DELMIA WORKS

3DEXPERIENCE®

AUTOMATING YOUR MID-MARKET MANUFACTURING ENTERPRISE TO RUN LIKE A WELL OILED MACHINE

eBook

How well do companies fare in overcoming the growing competitive challenges facing manufacturers in today's data-driven production and business environment ultimately depends on how well they access, automate, and leverage the mounting volumes of data that now drive production and back office operations. Businesses need to know:

1. How to accelerate time to market
2. Improve product quality
3. Increase product innovation
4. Control manufacturing costs
5. Maximize resource utilization.

Some manufacturers have already invested in an enterprise resource planning (ERP) system and/or a manufacturing execution system (MES) to meet these challenges. However, as automation in manufacturing continues to advance, running ERP and MES systems on the cloud provides opportunities for greater agility in using data to automate operations across the enterprise, enabling manufacturers to boost productivity, spark growth, and meet the challenges of today's fast-paced manufacturing market head-on. This eBook examines the data challenges facing many companies and how DELMIAworks ERP/MES solutions on the cloud-based **3D**EXPERIENCE® WORKS portfolio can help manufacturing organizations continue to succeed and grow.

DASSAULT SYSTEMES

EFFECTIVE MANAGEMENT OF PRODUCTION/BUSINESS OPERATIONS WITH ERP ON THE CLOUD IMPROVES COMPETITIVENESS, DRIVES GROWTH

Before the advent of enterprise resource planning (ERP) systems, all manufacturing organizations handled data either manuallly or through software applications that do not fully support automation. While spreadsheets, accounting packages, and Access® database applications are certainly improvements over the volumes of paper records that were formerly used to organize and manage product and business information, these disconnected systems still do not provide the insights into the performance of day-to-day operations that have become critical to business planning and success. As digital technologies have matured into today's robust ERP systems, they have improved and automated many processes throughout the manufacturing enterprise, providing better ways of doing things in businesses that can be department-centric and siloed. And while data applications have made life a whole lot better for various distinct departments within the enterprise—ranging from product development, manufacturing, and shipping to sales, logistics, accounting/finance, and customer relationship management—many of these systems are disconnected from one another and provide no real insights about how different departments interact and perform. This departmental, data-silo approach to digital solutions also often requires high levels of manual data entry, wasteful processes, and duplicative effort.

Enterprise resource planning (ERP) systems were developed to help manufacturers get a grip on the growing volume of disconnected data across their organizations and find areas where workflows can be automated and/or improved, and provide detailed insights into business operations and performance. To remain competitive, manufacturers simply must find ways to save time, reduce costs, minimize scrap/rework, maximize production uptime, and eliminate unnecessary effort; all while innovating and bringing high-quality products to market more quickly than the competition.

Additional challenges that can be addressed by an ERP system include eliminating the use of inaccurate, unreliable data; avoiding the use of out-of-date revisions for production; slow processing of engineering change orders (ECOs); ineffective inspection practices and quality controls; undetected manufacturing issues or production problems; and slow, redundant workflows with the potential to be automated. An ERP system can address all of these issues, maintaining the accuracy and reliability of production data while enhancing the speed and performance of production and business operations. Manufacturing organizations can resolve these challenges by using an ERP system to automate workflows in production—beginning with the generation of the bill of materials (BOM) information and continuing through the complete product lifecycle—as well as back office business workflows, including financial transactions, accounting, sales, marketing, distribution and customer support.

With an ERP system on the cloud, enterprises will gain greater agility and efficiency not only by leveraging production and business data across the organization but also by being able to access and use the system from anywhere. With DELMIAworks, executives, managers, and approved users have no limitations in using the system, providing access to sourcing, procurement, and inventory reports to support supply chain management; budgeting, scheduling, and quality assurance information to assist manufacturing planning; and inspection, packaging, ECO processing, and real-time production monitoring information to drive manufacturing.

In short, an ERP system on the cloud like DELMIAworks provides a range of solutions to many of the challenges that manufacturing organizations face, allowing them to boost productivity, increase throughput, and support growth, without bringing on additional resources.

