

# UPGRADING FROM 2D TO 3D WILL HELP YOU AND YOUR COMPANY SUCCEED

White Paper



## OVERVIEW

Moving from 2D to 3D design has allowed many successful manufacturers to expand, grow, and innovate. 3D design generates time, cost, and material savings; improves workflows, processes, and product quality; and fosters creativity, inspiration, and innovation. No matter what you design, moving to 3D will help you do a better job—and help your company succeed—by accelerating time-to-market, improving design for manufacturability, eliminating unnecessary costs, producing consistently high-quality products, and encouraging greater innovation. With the easiest, smoothest transition path from 2D to 3D, SOLIDWORKS® design software can help you achieve the productivity and efficiency gains that will enable you and your company to grow and gain a competitive edge in an increasingly competitive global market.

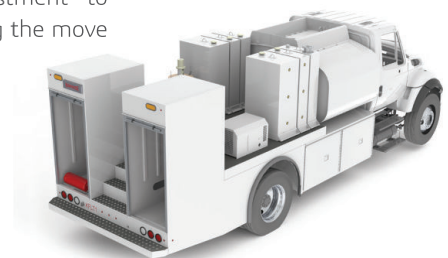
### MOVING TO 3D IS EASIER AND MORE PRODUCTIVE THAN YOU THINK

Over the past two decades, many of the world's top manufacturers have made the transition from 2D to 3D design, such as Bausch & Lomb, Garmin, SMC, and Trek. Manufacturers that have upgraded to 3D product development have realized significant return on their investments (ROI) in 3D technology—not only in product design but also throughout their product development and manufacturing enterprises. Just as the change from drafting tables to 2D CAD software ushered in dramatic gains in productivity, moving from 2D to 3D CAD tools can reinvigorate your product development operation by saving substantial amounts of time and money, while simultaneously improving efficiencies, maintaining quality, and increasing innovation.

Designing products in 3D is ultimately faster and more accurate than 2D. 3D CAD lets you visualize, communicate, interrogate, cost, optimize, and manufacture products in a fraction of the time that it takes in 2D. Empowered by design “associativity,” 3D CAD also allows you to make critical design changes very late in the product development cycle without having to redraw or recreate downstream deliverables, such as manufacturing drawings, technical documentation, inspection documentation, and even NC manufacturing programs. With associativity, if a change is made to the 3D CAD model, anything that references the model (including drawings, assemblies, NC programs, etc.) will update or adapt to the change automatically—there's no need to go back and manually edit and redraw views. This leads to substantially shorter design cycles that help you accelerate time-to-market, increase throughput, and create better products.

Along with increased speed and greater accuracy, 3D will help your company reduce costs by eliminating redundant, wasteful steps; improving design quality; and streamlining workflows. There's simply less duplication of effort with 3D. For example, as stated above, there's no need to make manual drawing updates every time the design changes. Because it's easier to visualize and shake out designs in 3D, you won't need as many prototypes and will encounter fewer surprises after a design is released for production, reducing the volume of scrap produced and rework required. By using your 3D model to simulate design behavior and performance, you can significantly reduce—and in some cases totally eliminate—the need for building and testing physical prototypes.

You'll also be able to more easily reuse product, assembly, and component design data—for new or updated products, or to support a host of downstream processes. Visualizing and communicating designs in 3D will extend the reuse of product design data—and the ROI of your 3D investment—to every facet of your product development and manufacturing organization. And, making the move to 3D is easier and more productive than you might imagine.



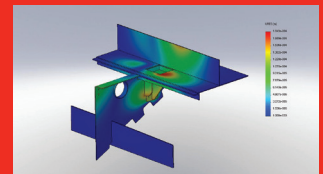
## THE MULTI-FACETED ADVANTAGES OF 3D

To truly appreciate the professional, organizational, and business advantages of moving from 2D to 3D design, let's address the myths and misconceptions surrounding 3D, identify the things that you need to do to help you and your company succeed (but can't do in 2D), and take a look at the business and organizational impacts of leveraging 3D design as your platform for product development.

