

3DEXPERIENCE World 2020:

The SOLIDWORKS Journey Continues and Expands

CIMdata Commentary

Key takeaways:

- *In what should be reassuring to the historical SOLIDWORKS base, Dassault Systèmes reiterated that SOLIDWORKS on the desktop will continue to be available and will be updated.*
- *The 3DEXPERIENCE WORKS solution offering continues to be expanded and provides SOLIDWORKS users with enhanced levels of sharing and collaboration.*
- *Dassault Systèmes' 2019 acquisition of IQMS, and subsequent re-branding to DELMIAWORKS, appears to have made significant strides over the last year.*

CIMdata attended the 3DEXPERIENCE World 2020 event in Nashville, TN, in February of 2020. This event superseded the very successful and well attended SOLIDWORKS World events that had been held for many years. The name change represents an emphasis on how SOLIDWORKS fits into and receives benefits from the Dassault Systèmes 3DEXPERIENCE platform. What it does not signify is a diminution of SOLIDWORKS as the brand of an extremely popular and successful mechanical CAD and related technologies that now have over a million licensed users and many millions of users when educational and other licenses are counted. It also signals the continued support for the SOLIDWORKS community—but importantly an expansion of platform-based capabilities they can take advantage of to support their collaborative product development needs. While the platform was emphasized, there was also a clear message that desktop access to SOLIDWORKS is also continuing to be supported by Dassault Systèmes—that it is not going away any time soon.¹

The event was heavily attended by about 5,000 SOLIDWORKS users plus press, industry analysts, and a large number of solution providers of software and hardware adjacent to the 3DEXPERIENCE space. There were dozens of sessions on topics of interest to SOLIDWORKS users, including educational sessions, contests, success stories, motivational keynotes, and introductions to new technologies.

There is not space here to cover every session, but some highlights follow.

Day 1

The conference was kicked off by Mr. Gian Paolo Bassi, CEO of SOLIDWORKS. He stressed to the audience that “To be human is to dream” and that SOLIDWORKS helps people turn dreams into reality. He quickly introduced Mr. Bernard Charlès, Vice Chairman and CEO of Dassault Systèmes, who followed with his typically forward-looking view of where the platform can take SOLIDWORKS users. A main theme was “How do we improve your future to empower.” To quote Mr. Charlès “the relevancy of what we do today is measured by the human value of its impact on the world” with a heavy emphasis on ideas and capabilities that help support the Green Economy.

Ms. Christine Getman, Executive Director of non-profit Magic Wheelchair, and others presented their efforts to build custom “costumes” for children who are wheelchair bound and how the 3DEXPERIENCE platform supports that effort. The costumes are 3D to fit over a

¹ Travel and other expenses related to this commentary were provided by Dassault Systèmes.

wheelchair and many are quite complex. SOLIDWORKS is used as the design, visualization, and collaboration tool. Many costumes have been developed and delivered to date, bringing joy and confidence to the recipients, and meaning and a sense of accomplishment to the designers and builders. A Dassault Systèmes team has built two costumes and are beginning on their third. The idea is similar to other “maker” projects. Now the concept is being expanded to develop kits so groups that don’t have all the resources to create a costume from scratch can still provide them.

Mr. Bassi returned to the stage to talk about 3DEXPERIENCE WORKS’ evolution going forward. In keeping with the theme of the event, he described all the new things that can be done when using SOLIDWORKS inside the 3DEXPERIENCE platform. He stated the combination will allow users to “dream larger, explore further.” The stress here was on the platform’s support of all data including SOLIDWORKS files and the many activities such as collaboration and team data sharing that have not been embedded in SOLIDWORKS in the past—that it “seamlessly connects Applications, Information, People.” He then went on to introduce some new capabilities—in particular Selection Helper, Sketch Helper, and Mate Predictor.

Selection Helper and Sketch Helper learn what the user wants to do by direct user suggestions, such as how a user selects features in a design and then modifies that set, for instance by applying a fillet, and continue to refine their capabilities by further suggestions. The Mate Predictor uses geometry information and AI to automate alignment and mating of a group of parts into an assembly based on user guidance that is learned over time and then made available to help solve future problems.

He also introduced 3D Sheet Metal Creator, which allows users to develop sheet metal designs on many types of device (including tablets and smartphones) and to use those designs in their SOLIDWORKS projects. Function Driven Generative Design is a new capability that goes beyond supporting additive manufacturing. It includes multi-physics analysis to inform and support the design process. Interestingly, he showed two results for an example design—one optimized for additive and one optimized for subtractive manufacturing, providing the benefits of advanced generative capabilities for any manufacturer.