...a case in point

Automating All Facets of Injection-Molding Part Production

SEA-LECT Plastics Corporation is a leading supplier of injection-molding manufacturing, design, product development and tooling services. According to Vice President/General Manager Matt Poischbeg, SEA-LECT Plastics initially relied on a custom-developed enterprise resource planning (ERP) system and Excel® spreadsheets to manage its injection-molding operations. However, Poischbeg says the manufacturing services provider needed to find innovative solutions to streamline and improve all functions related to injection-molding production to support growth.

"We implemented the SOLIDWORKS® 3D design-to-manufacturing system to improve our ability to handle customer data and identify design-for-manufacturing issues, and also the integrated CAMWorks™ machining package, both of which helped us achieve productivity gains," Poischbeg explains. "Yet, we still needed an overarching system that would enable us to automate all functions related to injection-molding production. We needed to boost productivity to better manage our growing volume of business, but we also needed to better understand our actual costs for each job to remain competitive in an increasingly dog-eat-dog market."

SEA-LECT Plastics implemented the DELMIAworks ® ERP system in 2012 because of its integration with SOLIDWORKS design and manufacturing software, and its ability to be configured to SEA-LECT Plastics' specific automation needs. "DELMIAworks does everything that we need," Poischbeg stresses. "...[I]t covers every detail involved with injection molding, giving us real-time access to information and status on everything from costing, bills of materials, and mold types to tooling, staffing and scheduling."

Since adding DELMIAworks ERP, SEA-LECT Plastics has fully automated its design-to-manufacturing processes. DELMIAworks streamlines processes across sales, order processing, finance, human resources, planning, production, inventory, procurement and more, enabling visibility, execution and communication of manufacturing activities and data throughout the organization. By implementing DELMIAworks, SEA-LECT Plastics increased operational efficiency from 70 percent to 98.5 percent; cut its part reject rate to less than one percent, a third of the industry standard; improved its profit margins; and attained ISO-9001:2015 certification.

"In this tight market, there's no room for error, and we can't afford to lose, either," Poischbeg notes. "With the information and automation provided by DELMIAworks, both our pricing and position are more competitive. In short, DELMIAworks gives us a competitive edge."

To read the full SEA-LECT Plastics story, click here.

THE BENEFITS OF ERP ON THE CLOUD

ERP systems utilize software and technology to support the management of a manufacturing organization's primary production and business processes, often providing information that reveals workflows that could be automated or made more efficient. Instead of providing information on business performance after the fact, an ERP system provides an integrated and continuously updated view of core business processes in real time.

By enabling manufacturers to track key business resource information—such as cash, raw materials, production capacity—and the status of business commitments—through orders, purchase orders, and payroll—ERP systems support the sharing of data across various departments (i.e., manufacturing, purchasing, sales, accounting, etc.). By facilitating the flow of information among business and manufacturing functions—as well as with external stakeholders—an ERP system can reveal processes that are ripe for automation, saving a manufacturing organization substantial amounts of time, reducing production and related costs, and supporting and sustaining growth.

By using a cloud-based ERP system—such as the DELMIAworks ERP system on the **3D**EXPERIENCE WORKS portfolio—manufacturing organizations can connect key team members to the system from any location, on any device, and at any time of day. In addition to saving time, reducing costs, and supporting growth, using an ERP system like DELMIAworks can result in a substantial reduction in IT costs. Because the platform is hosted in the cloud, there's no need to install software, upgrade hardware, or conduct updates and fixes. With the applications residing on the cloud instead of on an individual user's computer, all updates are conducted automatically and users only need a PC or mobile device to access and use the ERP system.

SAVES TIME

An ERP system on the cloud can help manufacturing organizations save time in many ways. Most companies who have an ERP system are drawn to its reporting function because it allows management to drill down into every aspect of a business and learn vital information that can affect management decision making. In addition to providing robust business reporting capabilities, an ERP system provides the structure and tools for streamlining and accelerating projects and processes that can lead to production delays, such as improving the handling of ECOs and making inspection and quality assurance functions more accountable and efficient. Perhaps not as obvious a time-saver but just as significant are the productivity gains related to using a single, integrated system on the cloud. Lastly, efficiency increases whenever an ERP system connects directly to product design data like BOM information because a direct connection eliminates the need for data import or export, or translating or converting data/files.