### Getting Past the Myths of 3D

- **3D is Too Difficult** – Change is always challenging, but with access to the appropriate training, tutorials, and learning tools, and by gaining experience, you'll discover that 3D software is easier to use and a more natural and intuitive approach to designing products in a 3D world.
- **The Transition Requires Significant Downtime** – Many smaller companies believe they can't afford the downtime required to move to 3D. You can move to 3D without adversely affecting productivity by using either a phased transition—moving projects to 3D in phases—or deploying 3D on a pilot project—identifying and addressing any issues prior to a company-wide implementation.
- **Simple Product Designs Don't Need 3D** – Although modeling simple products in 2D may be just as fast, even the most rudimentary products can benefit from 3D because of the ease and speed of design changes, and the additional capabilities that you can apply to 3D data, such as optimizing designs using simulation or taking designs straight to manufacturing.
- **We Won't Be Able to Use Legacy Data** – You can continue to leverage 2D design data using import and utility tools to create 3D models directly from imported 2D data. Or, if you simply want to print or view a drawing, some 3D software vendors provide free or low-cost 2D applications for this purpose, such as free DraftSight® software from Dassault Systèmes SOLIDWORKS Corporation.
- **We Will Lose Our 2D Tools** – Some 3D applications either include capabilities for easily outputting 2D formats—such as drawings, schematics, or machine layouts—from 3D design data or provide 2D utilities and tools, such as the aforementioned DraftSight software. With 3D, you can still use 2D when and if you need it.

**“More importantly, adding 3D to your toolbox will keep your skills sharp and up-to-date, so you can win future jobs or capitalize on advancement opportunities.”**

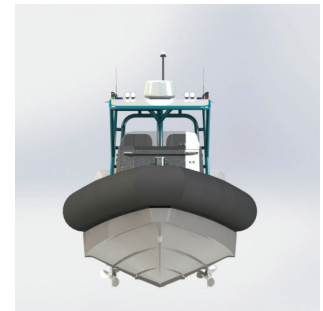
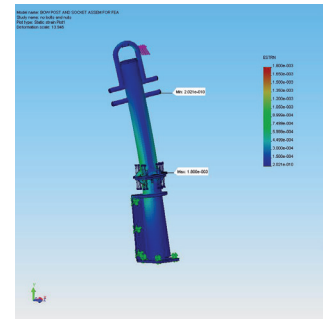


- **Learning 3D isn't Necessary** – Your company may ask you to learn 3D so it can leverage its productivity gains to become more nimble, agile, and competitive. More importantly, adding 3D to your toolbox will keep your skills sharp and up-to-date, so you can win future jobs or capitalize on advancement opportunities. All recent engineering university graduates have received 3D training, so you may need to learn 3D to maintain your own competitive advantage.
- **3D is Expensive** – While buying 3D software certainly costs more than purchasing 2D packages, 3D is actually less expensive over time because of the many benefits that it provides, including increased productivity, improved communication, better product quality, and faster time-to-market. ROI on 3D software also extends beyond product design to the downstream processes that can share and leverage valuable 3D design data.



## THINGS YOU NEED TO DO BUT CAN'T DO IN 2D

- **Speed Approvals** – Obtaining the necessary approvals from management and/or customers is the first major hurdle in product development. In 2D, this is often difficult to achieve expeditiously because getting non-technical personnel to understand a 2D drawing—especially for complex designs—can be slow, trying, and challenging, delaying approvals.
- **Make Quick, Easy Design Changes** – Dealing with design changes is an everyday fact of life for engineers. In 2D, every design change requires laborious, time-consuming manual updates to multiple drawing views. For assemblies, design changes in 2D become a major undertaking because of the need to update other parts in the assembly that are impacted by the initial design change. In addition to being slow, making design changes in 2D creates opportunities for errors.
- **See How a Design Moves** – Engineers working in 2D are hard-pressed to accurately visualize how a design moves in a 2D drawing. An assembly design could have collisions and interferences in it, but you'd only notice them if you could watch how components in an assembly interact with one another as the assembly moves. Finding these problems in 2D is time-consuming and difficult, even for the most discerning checkers.
- **Create Animations, Photorealistic Renderings** – Need to show customers, managers, or partners how a design concept functions using an animation? Or, do your sales and marketing personnel need photorealistic design images to seed the market for a new product or to publish your product catalog? In 2D, you simply can't create compelling, aesthetically pleasing 3D images or animations to meet these needs.
- **Validate and Optimize Performance** – As an engineer, you probably ask yourself “what if...” frequently, but you can't get answers to your questions because you can't easily run analyses on a 2D drawing to simulate design behavior. Thus, you can't gain the insights that would help you either validate a design or optimize it to improve performance, save material, or improve manufacturability.
- **Reuse Designs, Components, and Assemblies** – The majority of new products are actually modified versions of previous models. Reconfiguring or tweaking part and assembly designs in 2D is such a tedious process that you may decide to start from scratch to avoid it, limiting your ability to reuse valuable existing design resources.
- **Collaborate Effectively** – How well can you collaborate with customers or non-technical colleagues—such as marketing, sales, finance, and logistics personnel—who are increasingly included on design review teams, in 2D? With a 2D drawing, it's difficult to effectively interact with anyone who doesn't use 2D CAD, which can lead to misinterpretations, errors, and missed opportunities to secure valuable input.
- **Produce Standout Proposals** – Do you really expect that your 2D-drawing-based proposal to an RFQ will stand out from competitive proposals that are chock full of rendered 3D images and animations? Of course, potential customers don't usually award bids based solely on style and will certainly evaluate substance. Nonetheless, 2D-based proposals will miss out on a lot of business, because companies increasingly prefer receiving proposals in 3D and many insist on it.
- **Take Designs Straight to Manufacturing** – With 2D, releasing a design to production often requires a manufacturing engineer to convert the 2D drawing into a 3D CAD model first in order to generate the tool paths on a machine tool being driven by a 3D CAM program. This interim step takes time and prevents you from taking a design straight to manufacturing. Integrated 3D CAD and CAM allows users to make a design change, and have the NC tool-path data update accordingly.
- **Leverage 3D Printing for Rapid Prototyping** – Want to take advantage of the latest 3D printing and rapid prototyping technologies to quickly “print” one-off samples or prototypes? You can't do it with a 2D drawing, unless you recreate your 2D design as a 3D model. Of course, that approach creates another unnecessary step that you can avoid completely by moving to 3D, simplifies product-data management, and enables automated manufacturing and inspection systems to read dimensions and tolerances directly from 3D models, eliminating errors.



