SOLIDWORKS

THE SMART MANUFACTURING ECOSYSTEM
CONNECTING ALL ASPECTS OF DESIGN-TO-MANUFACTURING

BRIDGING THE HISTORIC DIVIDE

Businesses strive to serve existing customers, create new markets, and gain new customers; innovation is key to achieving these goals. In an economy where new competitors can come from anywhere, the only real defense is to out-innovate them in all aspects of your business—from product development to product delivery to supply chain management.

For years, outdated processes have separated design from the manufacturing stage of product development. Siloed organizational structures, adherence to outdated processes, and the disparate tools used for each side of the business have done much to reinforce the separation.

This divide inevitably leads to costly mistakes that wreak havoc on timetables, budgets, and talent. Loss of critical information, fragmentation, alteration of design concepts, loss of product and process knowledge, and stagnation in generating original innovative ideas—all are the compounded result of a broken and outmoded work model.

To create an alternative to this divide, a bridge between product design and manufacturing requires not just new tools, but a new approach to how parts and products are made. Only by rethinking the entire development workflow can faster, stronger, more collaborative methods be realized.

DASSAULT SYSTEMES

THE ARRIVAL OF SMART MANUFACTURING

Smart Manufacturing is a term used to describe a connected and seamless flow of intellectual property to all teams involved, from Sales through Manufacturing to Shipping.

The creation of IP involves knowledge capture early in the collaboration process with intelligence from varied skill sets, such as design, costing, quality, manufacturing, marketing, and supply chain.

In Smart Manufacturing, information is gathered in real-time from all sources and shared in the form in which it is most useful. Manufacturing intelligence is built upfront to integrate the three major components in the order fulfillment process: design, manufacturing, and operations.

SMART MANUFACTURING DRIVEN BY INDUSTRY TRENDS

The one certainty about business is that it's always changing. Advancements in technology and intense competition, both at home and abroad, will always push organizations to innovate new processes for product development and manufacturability.

3DEXPERIENCE®

ACHIEVING A UNIFIED SMART MANUFACTURING ENVIRONMENT THROUGH DIGITAL TRANSFORMATION

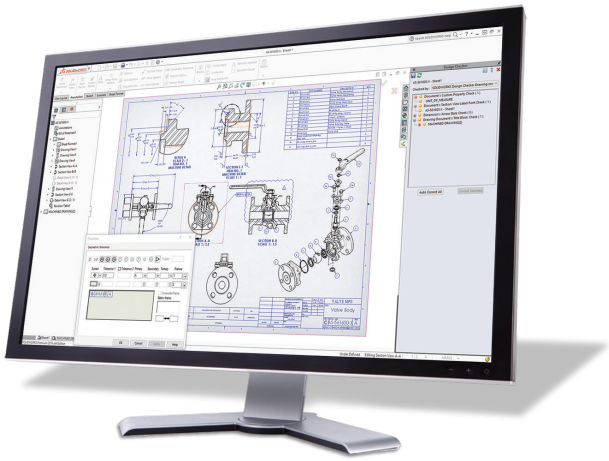
According to SOLIDWORKS CEO Gian Paolo Bassi, "In Smart Manufacturing, IP capture in Design and manufacturing are kings. The entire process works to serve the requirements that best address our customer's needs. It helps companies make better decisions, which leads to better products, shorter time to market, and the agility to respond to their customer's demands."

Today's strategically minded manufacturers share a goal of creating a fully optimized manufacturing environment which maximizes efficiency, cost-effectiveness, process performance, and responsiveness in service to enable an optimally performing business. They have realized that to achieve this objective, it is necessary to operate within an environment in which real-time information from all areas is integrated from, and made accessible to, all developmental stages and stakeholders between the earliest ideation stages and the final distribution of the finished product.

These manufacturers understand that by gaining ready access to comprehensive data which is continually updated in real-time, they gain the ability to rapidly respond to changed conditions and emergent issues. Moreover, they gain the insight needed to understand the true current state of the business and its processes, providing the opportunity for immediate intervention or remediation as needed.

Beyond gaining current-state awareness, access to and appropriate distribution of this actionable data facilitates accurate projection of future-state conditions. Potential delays, breakdowns, shortfalls, performance issues, and other concerns can be anticipated—and remediated before they happen. Intelligence gained throughout these processes is re-integrated into the collected knowledge base, enabling further improvements in process optimization and problem-proofing, creating a virtuous cycle of continuous improvement.

