



3DEXPERIENCE®

UNLOCK THE SUSTAINABLE VALUE PATH FOR METALS INDUSTRY TRANSFORMATION

How metals producers can transform operations for efficiency, sustainability and future competitiveness



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INTRODUCTION

Today's world is increasingly rife with disruptions, market volatility and evolving customer expectations. For the metals industry, daily disruptions such as production timeline pressures and equipment downtime are compounded by extrinsic changes in the form of fluctuating pricing, global trade disputes, natural disasters and more. Furthermore, the urgency to reduce emissions to meet carbon neutral targets by 2050 is pushing metals producers to swiftly adopt new and more efficient sourcing and production processes that drive sustainability while ensuring favorable business outcomes.

Combined, these various factors make organizational transformation imperative to ensure survival, relevancy, competitiveness and—more importantly—metals operations that are sustainable in both the business and environmental sense. This entails reimagining your operations against the backdrop of efficiency, resiliency and sustainability.

This eBook invites you to uncover the sustainable value path for your metals organization's transformation by understanding:



The challenges and key trends necessitating the modernization of metals manufacturing and operations



How to unlock the full potential of your metals organization and contribute to a more circular economy through digital transformation

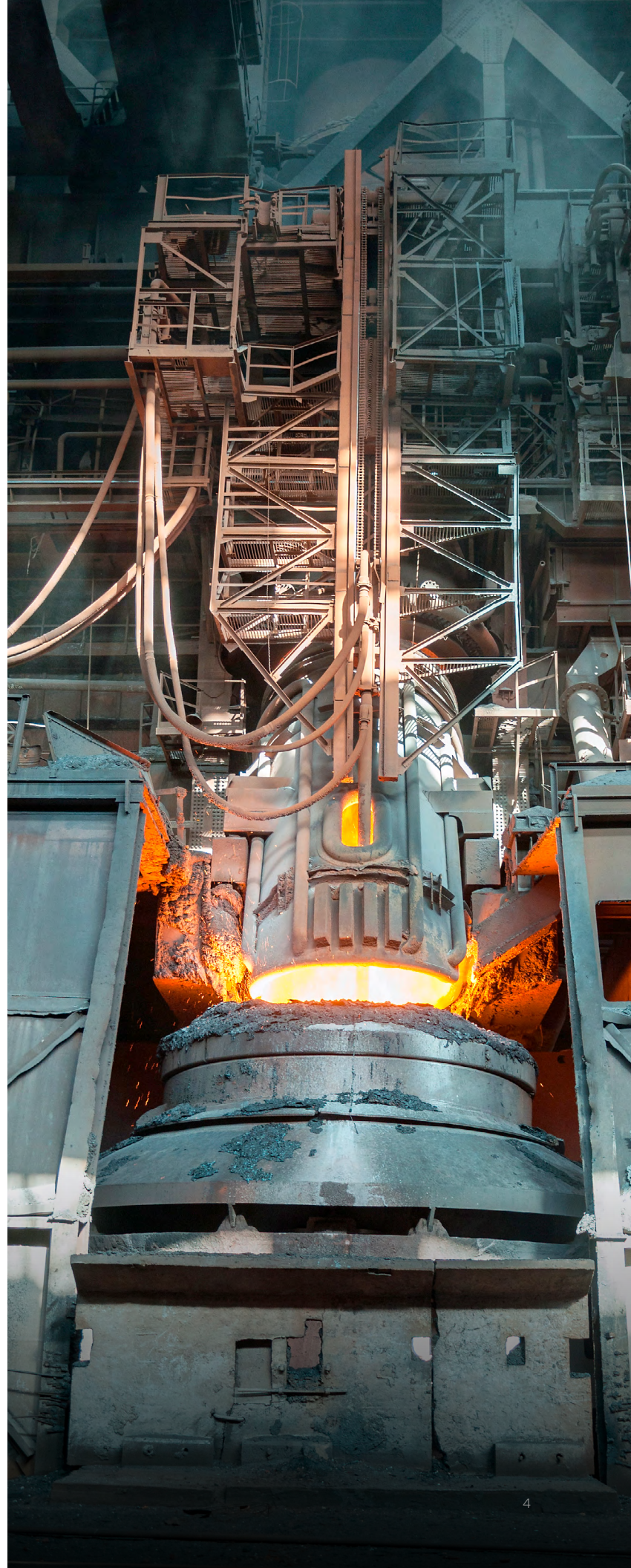


How DELMIA can enable and accelerate your organization's transformation through a complete solution suite tailored for the metals industry

WHAT'S DRIVING THE MODERNIZATION OF METALS MANUFACTURING

The modernization of metals manufacturing is a challenge in itself. Due to the reliance on age-old metallurgy practices, manual processes, legacy planning tools and systems, the industry has been struggling to keep up with the pace of innovation. The lack of digitalization within and across the metals supply chain significantly impedes a company's visibility over operations, costing them valuable market agility.

Without enterprise visibility and the ability to pivot in the face of change, metals organizations experience greater difficulties in managing the challenges in today's global manufacturing world.



KEY CHALLENGES IMPACTING THE METALS INDUSTRY



Demand Volatility

Metal prices are highly dictated by demand patterns, which experience fluctuations every few years. For example, copper is slated to be the best performing metal in 2022 as it is a key material for energy transition.¹



Persistent Excess Capacity

Massive capital investment to expand capacity in most metals segments during the length of the commodity boom resulted in significant global excess capacity, which increases downward pressure on prices.



Complex Customer Requirements

Demand based on shifting customer preferences further complicates metals planning and operations, not to mention the need for a more customer-centric approach to manufacturing that entails greater expectations, shorter lead times and flexibility in demand quantities.