## 3D PRODUCES GREATER BUSINESS SUCCESS

By providing the tools that enable you to work smarter instead of harder, perform the timesaving tasks that you can't do in 2D, and create the valuable 3D design data that drives downstream functions, moving to 3D CAD can help your company realize the productivity gains, workflow optimization, and heightened innovation that lead to business success. The extensively documented benefits of upgrading to 3D—timesavings, cost reductions, quality improvements, and workflow efficiencies—don't occur in a vacuum but can have wide-ranging positive impacts on the overall performance of your organization.

Because 3D is faster, your company will be able to increase product development throughput without adding the resources that would have been required to support such a jump in 2D. As you become more familiar with and skilled at designing in 3D, your contributions will grow beyond increased throughput to the extension of existing product lines, the development of innovative new products, and/or an intensified focus on research and development. While the productivity and efficiency gains of moving to 3D will support your company's growth in the markets in which it currently competes, 3D can also pave the way to capturing new markets and the development of breakthrough products.

Simply put, moving to 3D can help your company replace repetitious, unnecessary labor with a streamlined, more effective product development process that delivers real business results.

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By providing product development agility and flexibility, SOLIDWORKS solutions are helping Knapheide quickly respond to changing customer needs.



### ...a case in point

The Knapheide Manufacturing Company is the leading U.S. manufacturer of service and utility truck bodies. As part of a new product development strategy, the company decided to transition from 2D to 3D design.

Since implementing SOLIDWORKS 3D software in 2006, Knapheide has dramatically expanded its traditional business in utility and service truck bodies into six additional markets, including military/defense, industrial products, alternative fuels vehicles, dump truck bodies, forestry/chipper vehicles, and van equipment and accessories. By providing product development agility and flexibility, SOLIDWORKS solutions are helping Knapheide quickly respond to changing customer needs.

"What SOLIDWORKS solutions have allowed us to do is increase the speed of development and design more complex solutions," says Vice President of Engineering Chris Weiss. "That has enabled us to significantly grow our business. We value the SOLIDWORKS platform because it gives us a real competitive advantage. With SOLIDWORKS software, we can develop better service bodies—and customize them for unique applications—faster than anyone else, which has been critical for helping us create products that capitalize on new market opportunities."

In addition to speeding product development, creating more complex designs, and expanding into new markets, the move to SOLIDWORKS 3D has enabled Knapheide to automate sheet-metal fabrication and accelerate production throughput. You can view the full Knapheide story here: [http://files.solidworks.com/casestudies\\_eng/pdf/Knapheide%20CaseStudy1.pdf](http://files.solidworks.com/casestudies_eng/pdf/Knapheide%20CaseStudy1.pdf).



## 3D MAKES YOUR JOB EASIER, MORE PRODUCTIVE, AND MORE REWARDING

Transitioning to 3D design will liberate you from the repetitive tasks, wasted effort, and “busy work” that consume so much of your time in 2D and prevent you from doing what you love: designing. Instead of focusing on producing drawings, updating drawing views, and checking drawing updates, 3D frees you to direct your focus more on the design, engineering, and manufacturing of products. This, in turn, will help you work more effectively with colleagues, customers, partners, vendors, and other departments in your company, and continue to innovate and grow as an engineer.