Increasing Quality and On-Time Delivery with an Integrated ERP/MES System

Eldon James manufactures a wide range of standard and custom hose fittings, including adapters, couplers, elbows, reducers and bulkheads, as well as many specialized connector configurations. The company started manufacturing extruded plastic tubing, medical grade tubing, and formed tubing in 2007, and the manufacturer's PVC-free tubing and connectors serve a broad spectrum of domestic and international market sectors, including transportation, automotive, medical device, water purification, industrial, and life sciences markets.
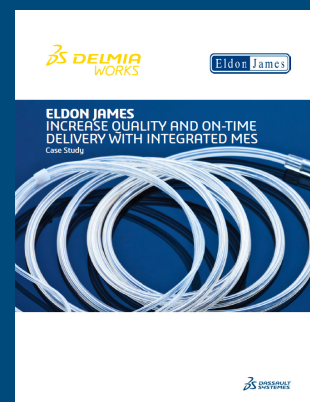
Until the company implemented the DELMIAworks integrated ERP/MES system, many aspects of the company's business relied on multiple, unconnected, standalone data systems that were suppressing the company's growth. Eldon James found itself constrained by the lack of integration in its multiple, disconnected systems, which created bottlenecks on every aspect of manufacturing and supplier operations, making it progressively more difficult to provide the responsiveness the company needed to continue to grow.

Eldon James' business quit scaling when their standalone systems did. The company's vision of being a state-of-the-art production facility capable of running lights-out manufacturing was in jeopardy. Existing systems were falling far short of the goal of being able to run their 27 injection-molding machines continually for a production shift or longer. In short, Eldon James' operations were reaching a breaking point because of the lack of siloed systems' scale, compelling the company to seek out an integrated ERP/MES system.

CEO and Founder Marcia Coulson says the decision to select DELMIAworks as the company's ERP systems provider and partner "was probably the single best decision I've ever made for the company. That was one of those milestones in the history of Eldon James that allowed the company to grow," she continued.

In the 10 years since Eldon James implemented the integrated DELMIAworks ERP/MES system—integrating its MES system with accounting, finance, supply chain management (SCM), customer relationship management (CRM) and ERP systems under a single connected system—the company has improved product quality, increased production performance, and achieved the highest levels of customer satisfaction. By implementing the DELMIAworks ERP/MES system, Eldon James realized a 96-percent improvement in on-time deliveries, cut manufacturing rejects from 30 percent to 2 percent, improved sales efficiency and its quoting process, and reached the company's long-term goal of manufacturing and selling 6,000 distinct products.

To read the full Eldon James story, click here.

REDUCES COSTS

Time is money, and the timesavings afforded by an ERP system on the cloud naturally produce cost savings. Yet there are additional ways that an ERP system can help manufacturers reduce and control costs. First, organizations will eliminate costs associated with administering and maintaining expensive data silo management systems. With the real-time monitoring of manufacturing machines and production equipment provided by an ERP system, manufacturers can increase uptime and throughput, and reduce scrap and rework costs, all while improving the overall part reject rate. Using an ERP system to automate various workflows throughout an organization not only eliminates the costs related to duplicative, unnecessary tasks, but also produces labor costs savings and maximizes resource utilization. In short, an ERP system can reduce costs in every functional area of the enterprise because the system makes every single department more efficient.

DRIVES GROWTH

As the global manufacturing market becomes increasingly more competitive, many companies are leveraging ERP systems to improve their competitive positions and drive growth. With the time and cost savings generated by an ERP system—and the real-time access to production and business performance information of a cloud-based ERP system—manufacturers can more consistently bring higher quality, more innovative products to market more quickly than their competitors because they simply can do more with less. Formalized and automated workflows generate productivity gains, and the insights into enterprise operations provided by an ERP system can create opportunities for strategic improvements. With an ERP system, valued employees and staff across the enterprise can work smarter, not harder, increasing throughput overall without increasing resources. When the ERP system is cloud-based, like the DELMIAworks applications ion the **3D**EXPERIENCE WORKS portfolio, expanding geographically and internationally is much more cost-effective because newly established, remote locations are able to operate as if they are located in the same building with minimal IT investment.

...a case in point

Advancing Product Quality and Customer Service to Support Growth in the Food & Beverage Industry

Pod Pack International is the expert co-packer for single-serve coffee and tea products in the coffee and tea industry.