Trade Flow Disruptions

Plummeting prices and underutilized capacity exacerbated by the rapid increase in exports from countries with significant excess capacities (most notably in steel and aluminum) have led to economic dislocations, forcing many governments to impose trade restrictions on raw materials, semi-finished and finished products.



Increasing Regulatory Requirements

Metals companies must now contend with more stringent, and often costly, regulatory requirements in all areas of operations, especially in terms of product traceability. Additionally, the Paris Climate Change Agreement in 2015 increases the industry's challenges in coming years if fully enforced.²



Widening Workforce Skill Gaps

With an aging workforce of experienced personnel with deep industry knowledge and growing competition to acquire new digital talent, metals organizations must inevitably increase costs to retain workers as well as push for productivity improvements, the use of technology and to an extent contract workers to fill the growing skill gaps.



Declining Resource Access And Quality

Due to the decline in high-quality ore deposits left to develop, with those available predominantly in remote areas of the world, metals manufacturers will have a bigger challenge in terms of costs, lead times and risks associated in sourcing. Recycling scrap metals could allay this burden, helping to reduce mineral and energy consumption as well. For example, using steel scrap in the production process reduces CO2 emissions by 58%³. However, manufacturers must be able to estimate the volume of scrap and quality to achieve.

These obstacles also represent trends that will cause a shift in industry dynamics to make way for the next wave of value generation and innovation. Metals manufacturers have the opportunity to rise to these challenges by capitalizing on digital capabilities. This largely entails forgoing legacy and outdated systems (that were never built to manage today's manufacturing complexities and intricate supply chains), in favor of modern digital technologies and automated processes. With a digitally enabled supply chain, metals producers will be able to unlock the coveted visibility needed to effectively respond to disruptions and innovate for future success.

¹ Campbell, Rebecca; Tiyev, John and Oliver, Wright. White & Case. "Mining & Metals 2022: ESG and energy transition – the sector's biggest opportunity" (3 February 2022)

² World Economic Forum. "Mining and Metals: digital transformation and the industry's 'new normal'" (2022)

³ EuRIC AISBL. "Metals Recycling Factsheet"



UNLOCKING THE FULL POTENTIAL OF METALS THROUGH DIGITAL TRANSFORMATION

The adoption rate of new technologies in metals has been historically slow. However, this pace is picking up, with many metals companies seeing significant benefits and efficiency gains from innovations in analytics, mobile solutions and automation. According to McKinsey & Company, the industry's most pertinent driver for competitiveness is evolving to more data-centric value creation—how effectively metals companies can capture and leverage data. McKinsey's research also suggests **"metals producers that harness the full potential of a digital transformation can increase their EBITDA margins by up to 6 to 8 percentage points."**⁴

In fact, the World Economic Forum anticipates a substantial **cumulative value impact of digital transformation on the metals** (and mining) industry over the next 10 years, which we have narrowed down to three key aspects:

Financial:

More than **\$320 billion of industry value**, with a potential benefit of approximately \$130 billion for the metals sector.

Social:

Major improvements in safety in mining and metals, which equates to approximately a **10% decrease in lives lost** and a **20% decrease in injuries** in the industry. However, this comes at a cost—the potential loss of jobs amounting to an estimated 5% of the workforce. This consequence of increased digitalization should be addressed and mitigated where possible.⁵

Environmental:

A reduction of **610 million tons of CO₂ emissions**, with an estimated value to society and environment of \$30 billion.

⁴ Mori, Lapo et al. McKinsey & Company. "Unlocking the digital opportunity in metals" (January 2018)

⁵ World Economic Forum. "Mining and Metals: digital transformation and the industry's 'new normal'" (2022)



HOW METALS CAN CONTRIBUTE TO A MORE CIRCULAR ECONOMY

Moving toward a future increasingly driven by sustainability, staying competitive, relevant and profitable in the industry means rethinking the way we invent, produce and do business to drive a more circular and sustainable world of operations.

THE DECARBONIZATION CHALLENGE

The shift towards a greener metals industry is underway, but it comes with an array of obstacles for business and production. A recent Fastmarkets study uncovered that decarbonization complicates an already complex mix of market dynamics and is “an expensive undertaking affecting margins, raw material and production costs as well as trade opportunities.”⁶

Nevertheless, decarbonization is slated to be a top priority for metals leaders who want to remain economically competitive and retain the industry’s license to operate. With heightened pressure to move to a circular economy and the growing mass of socially and environmentally responsible consumers, there is increasing demand for sustainably sourced materials as well as for metals manufacturers to demonstrate stellar ESG (environmental, social and governance) credentials.

McKinsey & Company estimates that approximately **14% of steel companies’ potential value is at risk should they fail to decrease their environmental impact.**⁷ The consulting firm addresses that the optimal steps for decarbonization “will differ by location and site, depending on technical feasibility, existing infrastructure, market demands, operating costs and the regulatory environment.” Going forward, metals manufacturers must re-evaluate their technological infrastructures and reimagine more economically viable ways to reduce their carbon footprint.