### 3D Helps You Do Your Job Better

When you can model product designs more efficiently, deliver product designs more accurately, and make design changes more quickly and easily, you’re doing a better job as an engineer. However, that’s just the beginning of what 3D can do for you in terms of job performance. By providing complete design visualization, improved design communication, and integrated specialized solutions, 3D will help you minimize manufacturing issues, enhance collaboration, improve product performance, and capitalize on opportunities for automation.

3D design lets you automatically check for interferences and collisions within your assembly and locate misaligned holes, so they don’t show up on the production floor and cause unnecessary delays and costs. At least one 3D system (SOLIDWORKS) also enables you to evaluate the manufacturability of your designs, so you can assess whether or not your model needs to be modified to reduce the cost of machining, molding, casting/forging, fabrication, and assembly operations.

Moving to 3D also enables you to leverage integrated design analysis tools, which allow you to simulate design behavior to be simulated under the specific loads and boundary conditions of your product’s unique operating environment. With this information, you can modify designs to reduce stresses that avert field failures, iterate on designs to reduce weight to boost performance, or cut costs by reducing material while maintaining performance.

With 3D, you can also automate important processes, such as automatically generating bill of material (BOM) information directly from your model with no need for manual entry or checking. You can tap the power of design configurations to automatically create designs for product families or similar product models—with slight variations in length, size, weight, capacity, etc.—from your initial design. You can even leverage 3D CAD data to automate the creation of assembly instructions and product documentation.

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### 3D Helps You Work More Effectively with Others

The ease of design visualization and communication in 3D will enable you to work more closely and effectively with colleagues, customers, partners, suppliers, vendors, and other departments within your company. You can quickly and easily create animations and photorealistic renderings to illustrate new design concepts; take advantage of applications like SOLIDWORKS eDrawings® to email compact 2D and 3D models to customers and partners for review; or import and export data in different CAD file formats.

The flexibility to create various types of 3D CAD imagery and data—backed by a 3D model’s inherent engineering, dimension, geometry, and material information—is critically important because 3D is becoming the design standard for most major suppliers and vendors. Many of these companies no longer accept 2D files, making 3D data increasingly valuable when working with external partners.

3D data will also help you more effectively support upstream and downstream uses and processes within your company, for which 2D drawings can prove problematic. With 3D, you can create

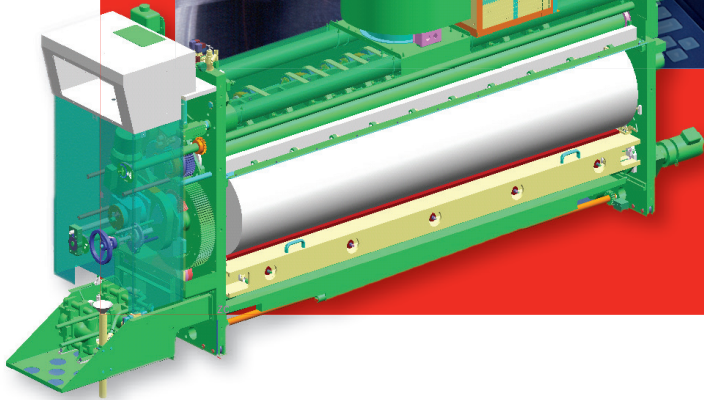
proposals that are more compelling and dynamic; support quoting and estimating functions with both 2D and 3D data for improved clarity; automate the creation of assembly instructions and product documentation; streamline the handoff to manufacturing by running CAM operations directly from your 3D model; and give sales/marketing personnel the 3D imagery that they need to make product introductions successful.

### 3D Helps You Innovate and Grow as an Engineer

Moving to 3D will also help you keep growing and innovating as an engineer, continually improving your effectiveness, increasing your contributions, and heightening your impact in product development and beyond. 3D lets you focus on the design rather than drawing requirements so you can reach your creative potential. It also enables you to increase your manufacturing process know-how and fully understand how product development affects other functions in your company through the extended use of 3D design data.

Your maturation as an engineering professional is extremely important for your organization, because it will prepare you to take advantage of new approaches, methodologies, and technologies that keep your company competitive and successful. For example, while 2D engineering drawings have been the basis for manufacturing for many years, a new model-based definition (MBD) approach to production is emerging. With MBD, 2D drawings are replaced with 3D solid models, with all of the information contained on an engineering print—such as geometric dimensioning and tolerancing, component-level materials, assembly-level BOMs, and engineering configurations—

Since implementing SOLIDWORKS 3D CAD, BWIR has cut design cycles by 30 percent and production time by 25 percent.



