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The New Collaboration: A Guide to Transforming Product Design

How engineering leaders use cloud-native CAD and real-time productivity tools to improve teamwork

ptc

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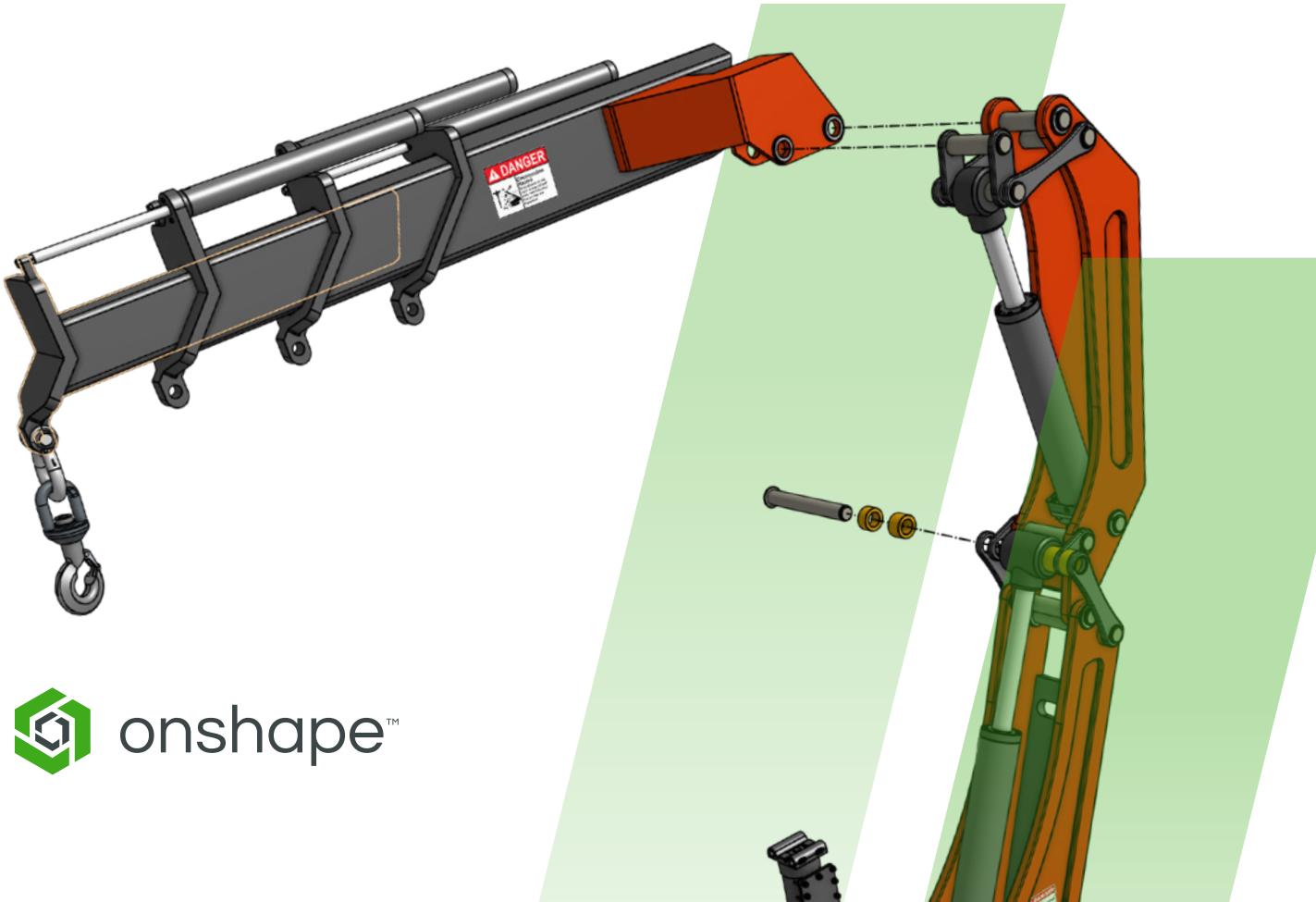