Products include espresso pods, cups, Cold Brew One® pods, quick-serve restaurant pods, office coffee service (OCS) coffee and tea pods, hotel in-room pods, and super pods. Until 2017, the manufacturer relied on a completely manual process to manage its production and business operations. However, it soon became clear that this manual approach could not be scaled to support and sustain anticipated growth.

After evaluating ERP solutions, Pod Pack chose to implement the DELMIAworks ERP system in 2018. "We had a fabulous implementation consultant," recalls Marion Gray, Pod Pack CFO. "It really helped us to creatively address some issues particular to our business and incorporate them into DELMIAworks, so we could get some wonderful functionality. We've been incredibly pleased with the platform."

The DELMIAworks manufacturing ERP system provides Pod Pack with the real-time insights and automated processes required to ensure quality and compliance, maximize productivity, and provide a superior customer experience. "Our general guarantee to customers is that we will turn around your product within two weeks of getting your coffee beans in house," Gray explains. "So, that we know that by the time the coffee hits the floor and the production schedule, all the materials will be there, and there are no surprises.

"Our customers expect us to get orders to them on time, and the system allows us to see in real time if something's going to slip a day or two because there was a manufacturing hiccup or a shipment delay because the carrier didn't pick it up," Gray explains. "We don't have to wait for the customer to call and ask where it is."
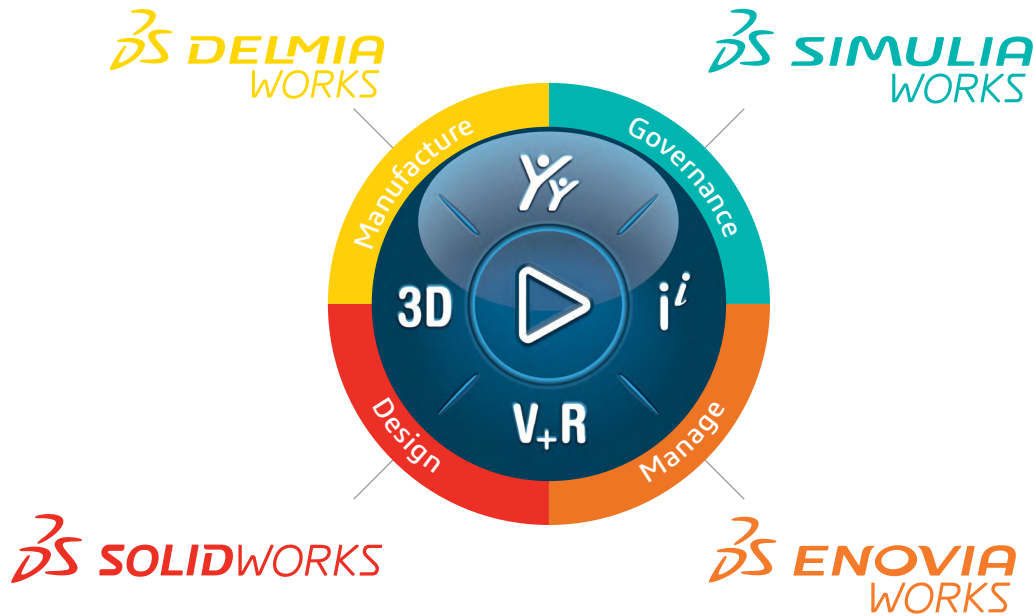
By implementing the DELMIAworks ERP system, Pod Pack has doubled the volume of its business without doubling head count, has reduced financial closings from 25 to 3 days, has gained insights into manufacturing production issues through weekly reports that help improve employee performance, has replaced inventory reconciliation that took weeks with hourly inventory updates. Pod Pack has gained the ability to generate recall and traceability reports in minutes instead of 4 to 5 hours.

To read the full PodPack story, click here.

EXTEND YOUR COMPETITIVE EDGE WITH DELMIAWORKS ERP SOLUTIONS ON THE 3DEXPERIENCE WORKS PLATFORM

The **3D**EXPERIENCE WORKS portfolio is part of the Dassault Systèmes family of product development, manufacturing, and business enterprise brands and solutions (i.e., DELMIAworks, SOLIDWORKS, etc.) accessible on the cloud-based platform. The **3D**EXPERIENCE WORKS portfolio allows DELMIAworks users to access ERP and MES capabilities on the cloud, as well as a growing number of design, engineering, manufacturing, and related tools. In addition to providing flexible 24/7 access to ERP and MES capabilities, the **3D**EXPERIENCE platform stores, protects, and maintains all data in a single, secure location on the cloud.

