

The logo for Tech-Clarity, featuring the word "Tech-Clarity" in a bold, sans-serif font. "Tech-" is in white and "Clarity" is in yellow, both set against a dark blue rounded rectangular background.

Tech-Clarity

Tech-Clarity Insight: The Best of Both Worlds for CAD

***Taking the Pain Out of Multi-
CAD Data within a
Consolidated CAD Platform***



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Executive Overview

In today's competitive environment, companies rely on their engineers to develop the next great product that will create future revenue streams. To accomplish this and capture market share, engineers must develop innovative products with the high levels of quality and performance customers expect. This is a lot to achieve so engineers cannot afford to be distracted with non-value added work. To support the important work engineers are doing, companies should identify areas that waste time and detract from innovation.

One area that can create engineering inefficiency is developing products in a multi-CAD environment. A multi-CAD environment is one where multiple types of CAD software are in use. There are numerous reasons for multi-CAD environments, including:

- Suppliers may use different CAD tools
- Mergers and acquisitions of companies that use different CAD tools
- Past corporate initiatives to change CAD tools

Rather than deal with the challenges of a multi-CAD environment, some companies consolidate on a single CAD platform. CAD consolidation can offer cost savings in addition to strategic benefits. As concluded in Tech-Clarity's Report Consolidating CAD – The Benefits of a Unified CAD Strategy, *“At the highest level, standardizing CAD software offers corporate benefits. For example, a single CAD environment can enable a ‘design anywhere – build anywhere’ strategy. This approach allows companies to rapidly adjust to market changes and resource shortages by offering the ability to transfer design or production to new facilities without concern for incompatible design data, tools, or processes.”* Of course, issues such as customer and supplier constraints may not allow all businesses the opportunity to unify their CAD solutions, but for those who can, there are multiple advantages.

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After consolidating, there is still the need to take advantage of legacy data from other CAD tools for new or revised designs - this can be a challenge. A new technological approach provides the ability to directly open multi-CAD data, without converting it. With this method, engineers can open assemblies from other CAD tools without creating ‘copies’ of the original data. Data is only converted when it needs to change as part of the overall design.

Collaborating with partners or suppliers who are using other CAD tools can also be a potential challenge. With direct access, engineers can collaborate with multi-CAD data

and reference it in their assemblies, without reassembling it when it changes. This report describes some of the technical approaches within CAD tools to make working with multi-CAD data as seamless as possible, while supporting the business benefits of a consolidated CAD platform.

Conclusion

With the competitive pressures manufacturers face, it is important that their engineers are enabled to focus their energy on developing innovative products that will create competitive differentiation and drive profitability. To support them, companies should streamline the engineering process by identifying areas of inefficiency.

Engineers commonly need to work with CAD data from multiple CAD applications. However, a multi-CAD environment can be a source of inefficiency because it is harder to share and reuse CAD data. In addition, staffing is less flexibility because engineers are limited to the CAD tools they are familiar with. Consolidating on a single CAD platform, while still enabling engineers to work with multi-CAD data, can be a powerful way to address the inefficiencies.

One reason for the need to work with multi-CAD data is so that legacy CAD files from other CAD applications can be reused on future designs. However, using this data typically means converting it. Requiring engineers to stop their work to convert CAD data can be very disruptive of the workflow. Converting everything at once can avoid disruption during design, but it is very expensive. Plus, typically only some legacy CAD parts will be needed in future designs.

A newer approach is direct access to multi-CAD data. This enables engineers to open files from other CAD tools, directly from their CAD application with the simple menu picks, “File, Open.” With this method, multi-CAD files are opened, but not converted so duplicate objects are not created. Because of this, the engineering workflow is more streamlined, and confusion over which duplicate object is the correct file is avoided.

Recommendations

Based on industry experience and research for this report, Tech-Clarity offers the following recommendations:

- Understand the complete cost of operating multiple CAD systems
- Evaluate the opportunity to consolidate CAD systems to reduce cost, recognizing the multiple cost drivers go well beyond software license fees
- When consolidating, empower greater reuse by making sure there is a plan for legacy data

- Be aware of the impact converting legacy data will have on engineers and seek to minimize the impact on their workflow
- Understand the database impacts of the conversion process and seek options that will not create confusion for the rest of the enterprise
- Consider a direct approach that allows multi-CAD data to be opened using “File, Open,” without converting it or creating duplicate parts in the database

About the Author

Michelle Boucher is the Vice President of Research for Engineering Software for research firm Tech-Clarity. Michelle has spent over 20 years in various roles in engineering, marketing, management, and as an analyst. She has broad experience with topics such as product design, simulation, systems engineering, mechatronics, embedded systems, PCB design, improving product performance, process improvement, and mass customization. She graduated magna cum laude with an MBA from Babson College and earned a BS in Mechanical Engineering, with distinction, from Worcester Polytechnic Institute.

Michelle began her career holding various roles as a mechanical engineer at Pratt & Whitney and KONA (now Synventive Molding Solutions). She then spent over 10 years at PTC, a leading MCAD and PLM solution provider. While at PTC, she developed a deep understanding of end user needs through roles in technical support, management, and product marketing. She worked in technical marketing at Moldflow Corporation (acquired by Autodesk), the market leader in injection molding simulation. Here she was instrumental in developing product positioning and go-to-market messages. Michelle then joined Aberdeen Group and covered product innovation, product development, and engineering processes, eventually running the Product Innovation and Engineering practice.

Michelle is an experienced researcher and author. She has benchmarked over 7000 product development professionals and published over 90 reports on product development best practices. She focuses on helping companies manage the complexity of today’s products, markets, design environments, and value chains to achieve higher profitability.