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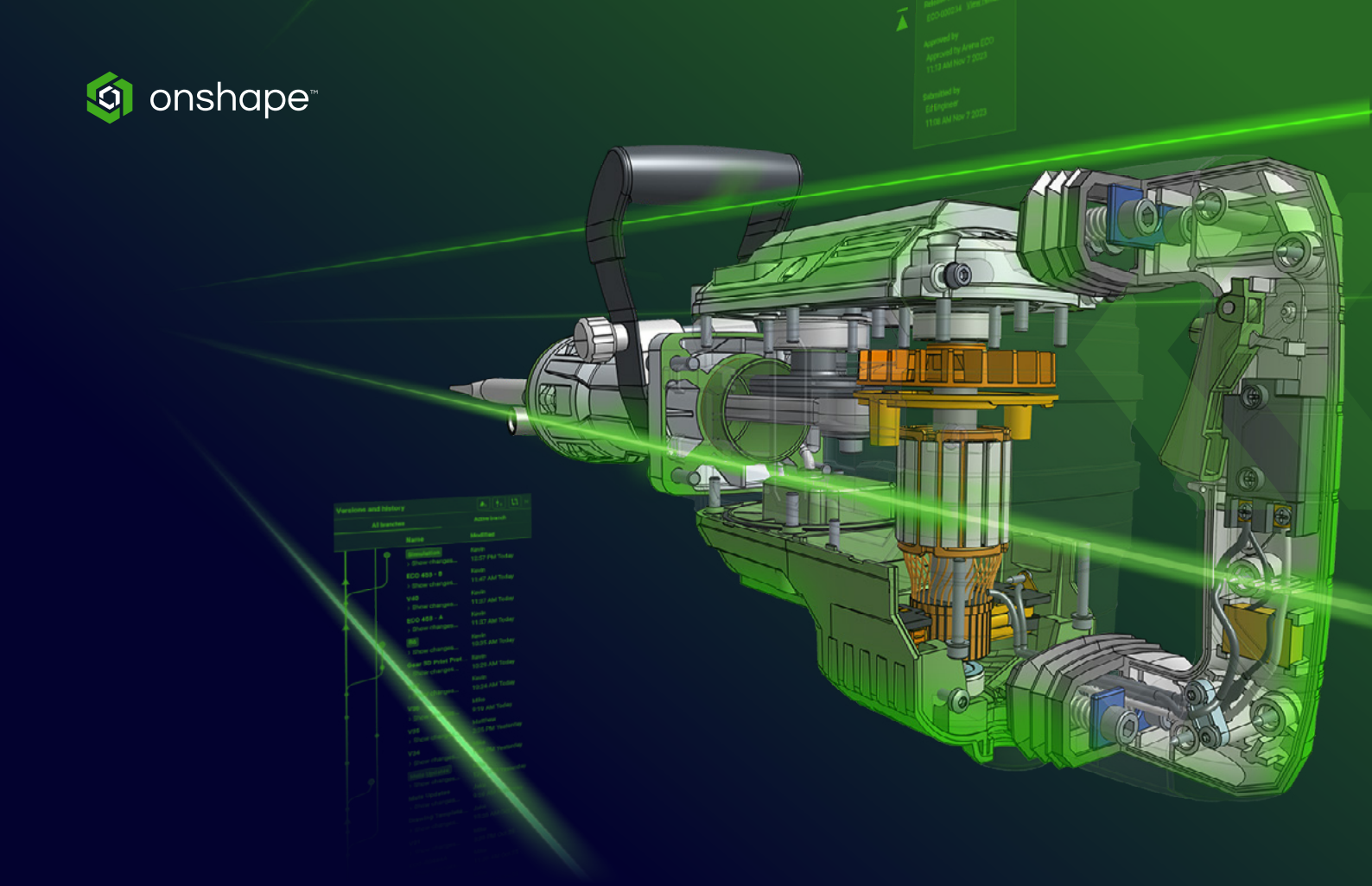

Introduction

What is the New Collaboration? *(And What it is Not)*

While “collaboration” is often praised in business for its potential to yield superior results compared to individual efforts, its practical implementation can be challenging, leading to skepticism when organizations promote the concept without providing adequate tools. However, collaboration remains crucial in product development, especially as companies face pressure to attract customers and accelerate time-to-market.

To address this need and overcome the limitations of legacy CAD systems, many organizations are turning to cloud-based product development solutions that enable real collaboration, with the common goal of improving teamwork and speeding up product delivery

The Collaborative Shortcomings of On-Premise CAD

Traditional on-premise CAD software significantly limits collaboration, even for onsite teams, and poses even greater challenges for remote work, relying on cumbersome methods prone to errors and version control issues. These limitations, highlighted during the COVID-19 pandemic, remain relevant as companies strive for flexible work arrangements and improved productivity.

The need for effective collaborative solutions in product development has intensified, driven by global competition and the demand for faster innovation cycles in today's market, underscoring the inadequacy of file-based CAD systems in meeting modern product development needs.