### ...a case in point

Barry-Wehmiller International Resources (BWIR) provides design and manufacturing systems consulting services to some of the world's top manufacturers. The company began to challenge traditional 2D design methods in the late 1990s, due to lost productivity resulting from file conversions, data compatibility issues, and errors in the design of parts within moving assemblies.

"We evaluated the move to 3D for many reasons, the most critical being to save time and improve productivity," Director of Engineering Services Senthil Kumar explains. "We realized 3D design would be faster and enable our clients to fully visualize assemblies, some of which involve thousands of parts, before production. We believed moving to 3D would save time and reduce a significant portion of costs related to errors and rework."

"Time-to-market has become increasingly important to our clients, and working in a 2D world simply cannot provide the speed demanded, especially in the design and manufacture of complex equipment," adds Vice President of Professional Services James Webb. "We saw 3D as a way to increase productivity, bring costs down, and win business in highly competitive markets."

BWIR's transition to SOLIDWORKS 3D software took place without business downtime or disruptions. "Moving an engineer from 2D to 3D CAD can involve a substantial learning curve, which SolidWorks software drastically reduces," Kumar says.

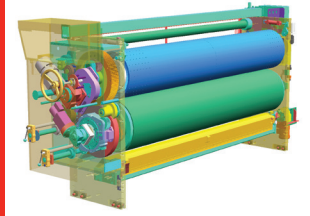
Since moving to SOLIDWORKS software, BWIR has cut design cycles by 30 percent and production time by 25 percent. You can view the full BWIR story here: [http://files.solidworks.com/casestudies\\_eng/pdf/Barry-Wehmiller\\_FINAL.pdf](http://files.solidworks.com/casestudies_eng/pdf/Barry-Wehmiller_FINAL.pdf).



contained within the 3D data. MBD holds great promise for making manufacturing setup as easy as pressing a button, similar to sending a model to a 3D printer.

With 3D, you will be ready to help your organization capitalize on innovative methods like MBD, enabling both you and your company to continue to grow and prosper.

**“3D lets you focus on the design rather than drawing requirements so you can reach your creative potential. It also enables you to increase your manufacturing process know-how ...”**