Finally, Mr. Bassi, while he did not reveal actual pricing, did state that there would be a special pricing offer from now until 3 March 2020. The 2020 release of 3DEXPERIENCE WORKS offers three levels based on a common platform base in which all data will be stored in the platform. The three levels are shown in Figure 1.

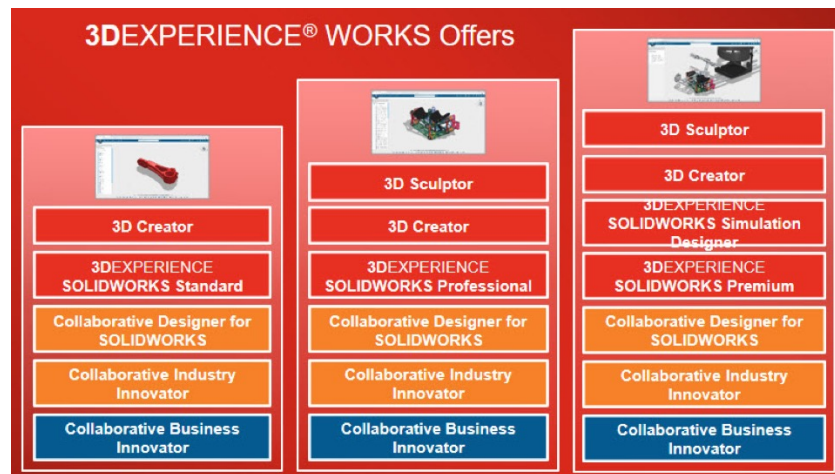


Figure 1—Levels of 3DEXPERIENCE WORKS Offerings Based on a Common Platform

Mr. Mike Shultz, founder of BioDapt, presented a fascinating story. Mr. Schultz is a Gold medal motocross racer who lost part of a leg as the result of an accident. He proceeded to design a new prosthetic leg (aided by SOLIDWORKS) that would allow him to ride motor bikes and other equipment and continue his sports career. Indeed, he won a Silver medal only seven months after his accident, using his design. A fascinating and compelling story.

The keynote address for this session was by Mr. Charles Adler, cofounder of kickstarter.com. Mr. Adler is a self-described optimist, which informs what he does as an innovator and entrepreneur. He spoke about platforms and how communities derive greater value when they work in platform-based environments, using platforms as enablers for stability, supporting sharing and collaboration. He also provided some thoughts on emerging technologies that should have a major impact in the near future. His list included AI, additive manufacturing, Block Chain, and crypto currencies (with the potential for changing how finance works). Finally, he gave some sage, cautionary advice that echoes CIMdata's experience with new, evolving innovations: that you can over capitalize a project and stifle innovation. The message, to foster innovation follow a lean and nimble process.

There were also a multitude of more narrowly focused breakout sessions during the day that are too numerous to report here. However, in one of those it was carefully explained that xDesign and xShape still exist but are now platform apps under the roles of 3D Creator and 3D Sculptor respectively (roles are a new packaging concept). The next role to be introduced will be 3D SheetMetal Creator.

Mr. Bassi returned at the end of the day to reiterate that the speakers were all pushing the idea that the technology is an enabler that can be employed in many diverse and valuable ways from developing profitable products to supporting social causes.

He also spent some time explaining some future directions for 3DEXPERIENCE WORKS and SOLIDWORKS. One important concept is that we need to move away from the "file" as a concept as we move to a platform-based environment. Indeed, in CIMdata's view, the file is only an artifact or container for data that becomes readily shareable and valuable information when it is freed from the confines of the file structure. Storing information (as opposed to data) is necessary to support expanded capabilities beyond geometry generation. CIMdata agrees that the difference between information and data is vast—information is connected and expansive while data tends to be limited to a specific area and often not connected across disciplines and domains. However, the assurance was given that for SOLIDWORKS, the file will still exist but will be managed as an object by the platform's database, provided to the user when required for sharing outside the boundaries of the platform.

Dassault Systèmes' stated goal is to support infinite scalability of apps, where each app provides a bite-sized capability. This is very difficult to do outside of a platform because to maximize capability each app has to be built and maintained as a unit and custom-connected to every other app. Flexibility inherently suffers. Mr. Bassi stated that in their platforms apps are not connected in such a way that updates to the apps have to be coordinated, a continuing issue with environments not platform enabled.