⁶ Fastmarkets. “The true price of green steel: how decarbonization will squeeze steel margins and create intense competition for raw materials and scrap” (2021)

⁷ Hoffmann, Christian; Van Hoey, Michel and Zeumer, Benedikt. McKinsey & Company. “Decarbonization challenge for steel” (3 June 2020)



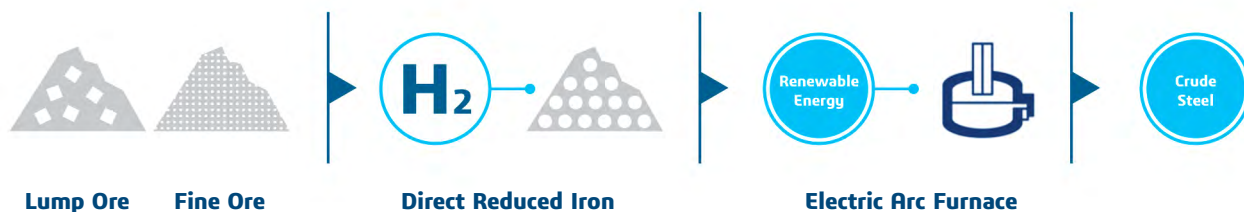
METALS PLAYERS' EFFORTS TO REDUCE CARBON FOOTPRINT

Step change improvements towards a more circular economy are in action today. On the aluminum side, thanks to the material's endless recyclability, **75% of all aluminum ever produced is still in use today.**⁸ The steel sector, which has been one of the biggest industrial emitters of carbon dioxide, is catching up in this domain, with more companies seen making investments towards environmental sustainability. In Europe for instance, 90% of stainless steel is currently collected and recycled into new products. Recycling steel saves **72% of the energy needed for primary production** (i.e., 4,697 kWh per ton).

Other examples include cleaning polluted air, combining resources for processes—such as pickling and cold rolling or casting and hot rolling—and hot charging. Hot charging promises significant cost savings and productivity gains as the process requires less time and energy to reheat slabs to the temperature required for hot rolling. This leads to improved material quality and productivity as well as reduced material losses, slab stacking and CO₂ emissions. Meanwhile, steel players in Europe are assessing viable alternatives and breakthrough technologies, including the use of an integrated blast furnace (BF)/basic oxygen furnace (BOF) or an electric arc furnace (EAF) and utilizing scrap-based EAFs.⁹

Some metals manufacturers are noted to be leveraging green hydrogen-based DRI (direct reduced iron) and scrap in combination with EAFs. McKinsey & Company highlights "green hydrogen" or electricity-intensive electrolysis as another process for producing hydrogen and is the only carbon-neutral technique (provided that renewable energy sources can be used). For instance, Liberty Steel Group is in the midst of driving the transition to a low-carbon economy through its GREENSTEEL strategies.

Hydrogen Steelmaking



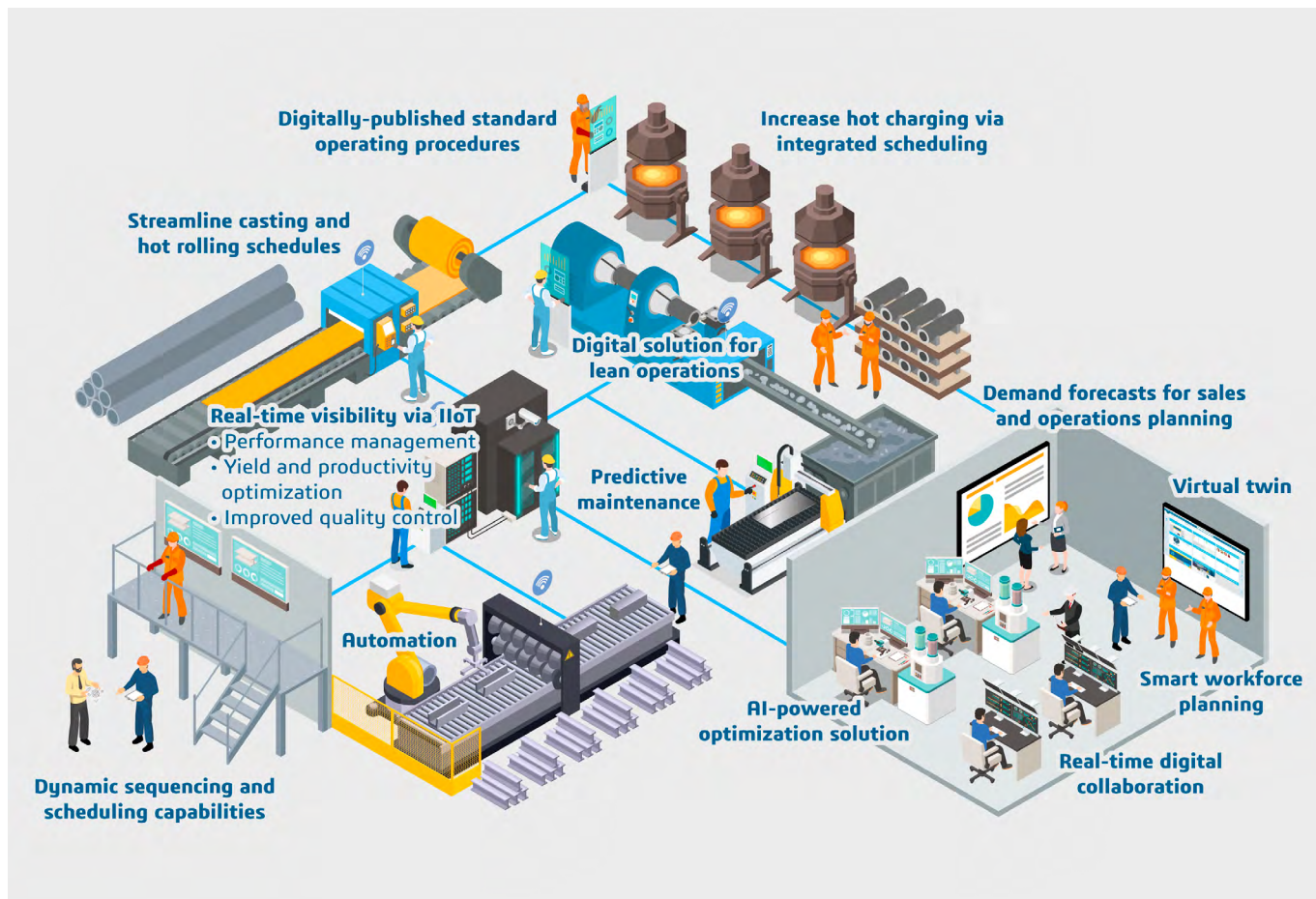
Sustainability is not a trend: it has become a must for the metals industry. Thankfully, achieving more sustainable metals operations is possible due to an array of technologies that can support even the most ambitious goals.