ERP on the Cloud via the 3DEXPERIENCE WORKS platform

Because DELMIAworks ERP, MES, and Quality Management Software (QMS) systems are part of the cloud-based **3D**EXPERIENCE WORKS portfolio, they represent a much more affordable solution for manufacturers than traditional desktop or network enterprise systems because of the much smaller required investment in hardware. Plus, the added flexibility and scalability of a cloud-based platform will improve collaboration, manufacturing efficiency, and business agility, allowing manufacturers to rapidly scale up to support growth while simultaneously providing better service to customers.

DELMIAworks ERP

DELMIAworks ERP is a management solution that integrates applications to help improve business operations, communication, and collaboration, while streamlining processes across sales, order processing, finance, human resources, planning, production, inventory, procurement, and more.This reliable, real-time ERP system will meet the business needs of manufacturers of any size: from a small, single plant manufacturer to large multi-plant, global producers. DELMIAworks ERP provides the data backbone that manufacturers need to monitor, track, trace, and communicate business and manufacturing activities and data throughout the supply chain, and can do that more quickly than any other software on the market today.

DELMIAworks MES

The majority of large enterprises and Fortune 1000 companies already have a corporate ERP system—such as SAP, JDE, or Oracle—in place for managing business operations, including sales orders. However, most corporate ERP systems are not integrated with the production floor, causing discrepancies between planned versus actual production, underutilized capacity, and higher manufacturing costs. This is where the DELMIAworks Manufacturing Execution System (MES) comes in to play. Most corporate divisions have the freedom to select an MES solution to provide the plant floor visibility that their ERP system lacks. In these cases, it is critically important to find a solution that provides a streamlined approach to ERP-MES integration. Through a robust integration layer, DELMIAworks maps data from your ERP system to MES, enabling smooth real-time data flow between the two systems.

DELMIAworks QMS
One of the most critical aspects of a manufacturing operation is quality management. Whether a manufacturer is struggling with audits, parts trending out of specification, or a lack of end-to-end part visibility and tracking, the DELMIAworks Quality Management Software (QMS) manufacturing quality control system can help. DELMIAworks QMS provides an extensive suite of tools and capabilities necessary for cost-effectively managing quality issues while streamlining manufacturing and business operations and facilitating collaboration. It is a powerful solution that enables compliance with the most stringent quality standards, including automotive (TS), medical (FDA, 21 CFR Part 11) and ISO standards, and a reduced cost of quality. DELMIAworks QMS also lets manufacturers track quality in manufacturing parts with the same integrated database as that used by the ERP system for manufacturing, accounting, customer management, and supply chain management.

Additional DELMIAworks Enterprise Solutions
DELMIAworks offers a full range of additional enterprise solutions that are designed to improve specific departmental functions with all databases linked to the central ERP database. The additional DELMIAworks enterprise solutions include:

Customer Relationship Management (CRM)
Manufacturing leaders know that gaining and retaining a customer's business requires more than just providing a solid service or product. Equally important is the customer's experience with the organization. From the first phone call to receiving payment, customer service defines a customer's experience and can often be the deciding factor between gaining or losing future sales. DELMIAworks CRM software provides the tools to help maintain positive customer and supplier relationships. From the initial marketing campaign and sales contacts to customer and technical support calls, CRM captures, manages, and tracks the details of every customer, partner, and vendor interaction in a single system.

EDI Software & Services
With DELMIAworks Electronic Data Interchange (EDI) software embedded in the DELMIAworks ERP system, manufacturers can process financial transactions and orders more quickly and efficiently. More and more manufacturing organizations are being required to process business transactions electronically via EDI. In many industries, such as automotive, EDI has become a mandatory prerequisite to doing business. The DELMIAworks EDI system assists and expedites the exchange of critical business data, streamlining business transactions and eliminating manual data entry errors while offering superior customer service that exceeds customer expectations.

