with other shop floor systems, that is made visible and actionable through virtual twin models. By connecting the virtual and real worlds of manufacturing and operations in this manner, manufacturers can leverage the virtual factory to effectively monitor and optimize assets, resources and processes to facilitate collaboration and enable flawless execution.

With such capabilities at their fingertips, Industrial Equipment manufacturers can rest assured that they can have the end-to-end visibility and control needed to drive continuous improvement in manufacturing efficiency for increased profitability while being responsive and resilient to disruption.

Discover how you can get started with DELMIA and MCT. Visit our website to learn more about our solution or get in touch with a consultant today.
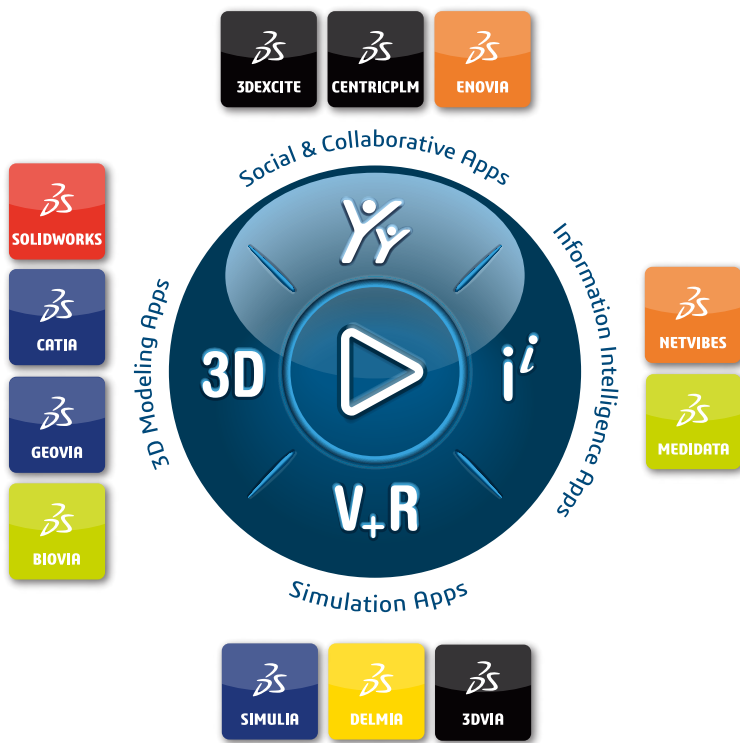
Our **3D**EXPERIENCE® platform powers our brand applications, serving 11 industries, and provides a rich portfolio of industry solution experiences.

Dassault Systèmes, the **3D**EXPERIENCE 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 **3D**EXPERIENCE 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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