⁸ EuRIC AISBL. "Metals Recycling Factsheet"

⁹ Hoffmann, Christian; Van Hoey, Michel and Zeumer, Benedikt. McKinsey & Company. "Decarbonization challenge for steel" (3 June 2020)

TECHNOLOGY TRENDS IN THE METALS INDUSTRY

The increasing importance of data and its application through digital technologies will see an uptake in these technology trends.



Enabling such trends for metals manufacturing will require these digital capabilities, driven by a spectrum of technologies, including automation and robotics, artificial intelligence (AI)/machine learning (ML), IIoT and analytics:



Automation, robotics and operational hardware to digitize and automate physical and non-physical processes for faster and more efficient processing.



Digitally enabled workforce, empowering on-site and remote workers through digital connectivity (connected mobility, VR and AR) to drive agile problem solving and more efficient operations.



Integrated enterprise, platforms and ecosystems, combining disparate IT and OT data sources into a single system to generate digital operational insights and business KPIs at an enterprise level, enabling identification of supply chain issues and root-cause analysis.



Next-generation analytics and decision support, leveraging advanced algorithms and AI to process data from across the value network to derive insight, model, analyze and make accurate predictions to provide flexibility and efficiency.

THE POWER OF VIRTUALIZATION

As manufacturers are constantly challenged to maintain the required throughput to meet demand while keeping operations within budget, virtualization technology becomes a distinctive competitive advantage for them. A recent survey conducted by IndustryWeek found that increasing investment towards modeling and simulation is expected over the next three years, with AI and virtual twins having the potential to help manufacturers advance their Industry 4.0 goals of end-to-end visibility and flexible production.¹⁰

The metals manufacturing environment is ripe for virtual capabilities that help manufacturers visualize and test new ideas virtually before enacting them in the real world, including workflows, line and scheduling changes, facility expansions and product innovations. Virtual twins in particular connect the virtual world with the real world of operations, capturing all data and experiences in operational management to inform the virtual model. Modeling in a virtual twin is not limited to that of a factory or facility—it also encompasses the modeling of the entire value network to form an intelligently connected, optimizable virtual counterpart. Metals manufacturers can leverage such a technology to increase throughput, improve delivery performance, reduce lead times, operational costs and even waste, making it a prime tool to enable more sustainable operations.



¹⁰ IndustryWeek, in partnership with Dassault Systèmes. "Virtual Twins in Manufacturing: 2021 Progress Report" (28 September 2021)

HOW DELMIA CAN ENABLE MORE SUSTAINABLE METALS OPERATIONS

The move towards more sustainable metals operations may seem like a Herculean task, but the right solution tailored for the organization's unique needs can help unlock the capabilities needed to enable circular goals.

At Dassault Systèmes DELMIA, we aim to help manufacturers and service providers accelerate their sustainable ambitions through optimized and efficient supply chain operations from end to end. Leveraging our technologies and digital capabilities, companies can connect the virtual and real worlds of value networks to collaborate, model, optimize and perform their operations to the highest degree of efficiency. These leading-edge solutions, powered by the **3DEXPERIENCE®** platform, drive transparency and visibility; to understand the impact of decisions on the environment and economy, and facilitate decision support, scenario management and innovation; to reimagine new business models and ways of working—without compromising real-world operations.

Our solutions are capable of modeling the entire metals value network in order to optimize CO2 emissions. Sustainability is part of the DELMIA solution suite for the metals industry in the form of KPIs, which can be taken into account in the optimization strategy and leveraged to make trade-offs during planning and reporting.

In addition, DELMIA enables visibility over scrap generated in the value network, allowing manufacturers to use it in an optimal way. We provide blending optimization techniques to find the optimal recipe (chemical compositions of minerals) while considering the demands of different metal grades and scrap composition input. This results in better and optimal usage of scrap and less need to input rare raw materials to be mined, leading to a more sustainable future for metals manufacturing.



ENABLE AND ACCELERATE METALS INDUSTRY TRANSFORMATION WITH DELMIA

With a track record of serving customers in the metals industry for over 20 years, our robust, highly configurable solutions help metals companies optimize planning, scheduling and production in all aspects of the metals supply chain. Powered by the 3DEXPERIENCE platform, we offer a combination of advanced digital capabilities, process-specific and cloud-based tools as well as end-to-end decision support, culminating to form a complete solution for metals transformation.