Cloud-Native CAD & PDM Has Been a Collaboration Game-Changer for Engineers

Cloud-native CAD & PDM platforms have transformed product development collaboration, enabling real-time, simultaneous work on a single source of truth, eliminating version control issues and streamlining workflows. This "New Collaboration" empowers core design teams, enhances internal stakeholder interaction, and redefines external partnerships.

In today's hybrid work environment, cloud CAD tools like PTC's Onshape have become essential, supporting distributed teams and global collaboration. These platforms not only facilitate remote work but introduce advanced collaboration tools that significantly improve communication across the entire product development ecosystem

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Why Improving Internal and External Team Collaboration Matters Now More Than Ever

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The shift to remote and hybrid work models has prompted product development leaders to redefine collaboration in three key areas: the core design team, extended internal stakeholders, and external partners. This change requires tools that enable idea sharing, design iteration, and efficient communication across all groups, regardless of location.

Companies are now prioritizing CAD tools that offer "anywhere, anytime" access to address the challenges of distributed teams. Many are recognizing that their existing file-based CAD systems, designed for pre-internet workflows, are inadequate for today's needs. To improve productivity in this new environment, product leaders are turning to modern, cloud-based solutions that facilitate real-time collaboration and data sharing across the entire product development ecosystem.

Collaborative Teamwork Vs. Separate Business Silos

Product development requires collaboration across diverse teams, from designers and engineers to manufacturing and quality assurance. However, teamwork is often hindered by existing technology that creates information silos, impeding effective communication and workflow across departments. This challenge has become more pronounced in today's distributed work environments.

Many businesses have adopted cloud-based communication tools to break down these barriers and improve collaboration. Tools like Google Docs, Salesforce CRM, Slack, and Microsoft Teams have accelerated information flow, enabled virtual stand-up meetings, and reduced the need for formal, time-consuming updates. These solutions have proven crucial in maintaining productivity and teamwork in both remote and hybrid work settings.

Despite this, hardware engineering has lagged in embracing cloud solutions. Product development teams, still reliant on outdated CAD and PDM/PLM software, have been slow to transition to cloud-based platforms. This reluctance to switch to modern CAD and PDM software has impacted the efficiency and speed of product development processes.

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Collaborating with Your

a. Core Design Team

(Engineers and Designers)

b. Extended Internal Team

(Company Stakeholder and Approvers)

c. External Partnerships

(Partners, Customers, Suppliers and Manufacturers)

a. Collaboration With Design Team

(engineers and designers)

Engineers

Designers

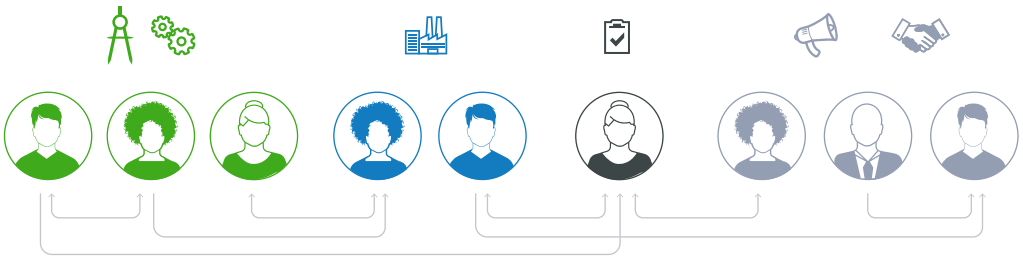
In-House Manufacturing

COLLABORATION CHALLENGES	HOW CLOUD-NATIVE CAD TOOLS IMPROVE CORE TEAM COLLABORATION
■ Early collaboration is vital for project success, particularly in large-scale designs requiring careful coordination among team members.	✔ PTC's Onshape is a cloud-native platform for product development, enabling real-time collaboration among engineers, on any device.
■ Traditional file-based CAD systems lack built-in collaborative features, leading to isolated work and inefficient, manual file sharing.	✔ Key features include instant updates visible to all team members, comprehensive edit history, and branching and merging for exploring design alternatives.
■ The rise of remote and hybrid work has exposed the limitations of legacy CAD systems and highlighted the need for more adaptable, collaboration-friendly design solutions.	✔ Teams can revisit any prior design state, explore multiple design paths, and merge the best ideas without risking overwriting work or needing to recreate designs.
■ While communication tools like Zoom have improved general interaction, they don't provide the specific capabilities needed for collaborative product design and iteration.	

b. Collaboration With Extended Internal Team

(company stakeholders and approvers)

- Designers / Engineers
- Supply Managers
- In-House Manufacturing
- Executives
- Sales / Marketing
- Customer Success
- Shipping /Logistics