They also announced some pricing strategies such as a monthly fee, although not specific price values. They claim that maintenance customers will be able to upgrade for a "very low" fee. They plan to start delivering platform apps in the summer of 2020 and that an SQL Server license will not be required for the new apps. Finally, data management will be delivered with every product.

Day 2

The opening of the second day was devoted to manufacturing support. Mr. Steve Bieszczat, Chief Marketing Officer of DELMIAWORKS, introduced the session and a host of relevant speakers. DELMIAWORKS is the re-branding of the IQMS manufacturing software acquired in 2019. It provides an essential connection between engineering and manufacturing, including for small- to medium-sized enterprises. As Mr. Trevor Diehl stated “ERP is a giant data aggregation tool” that needs to operate in a synergistic way with the PLM environments that produce and manage the product development processes.

Another important factor is DELMIAWORKS connection to 3DEXPERIENCE Marketplace, giving enterprises access to companies that can help with manufacturing engineering and executing manufacturing services such as contract manufacturing. Dassault Systèmes announced that the Marketplace continues to expand.

Finally, the DELMIAWORKS Customer of the year, Phoenix Closures, was announced. Phoenix is also a sixth-generation family owned business, which is in itself an impressive feat.

Mr. Jack Shaw, an author, speaker, and consultant, who was engaged in the EDI standards and is now pursuing standards around blockchain, presented a keynote on the topics of innovation technology and the future of manufacturing. He made the important point that today’s highly automated factories are no longer the factories of the future, but the factories of today. His point is that increased automation leads to increased information that can be leveraged to improve processes and quality. He stated that “sensors and connectivity turn ‘dumb’ products into smart ones” providing an evolving, expanding capability for the users of products. He also mentioned IOT & AI, and blockchain as being main drivers and enablers of future capabilities.

As on Day 1, there were many breakout sessions.

Day 3

Mr. Sam Rogers, Additive Design Lead and Jet Suit Pilot at Gravity Industries provided a keynote discussion about Gravity’s development of personal jet suits. The Gravity pack is worn by a user who can control personal flight for fairly sustained periods of time and distance. However, getting to this point was a journey of design and experimentation. Mr. Rogers stressed rapid development while “learning from safe failures” when developing a product that can have deleterious effects on humans. He showed a number of movies of both successful and unsuccessful experiments and described some of the ways the organization used the failures as learning and redesign guides. Much of the Gravity Jet Suit was designed to be 3D printed from a combination of materials (metal and polymer). So, their development was dependent on learning how to work with 3D printing materials and processes, which added to the complexity of design but ultimately allowed Gravity to build a workable, light but durable Jet Suit.

Mr. Dean Kamen, founder of DEKA and FIRST Robotics, is a well know motivational speaker around both technology and design, but also on how to encourage young people to get involved. FIRST Robotics² is a prime example of reaching out to future generations of engineers and entrepreneurs. The FIRST Robotics competitions have been taking place since 1992 and now engage thousands of budding engineers across the full spectrum of K-12 education. In

² FIRST is “For Inspiration & Recognition of Science & Technology”

2019 the number of participants topped 600 thousand in more than 110 countries around the world.

Mr. Kamen talked about his own journey as an engineer, inventor, and entrepreneur from his first success to the present. One of his key messages is to “seize opportunities & connect the dots” across the intersections of industries, technologies, and business. He also reiterated to remember that societies change slowly, which protects bad things, AND good things. But it is our role to move to the good things that can have a lasting impact on the quality of peoples’ lives.

Concluding Remarks

As with past Dassault Systèmes events, the inaugural 3DEXPERIENCE WORLD conference was packed with insight, announcements, presentations, and demonstrations related to the future of product design and manufacturing innovation. This event presented the new branding of the extremely popular and successful SOLIDWORKS World event. Like in past years, this event hosted more than 5,000 live attendees, and many more online. For the SOLIDWORKS community, this event proved to be reassuring based on Dassault Systèmes assertion that SOLIDWORKS on the desktop will continue to be available and will be updated in a similar manner that Adobe provides its once desktop only tools, like Photoshop.

The SOLIDWORKS community should take note, Dassault Systèmes continues to invest and expand their 3DEXPERIENCE WORKS solution offering in a manner that provides its customers with enhanced levels of sharing and collaboration, as well as access to additional capabilities and solutions, such as DELMIAWORKS. CIMdata continues to be impressed with Dassault Systèmes’ commitment to the SOLIDWORKS community and to the companies that use it by delivering a right sized enterprise innovation platform.

About CIMdata

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