7 CRITICAL CAPABILITIES FOR SUCCESSFUL METALS TRANSFORMATION

1

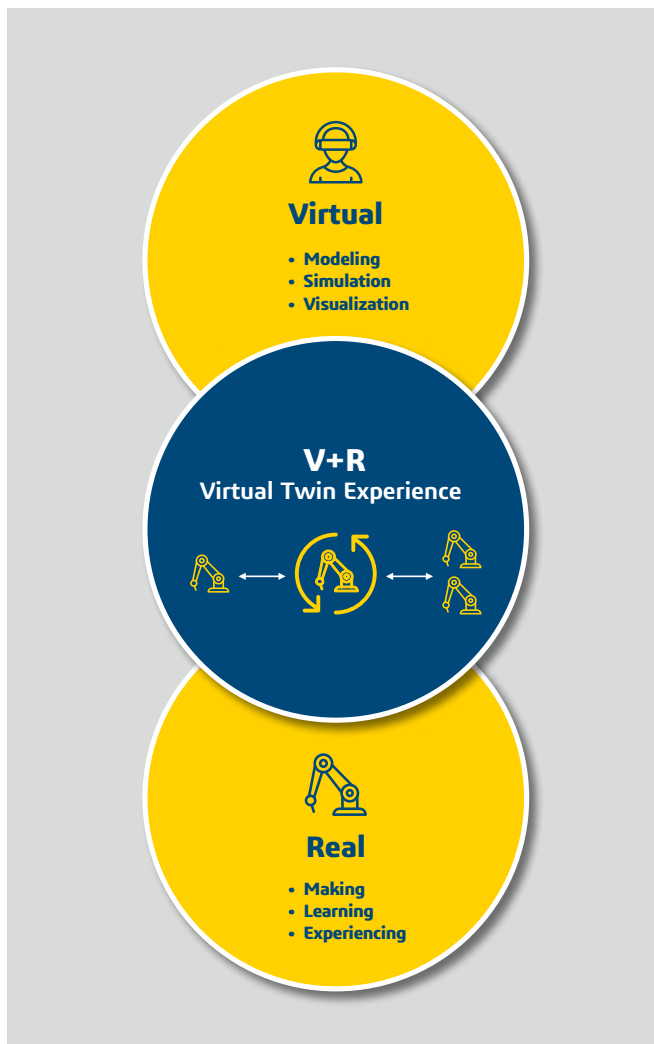


The Virtual Twin Experience

It is critical for metals manufacturers to have an accurate representation of their business reality in the virtual realm to evaluate and determine the right decisions before making them in the real world. Dassault Systèmes' Virtual Twin Experience takes virtual twin technology one step further as a real-time 3D representation of your entire factory and value network—down to resources, workstations and minute processes. Simulation with the Virtual Twin Experience ensures you have the best understanding of your real world through the digital world, helping you accelerate planned changes to respond to dynamic conditions as well as minimize costs, waste and inefficiencies.

In conjunction with DELMIA solutions for planning and optimization, manufacturers can reflect physical assets and their behavior in the context of business processes for producing goods. This helps manufacturers validate and understand the implication of strategic decisions—from adding a new production line and simulating various factory processes to improving worker safety and identifying potential bottlenecks through 'what-if' scenario creation.

The Virtual Twin Experience is designed to capture implicit knowledge, know-how and best practices across the entire value network. This accumulated information allows the virtual twin to be optimized over time, considering changes to the workforce, production and scheduling as well as the introduction of new capabilities.



Capabilities:

- ✓ Helps assess new products, evaluate potential changes in production and optimize production processes
- ✓ Helps re-assess manufacturing strategies and capacity to mitigate shortcomings
- ✓ Synchronizes planning and execution to drive continuous improvement

Advantages:

- ✓ Achieve manufacturing excellence and more sustainable innovation and operations
- ✓ Drive the creation of a value network
- ✓ Empower the workforce of the future

2



Sales & Operations Planning (S&OP)

S&OP is one of the most fundamental cross-functional processes and, if executed correctly, leads to increased revenue and profitability. However, the process requires collaboration and input from various departments, such as product development, procurement, manufacturing, sales and marketing—which is normally the missing link in many companies' S&OP strategy.



DELMIA's solution for S&OP enables metals manufacturers to create company-wide plans that link corporate strategy to operations and align the plans of different functions and entities within the supply chain.

Manufacturers can leverage this configurable solution to achieve the necessary visibility and fine-tune inter-departmental collaboration to drive faster and more valuable decision-making driven by real-time data based on accurate insights, relevant KPIs as well your organization's needs and constraints. Powered by world-class optimization, DELMIA S&OP helps improve forecast accuracy, allowing manufacturers to better plan across operations, increase overall profits and be closer to the planning reality. This provides them with accurate input for the creation of a lean supply plan and ultimately enables the development of various scenarios and data-driven decisions that are in line with the organization's strategies or objectives.

Capabilities:

- ✓ Enables and improves global supply chain visibility through centralized data management and a single source of truth
- ✓ Facilitates effective and efficient collaboration across all stakeholders in the S&OP process
- ✓ Provides real-time insights and decision support, thanks to real-time KPI-driven optimization and 'what-if' scenario creation and comparison capabilities
- ✓ Enables attribute-based demand forecasting and forecast accuracy analysis to support the creation of optimal statistical forecasts
- ✓ Supports the creation of the most feasible supply plans that maximize resource usage, increase turnover and reduce working capital

Advantages:

- ✓ Improve decision-making, productivity, delivery performance and customer satisfaction
- ✓ Increase profitability and throughput
- ✓ Improve forecast accuracy and operational agility
- ✓ Reduce costs

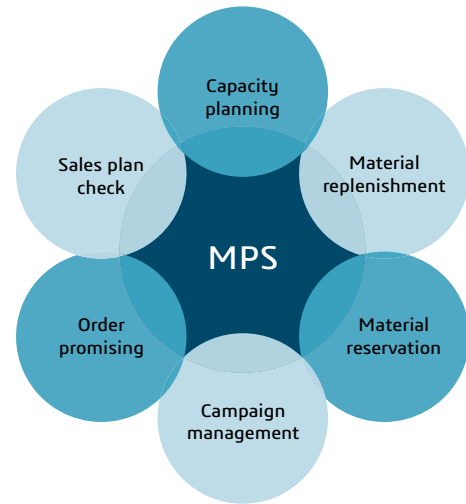
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Master Production Scheduling (MPS)

As your metals manufacturing operations grow, so will the complexity of your planning needs. With our out-of-the-box solution for Master Production Scheduling (MPS), DELMIA helps metals producers alleviate some of this complexity by helping them determine what products to produce and when.