Mobile ERP Apps
In addition to accessing DELMIAworks ERP via the cloud, users can also use DELMIAworks mobile ERP apps to extend remote access to ERP and shop floor applications via smart phones, PDAs, and tablets. These apps extend manufacturing ERP functionality beyond the cloud-based platform, enabling users to tap mobile devices to access real-time manufacturing, MES, and ERP information on the go from anywhere and at anytime.

Supply Chain Management
Manufacturing companies around the globe rely on DELMIAworks ERP to optimize their supply chains. The DELMIAworks ERP and Supply Chain Management solutions provide end-to-end visibility of a company's entire supply chain. The system provides everything required to monitor production, increase manufacturing throughput, reduce inventory, and streamline the order-to-cash process. With real-time information, manufacturing supply chains can make better informed business decisions more efficiently and avoid lapses, shortages, and delays.

Warehouse Management
Handling inventory is expensive and can add costs to products or cut into profit margins. To minimize handling costs, maximize warehouse efficiency, and keep prices competitive, many DELMIAworks ERP customers add the DELMIAworks Warehouse Management System (WMS) to their ERP system because the solution increases order fulfillment speed and accuracy, eliminates shipping and receiving handling errors, decreases costs associated with under-utilized inventory resources, and improves inventory visibility and traceability.

Deployment Options

No single ERP deployment method is right for every manufacturer, so DELMIAworks provides different ERP deployment options to meet varying needs. Manufacturers can choose to access DELMIAworks ERP on the cloud, to implement a traditional on-premise ERP deployment, to have the ERP system hosted on the cloud, or to acquire a software-as-a-service (SaaS) approach. These options provide customers and future customers with a wide choice of ERP deployment options, so manufacturers can choose the best solution for their company.

eCommerce, Supplier, and Employee Web Portals

DELMIAworks ERP's WebDirect B2B and employee web portals satisfy growing business needs for an end-to-end, integrated eBusiness solution. WebDirect is a business-to-business application that leverages the power of the Internet in combination with the DELMIAworks ERP and manufacturing software, enabling manufacturers to communicate more effectively with customers, suppliers, and employees. The Customer Portal supports online ordering but also real-time access to order and return status, inventory availability, shipments, invoicing and up-to-date production reports direct from the manufacturing plant floor.The Supplier Portal provides real-time access by suppliers to a manufacturer's requirements, including purchase order release information, payment and invoicing information, and receiving and Autonomous System Numbers (ASNs) information, ensuring that suppliers meet materials, service, or secondary operation needs more efficiently. The Employee Portal is a secure web-based module that empowers employees to view and make updates to their own personal and benefit information without filling out forms or waiting for the Human Resource Department to enter it into the system.

Shop Floor Hardware Solutions

Real-time production monitoring requires the use of periphery manufacturing hardware devices, but how are manufacturers to know if the devices will integrate with DELMIAworks ERP and MES systems or withstand the rigors of the shop floor environment? Long-term maintenance costs, durability, and most importantly, enterprise integration, are common concerns when selecting new hardware. To help ease the process of investing in new data collection devices, DELMIAworks offers a comprehensive line of durable hardware and shop floor accessories to compliment the system.

MAKE YOUR ENTERPRISE RUN LIKE A WELL-OILED MACHINE

With the DELMIAworks ERP solutions on the cloud-based **3D**EXPERIENCE WORKS portfolio, manufacturers can improve their competitive position and/or gain a competitive edge because the solution enables manufacturing organizations to access, manage, automate, utilize, and leverage the data that runs the enterprise more efficiently than their competitors. With the production and back office business automation that the system provides, manufacturers can improve the agility, flexibility, and productivity of the entire enterprise, saving time, reducing costs, and driving growth.

DELMIAworks ERP solutions can help manufacturers transform their organizations from slow and lumbering bureaucracies into well-oiled machines, enabling them to consistently shorten time to market, reduce manufacturing costs, improve profit margins, and maximize resource utilization. And because DELMIAworks solutions automate both production and business workflows, companies do not have to sacrifice quality in exchange for speed, and will realize higher levels of quality and innovation in product development and manufacturing.

To learn more about how DELMIAworks ERP solutions on the cloud can help your manufacturing organization gain and maintain a competitive edge, visit www.3ds.com/delmiaworks or call 1 866 367 3772.

Our **3DEXPERIENCE**® 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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