The cloud-centric 3DEXPERIENCE platform provides the tools needed to implement this fully integrated, collaborative, connected environment. Design, engineering, HR, operations, shipping, logistics, and customer data are integrated and continually updated in real time, providing comprehensive visibility into all aspects of the design-to-manufacturing process. Changes made at any stage in the process are immediately reflected in all other areas; dependencies are updated without the need for human intervention, and without the additional associated time-cost or reduplication of effort.



By achieving universal access to comprehensive, up-to-the-minute data across all design-to-manufacturing disciplines and by leveraging it to guide and adjust operations at all stages, 3DEXPERIENCE Platform-empowered enterprises are able to globally minimize risks while maximizing operational efficiency.

REDEFINING MANUFACTURING

"In the global manufacturing ecosystem, the marketplace is changing massively and redefining contract manufacturing," says Kishore Boyalakuntla, SOLIDWORKS portfolio management director. "Now, designers and engineers have a 'manufacturing consultant' built into the system."

Rules-based machining with knowledge capture allows for the automation of manufacturing programming, and lets engineers and designers execute CAM programming and tasks. By doing so, they gain a greater understanding of how their designs are made, leading to the creation of less expensive and easier-to-produce products. This method also allows design teams to create prototype parts faster than outsourcing, and can bring critical manufacturing in-house to control quality, cost, and delivery.

This creates the option of a "build-to-order" strategy in which a company can customize and personalize their products online using automated design and manufacturing functions. Designers and engineers can now create CAD prototypes without having to deal with production runs or use outside vendors. Smart Manufacturing compresses the time frame for manufacturing, allowing turnaround in as little as 24 hours and facilitating in-house production.

MAXIMIZING INNOVATION

Smart manufacturing gets good ideas to market faster, more efficiently, and more cost-effectively. But it all starts with the idea and innovation.

By eliminating redundancies and automating parts of the design-to-manufacturing process, talent is freed from repetitive tasks and has space for imagination and creativity. The focus is no longer on the process of moving information, but on maximizing performance at each stage of the design-to-manufacturing chain.

"SOLIDWORKS tools allow the designer not just to create geometry or a functional shape, but optimize their ideas," says Bassi.

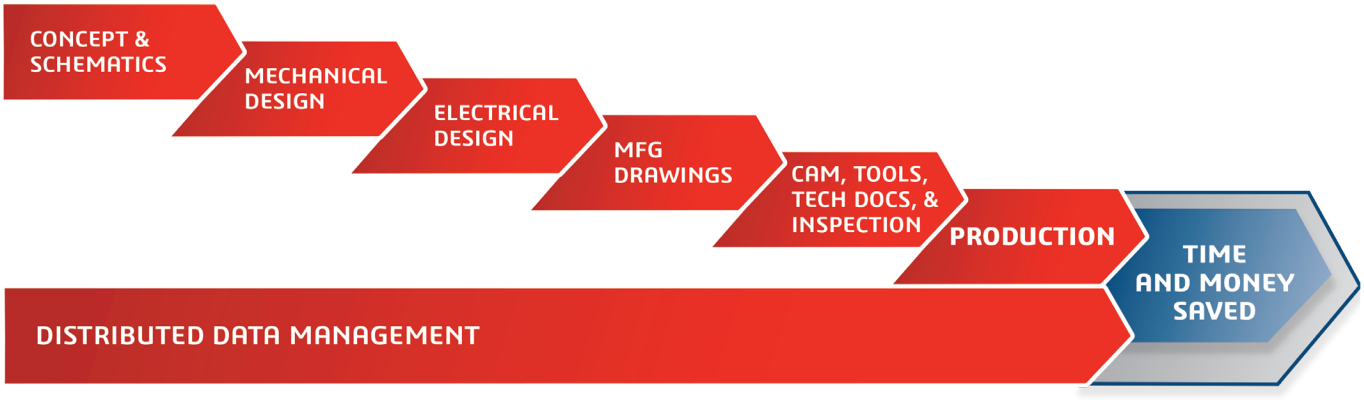
SMARTER MANUFACTURING REQUIRES CONNECTED AND INTEGRATED PROCESS SOLUTIONS

Achieving the benefits of Smart Manufacturing is a simple matter of having the right tools. In SOLIDWORKS 2018, you'll find a suite of software solutions capable of bringing your design-to-manufacturing process into a single, unified solution.

SOLIDWORKS CONCURRENT AND INTEGRATED PROCESS VERSUS TYPICAL SERIAL PROCESS

Typical Serial Design-to-Manufacturing Process

Concurrent and Integrated Design-to-Manufacturing Process



Learn more about SOLIDWORKS 2018 and all our Solution Processes by visiting https://launch.solidworks.com.

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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