MPS helps fine-tune supply and demand data to deliver accurate and timely production plans, throughout the entire production supply chain—which is a crucial planning function. This helps manufacturers achieve their production objectives and minimize procurement costs. When disruptions like unexpected shortages, scheduling slip-ups or inefficient resource allocations occur, MPS offers the ability to quickly react to changes. DELMIA MPS delivers these capabilities to help you significantly reduce your inventory levels, improve your delivery performance and enables your supply chain to be resilient to change, offering the ability to quickly respond to disruptions in inventory and evaluate different alternatives for optimal production scheduling.



The scope of the DELMIA MPS solution for the metals supply chain

Capabilities:

- ✔ Provides KPI-based iterative optimization for hundreds of thousands of operations within a relatively short timeframe
- ✔ Provides a single source of truth, connecting sales, production and procurement through supply chain planning
- ✔ Improves plan adherence by enhancing communication between corporate planning and the factory floor
- ✔ Provides visibility of upstream and downstream work orders and material flow synchronization
- ✔ Allows metals producers to support automatic order promising with the support of our algorithms

Advantages:

- ✔ Gain visibility across the supply chain with integrated production planning
- ✔ Increase delivery performance and balance resource utilization
- ✔ Increase customer satisfaction by adapting to demand fluctuation
- ✔ Manage bottlenecks and avoid resource starvation
- ✔ Reduce work-in-progress, order lead times, over-production and inventory levels
- ✔ Generate and compare 'what-if' scenarios in real-time



4



Detailed Scheduling

Metals manufacturers often find it hard to ensure optimal production performance, namely in scheduling of the melt-cast area, hot rolling, cold rolling and finishing areas. This is challenging due to a multitude of complex rules and constraints around the process, making it difficult to drive efficiency in both scheduling and the use of resources. The different areas have various commonalities, but also specific puzzles.

Fortunately, DELMIA's scheduling solutions can alleviate this problem. The DELMIA Steel Schedulers include a dedicated melt-cast scheduler, hot rolling scheduler, cold rolling scheduler, integrated steel hot process scheduler (combining casting area and hot rolling area) and more. All schedulers provide an advanced scheduling system that optimizes programs and sequences within the programs, considering all rules and constraints. This helps with planning material flow, combining orders and creating batches to generate an optimal production sequence for better delivery performance while also ensuring optimized resource productivity. All these dedicated scheduling solutions also collaborate with each other, to ensure also a well aligned material flow in the whole supply chain.

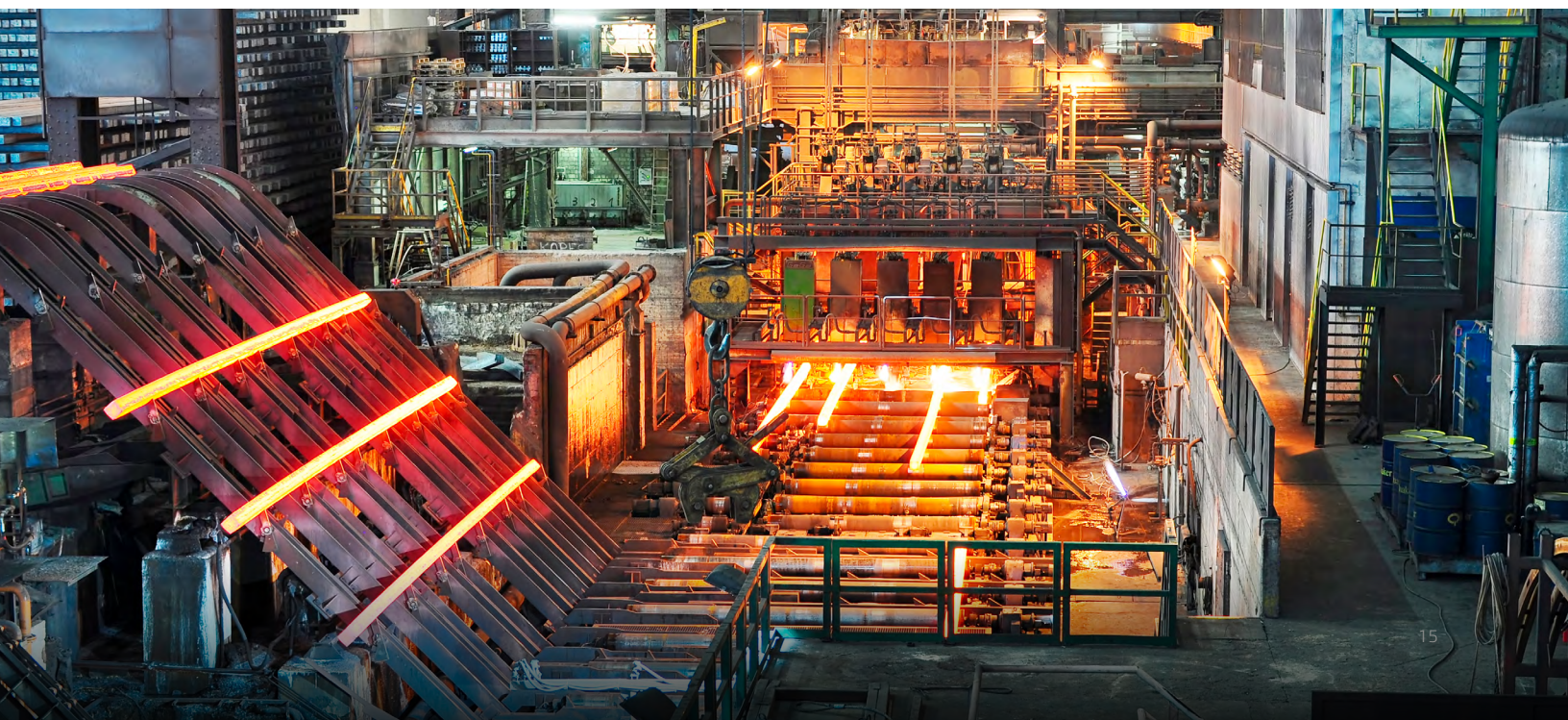
You can optimize your hot mill scheduling process to enhance the predictability of casting results and reduce the amount of quality checks needed. In addition, the solution helps optimize the very long cold mill supply chain, for example, by scheduling and optimizing bottleneck resources. By delivering unprecedented real-time material and scheduling visibility and powerful optimization technology, metals manufacturers can increase throughput, curb costs, improve customer satisfaction and ensure reliable scheduling performance.