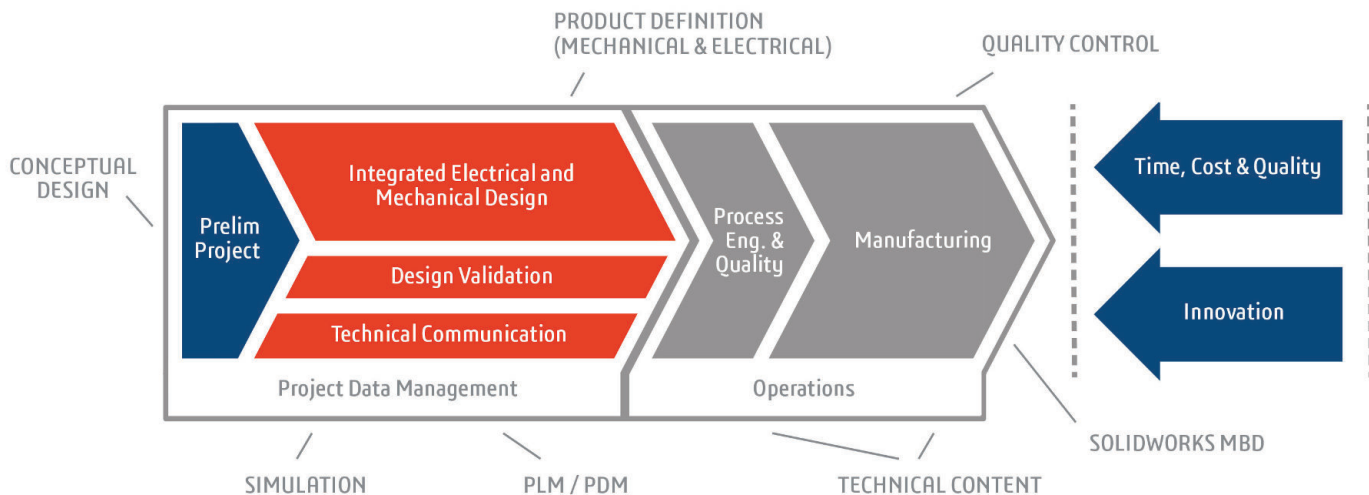


**SOLIDWORKS MAKES MOVING TO 3D FAST, EASY, AND PRODUCTIVE**

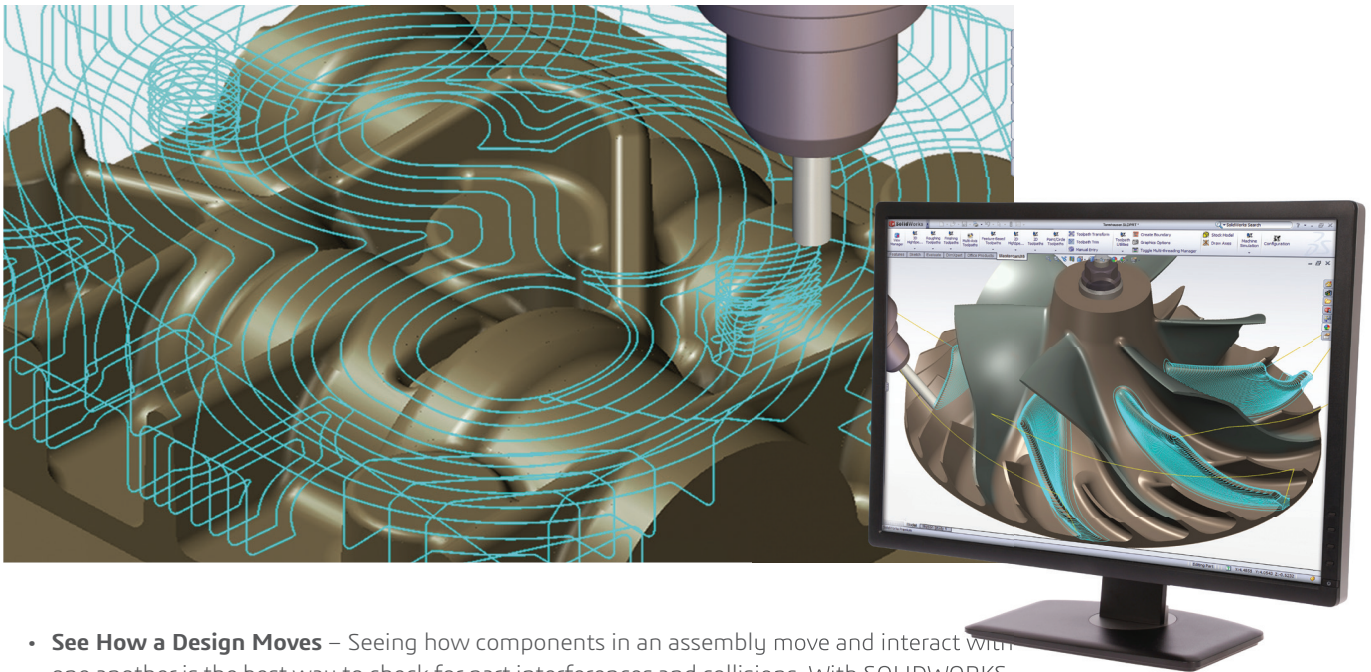
Although moving from 2D to 3D will provide productivity gains, not all 3D CAD systems are created equal, and some 3D CAD software will provide greater benefits than others will. As the original pioneer of 3D technology on the Microsoft Windows® PC platform, SOLIDWORKS design software not only provides the best transition path from 2D to 3D, its easy-to-use interface, broad capabilities, integrated product platform, and open Applications Programming Interface (API) produce the most far-reaching, dependable productivity improvements in the industry. With SOLIDWORKS, you can complete the tasks that you can’t do in 2D and so much more.

**Things You Need to Do that You Can Do with SOLIDWORKS**

- **Speed Approvals** – SOLIDWORKS provides flexibility for choosing the design visualization and communication options that help you accelerate the process of obtaining approvals from management and/or customers. Whether you create 3D animations to demonstrate movement, photorealistically rendered images to illustrate design aesthetics, or SOLIDWORKS eDrawings to convey technical information, SOLIDWORKS lets you communicate in 3D in the most suitable and expedient way.
- **Make Quick, Easy Design Changes** – Making design changes is a snap with SOLIDWORKS. Because the software is based on parametric bi-directional associativity, any change that you make to a part automatically propagates throughout the assembly. In other words, when you make a change, the software automatically updates all associated parameters, accelerating design changes, reducing the risk of errors, and eliminating manual updates in 2D.