Capabilities:

- ✔ Provides decision support through real-time KPIs and 'what-if' scenario management
- ✔ Enables automatic creation and optimization of rolling programs and heat sequences in furnace
- ✔ Provides integration and data configuration through the Virtual Twin Experience

Benefits:

- ✔ Increase on-time delivery and productivity
- ✔ Reduce production, material and energy costs
- ✔ Improve quality and reduce defects
- ✔ Reduce lead times and capital in WIP
- ✔ Increase throughput and revenue



5



Collaborative Operations

Collaboration is essential to determine the needs, wants and goals of a project. Everyone from design and manufacturing engineering to quality assurance, sales, procurement and management has valuable input that can be best leveraged through a unified system. Collaborative operations drives this initiative by connecting the dots between people, ideas and data inside and outside a company for optimized operations.

DELMIA facilitates collaborative operations via 3DLean—a modern, customizable digital tool designed for operational teams anywhere, be it on the shop floor, service center or warehouse. Powered by the **3DEXPERIENCE** platform, 3DLean is built on the foundation of Lean principles, i.e., maximizing efficiencies and eliminating all categories of waste to drive continuous improvement.

With it, metals operations teams can leverage a modern, interactive environment accessible to everyone on the cloud to digitalize shop floor activities. By bringing multiple actors onto the same platform, information and interactions can be digitally captured and better documented for knowledge management, helping to retain institutional and practical knowledge from experienced employees for the future workforce. In addition, it empowers teams to find new ways to innovate by bringing people together in a structure that guides discovery, analysis and better collaboration.

6



Manufacturing Operations Management (MOM)

MOM goes beyond traditional MES (manufacturing execution system) to include capabilities in quality, warehousing and logistics, time, labor and equipment maintenance. As manufacturers search for new operational directions to their organizational strategies and seize opportunities created by disruptions, they will need a connected, scalable and sustainable platform approach.

The DELMIA MOM suite offers a solution for global manufacturing operations management. It goes beyond traditional business process accelerators and functions as a comprehensive core platform for manufacturing excellence. From design to build to support, digitalizing the entire manufacturing process with our MOM solutions enable metals manufacturers to control and synchronize their operations on a global scale. Our solutions support multiple manufacturing models, from discrete to process, and is scalable from the largest of factories to small, niche manufacturers—with an emphasis on business process management, unique global management capabilities and robust data collection from any IIoT device.



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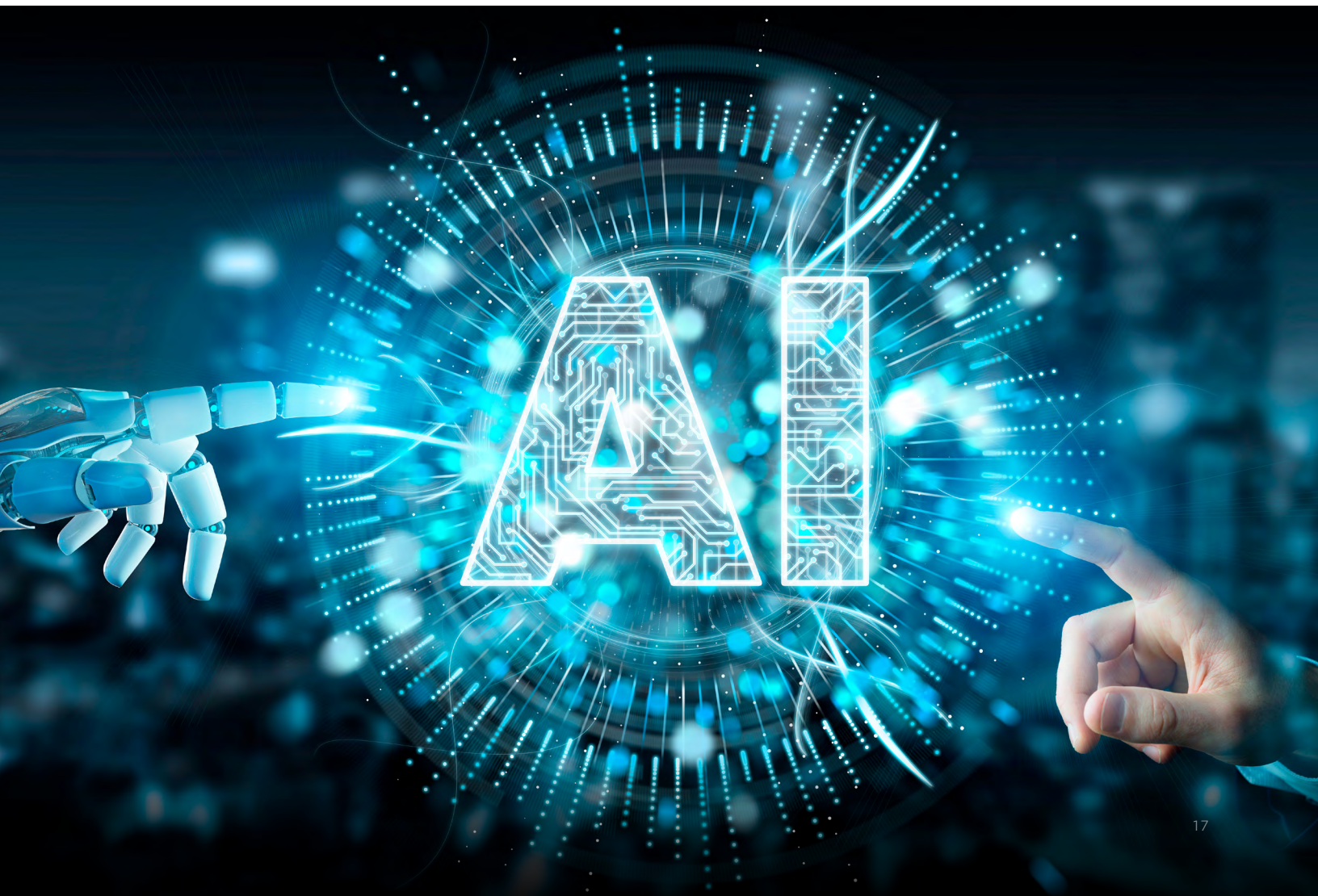
AI/ML-enabled supply chain