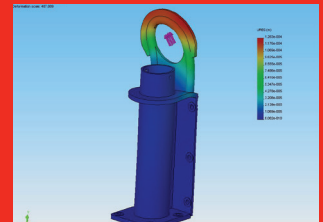
- **See How a Design Moves** – Seeing how components in an assembly move and interact with one another is the best way to check for part interferences and collisions. With SOLIDWORKS, you can dynamically move assemblies and automatically check for interferences among parts within static assemblies. In either case, SOLIDWORKS will highlight areas of interference, so you can correct them. A similar capability will help you pinpoint misaligned holes.
- **Create Animations, Photorealistic Renderings** – With SOLIDWORKS and its PhotoView 360 rendering engine, you can quickly and easily create 3D animations or photorealistic images of design concepts. You can use either approach to demonstrate how a design concept functions to customers, partners, or managers, as well as support sales and marketing needs.
- **Validate and Optimize Performance** – SOLIDWORKS not only allows you to perform finite element analysis (FEA) on 3D models to simulate design performance, it lets you conduct simulations inside of your design system through the most complete and advanced integrated analysis tools on the market. You can use these capabilities to predict the impact of forces related to motion, stress, deflection, vibration, temperature, or fluid flow, and to validate and optimize design performance
- **Reuse Designs, Components, and Assemblies** – SOLIDWORKS makes the reuse of component and assembly designs extremely easy. To tweak an existing design, all you have to do is simply click on the part, change a dimension, and all of the related geometry associated with that part will resize automatically. You can also use design tables to create a variety of configurations from an existing design.
- **Collaborate Effectively** – With SOLIDWORKS, you can effectively collaborate with anyone, even non-technical design participants. With improved visualization comes greater comprehension and understanding, enabling you to leverage the experience of sales and field service personnel to incorporate their valuable input into your designs. Fellow engineers can rotate, pan, zoom, measure, and perform other steps to fully interrogate the SOLIDWORKS model, so they can offer insight and feedback on designs.
- **Produce Standout Proposals** – The inclusion of SOLIDWORKS 3D animations and/or photorealistic images will transform your responses to RFQs from staid, black-and-white documents to stunning and compelling proposals rich with color and context. SOLIDWORKS will make your proposals stand out from competitors by showing that you leverage the latest in 3D design and visualization tools and will bring those capabilities to the task.
- **Take Designs Straight to Manufacturing** – SOLIDWORKS empowers you to take released designs straight into manufacturing. Because SOLIDWORKS serves as the front-end, geometry engine for the leading CAM packages, the software further streamlines manufacturing setup by providing the ability to fully associate the machined model, and any possible manufacturability modifications, with the design model.

- **Leverage 3D Printing for Rapid Prototyping** – Using SOLIDWORKS, 3D printing of 3D models is as easy as printing a document on your desktop printer. You can use SOLIDWORKS CAD files to quickly “print” one-offs, samples, or prototypes on any of the leading 3D printer brands. In addition to reducing prototyping costs, 3D printing puts the physical model of a design in your hands faster, allowing you to save additional design cycle time.

### Transition to 3D Quickly with the Help of the SOLIDWORKS Community

SOLIDWORKS facilitates the transition from 2D to 3D because it’s easy to use, easy to learn, and easy to implement, yet also provides you with the most robust range of design and modeling capabilities. The software is taught at many of the world’s leading design schools and engineering universities, providing entree to a trained, energetic pool of talent. SOLIDWORKS arguably enjoys the most involved, passionate, and dynamic user base and community of professionals of any 3D CAD vendor.

**“Fellow engineers can rotate, pan, zoom, measure, and perform other steps to fully interrogate the SOLIDWORKS model, so they can offer insight and feedback on designs.”**



In addition to the top-notch training available through the experienced and knowledgeable worldwide network of SOLIDWORKS resellers, new users have access to an abundance of resources developed both by Dassault Systèmes SolidWorks Corporation and by the vibrant SOLIDWORKS user community. You can access a comprehensive set of online tutorials and exercises that are designed to help you learn the software. Active user groups as well as individual users also contribute a wealth of instructional material in the form of tips and tricks communicated through blog entries and how-to videos that are posted to YouTube.