Manufacturers have typically leveraged solutions like enterprise resource planning (ERP), other allied IT systems and traditional methods such as just-in-time to remain profitable. However, these solutions may not ensure profitability as they lack the ability to provide expected future outcomes or prescriptions to achieve a favorable outcome. Making this possible requires next generation technology with applications in analytics, such as AI and ML.

Manufacturers have more data than ever before, making AI/ML ripe for transformation. Combined with advanced digital capabilities and optimization technology, DELMIA believes in the power of AI/ML to help metals manufacturers shape their value network of the future through closed-loop, intelligent decision automation in all components of the supply chain, from sourcing and production to distribution and sales.

DELMIA offers an out-of-the-box, modular, customizable, scalable and automated platform that is purposely built to address future supply chain challenges. An ML model's ability to predict future outcomes will provide invaluable insight; and when paired with DELMIA's optimization technology to recommend the best decisions, companies can be sure that they will achieve the best possible outcome every single time.

Powered by the **3DEXPERIENCE** platform, DELMIA solutions are capable of handling numerous types of data, equipped with a range of algorithms—from simpler linear models to cutting-edge deep learning architectures—leading to interpretable outcomes. DELMIA is well-positioned to deliver the game-changing capabilities of AI/ML for manufacturing and the supply chain, enabling a fully interconnected, digital, AI/ML ecosystem that unlocks exponential value and sustainable impact to drive innovation and resilience.





CONCLUSION

With these combined capabilities, metals manufacturers can confidently transform their operations for sustainable value, growth, competitiveness and resiliency.

Leveraging DELMIA solutions on the **3DEXPERIENCE** platform gives you access to a smart, integrated system that helps you overcome critical challenges in any market condition. You can take into account all planning horizons (strategic, tactical and operational) with planning algorithms that make your supply chain more agile and flexible. As a result, you can more easily meet changing business needs, drive more sustainable practices, mitigate disturbances in your supply chain and, with a fast route to value, you can expect strong return on investment.

Projected ROI leveraging DELMIA solutions for metals transformation:



12-30%
increase in
on-time delivery



10-20%
inventory
reduction



5-20%
cost
savings

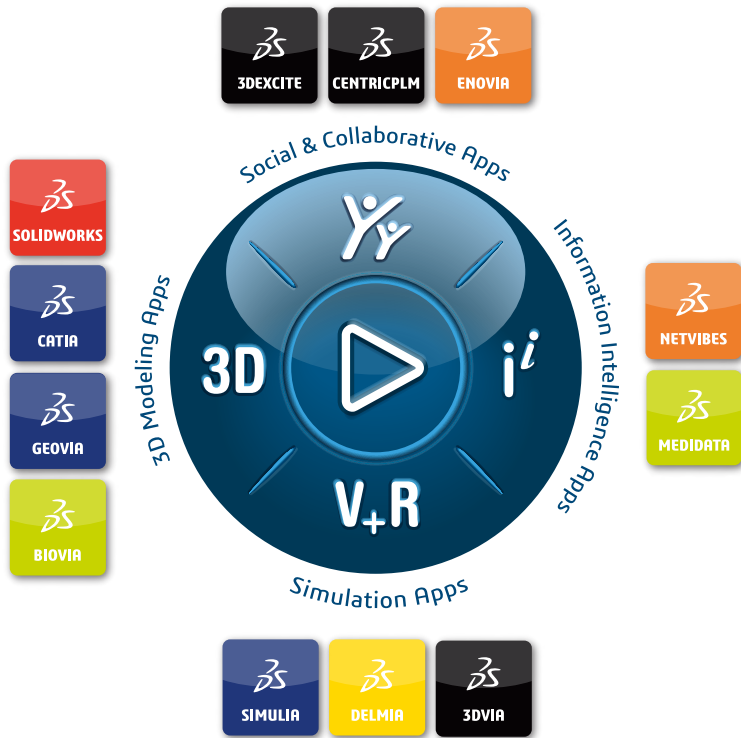


3-5%
improvement in
productivity

For metals manufacturing companies who want to address requirements outside of what is highlighted here, DELMIA offers mature products capable of considering additional requirements unique to your business and can be easily deployed for short time to value.



Contact us now to start your journey to more sustainable, resilient and innovative metals operations.



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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