### Access Integrated SOLIDWORKS Tools and Free DraftSight 2D

Once you’ve made the successful transition from 2D to SOLIDWORKS 3D, you can utilize a range of additional fully integrated product development solutions to tailor your SOLIDWORKS implementation to your unique needs and maximize the benefits of your move to 3D. You can access detailed information on specific products and capabilities by using the following hyperlinks:

- **3D CAD**  
<http://www.solidworks.com/sw/products/3d-cad/3d-cad-matrix.htm>
- **Conceptual Design**  
<http://www.solidworks.com/sw/products/3dexperience/solidworks-mechanical-conceptual-overview.htm>
- **3D Animation**  
<http://www.solidworks.com/sw/products/3d-cad/cad-animation.htm>
- **PhotoView 360**  
<http://www.solidworks.com/sw/products/3d-cad/photoview-360.htm>
- **Simulation and Design Analysis**  
<http://www.solidworks.com/sw/products/simulation/simulation-matrices.htm>
- **Manufacturing Cost Estimation and Quoting**  
<http://www.solidworks.com/sw/products/3d-cad/manufacturing-cost-estimation-quoting.htm>
- **Design for Manufacturability**  
<http://www.solidworks.com/sw/products/3d-cad/design-for-manufacturability.htm>
- **Tolerance Analysis**  
<http://www.solidworks.com/sw/products/3d-cad/tolerance-analysis.htm>

- **CAM Partner Integration**  
<http://www.solidworks.com/sw/resources/videos/cad-cam-slam.htm>
- **Technical Communication**  
<http://www.solidworks.com/sw/products/technical-communication/packages.htm>
- **Inspection**  
<http://www.solidworks.com/sw/products/technical-communication/solidworks-inspection.htm>
- **Electrical Design**  
<http://www.solidworks.com/sw/products/electrical-design/packages.htm>
- **Product Data Management**  
<http://www.solidworks.com/sw/products/product-data-management/data-management-matrix.htm>
- **DraftSight 2D**  
[http://www.solidworks.com/sw/products/free\\_2d\\_tools.htm](http://www.solidworks.com/sw/products/free_2d_tools.htm)

The boat manufacturer uses SOLIDWORKS design for manufacturability and analysis tools to substantially reduce the volume of scrap generated during production.



### ...a case in point

Zodiac Hurricane Technologies, Inc., is the world's leading innovator, developer, and manufacturer of semi-rigid and rigid-hulled inflatable boats. Zodiac's Canadian development center moved from 2D to the SOLIDWORKS 3D development platform to shorten delivery times and improve design for manufacturability.

"We have many types of components that are used in all of our custom designs," explains Engineering Manager Xhevit Burnaci. "These parts need to be altered slightly for different boat designs, and SOLIDWORKS design configurations enable us to automate the development of complete families of parts—with variations in lengths, thicknesses, and capacities—which really speeds up the process."

The boat manufacturer leverages SOLIDWORKS design for manufacturability and analysis tools to substantially reduce the volume of scrap generated during production. Using SOLIDWORKS sheet metal and mold design tools, Zodiac Hurricane produces increasingly accurate designs and detailed production drawings, resulting in less scrap. The company also uses SOLIDWORKS to create nested files for machining, which wastes less material, and SOLIDWORKS Simulation to validate design performance.

"Whether we are using simulation to meet restrictive weight requirements, PhotoView 360 to create photorealistic renderings, SOLIDWORKS eDrawings to communicate with customers, or SOLIDWORKS Composer to accelerate documentation development, SOLIDWORKS provides us with the full range of tools that we need to continue leading the way in the development of innovative inflatable and semi-rigid boats," Burnaci stresses.

Since implementing SOLIDWORKS, Zodiac Hurricane has also cut development time in half and shortened illustration creation time by 75 percent. You can view the full Zodiac Hurricane story here: (WILL ADD HYPERLINK ONCE POSTED, CURRENTLY IN QUEUE).

## MAKE A SUCCESSFUL TRANSITION TO 3D WITH SOLIDWORKS

Your company can realize the substantial productivity and efficiency gains associated with moving from 2D to 3D as smoothly and painlessly as possible with SOLIDWORKS design software. Join the many successful manufacturers that have reaped the competitive benefits of being able to more quickly conceive, design and manufacture successful, innovative new products by transitioning from 2D to the SOLIDWORKS 3D development platform.

By upgrading to SOLIDWORKS, you can generate time, cost, and material savings; improve workflows, processes, and product quality; and foster higher levels of creativity, inspiration, and innovation. Designing products in SOLIDWORKS is faster and more accurate, and will allow you to do the things that you can't do in 2D to improve your company's competitive position and your own job performance. SOLIDWORKS enables you to work smarter instead of harder, increasing your contributions to your organization's business success. Making the move to SOLIDWORKS 3D is much easier and more productive than you might think.

▶ To learn more about how SOLIDWORKS software can help you successfully transition from 2D to 3D design, visit [www.solidworks.com](http://www.solidworks.com) or call 1 800 693 9000 or 1 781 810 5011.

## 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 190,000 customers of all sizes in all industries in more than 140 countries. For more information, visit [www.3ds.com](http://www.3ds.com).