COLLABORATION CHALLENGES	HOW CLOUD-NATIVE CAD TOOLS IMPROVE CORE TEAM COLLABORATION
■ Manufacturers seek to enhance collaboration between design teams and diverse internal stakeholders to improve product development. ■ Traditional CAD systems limit collaboration, with design sharing beyond core teams being cumbersome and access to CAD workstations restricted. ■ Companies are pursuing cloud-based product development solutions to enable organization-wide collaboration.	✔ Onshape replaces traditional design sharing methods with shareable URLs, allowing 24/7 access to live designs. ✔ Stakeholders can view, measure, evaluate assemblies, comment, and review BOMs without an account, using view-only permissions. ✔ This accessibility breaks down departmental silos, enables frequent feedback, and accelerates time-to-market by involving more stakeholders.

c. Collaboration With External Partnerships

(partners, customers, suppliers and manufacturers)

COLLABORATION CHALLENGES	HOW CLOUD-NATIVE CAD TOOLS IMPROVE CORE TEAM COLLABORATION
■ Close collaboration with external partners is crucial for product firms, but legacy CAD systems hinder effective communication and risk misalignment.	✓ Onshape's cloud-native platform enables instant, secure sharing of up-to-date models with manufacturing partners.
■ Sharing design files via traditional methods leads to version control issues and misinterpretation, often necessitating expensive, time-consuming in-person visits.	✓ Customizable access levels and a secure cloud workspace eliminate version control issues and reduce error risks.
■ These inefficient solutions highlight the need for secure, real-time collaboration on up-to-date designs with external partners.	✓ This approach improves efficiency, protects intellectual property, and provides peace of mind for product development teams.

To learn more about Onshape's full suite of cloud CAD collaboration tools, see Chapter 4.
For additional Tech Tips, visit Onshape's Collaboration Resources page.

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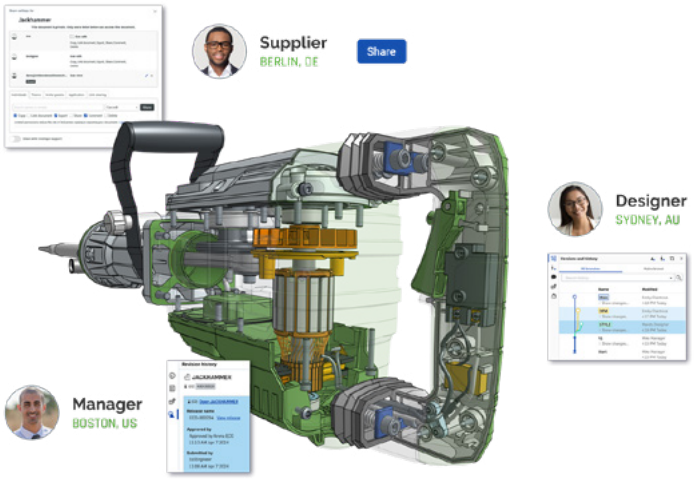
The 10 Real-Time CAD Collaboration Tools That Will Transform Your Product Development Process

Only Onshape addresses the reality of a remote workforce with “anywhere, anytime” CAD access from any computer or mobile device (iOS or Android). But regardless of where they are physically working, it is essential for designers and engineers to be able to communicate with one another to share new ideas, iterate and refine those ideas in real time.

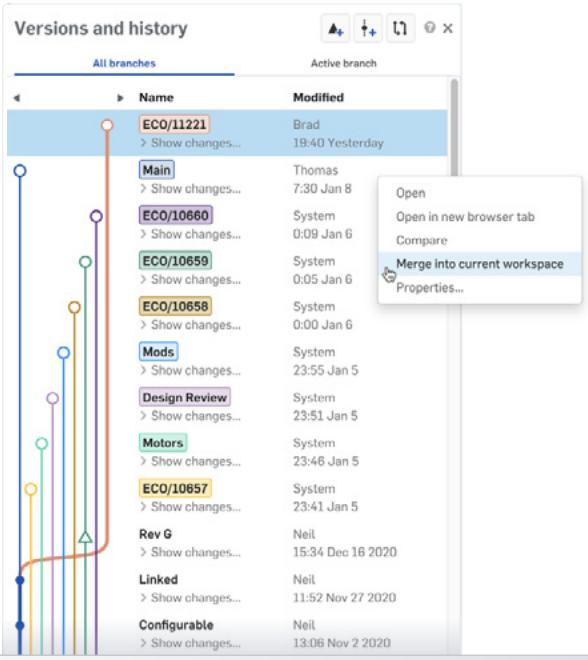
Onshape’s unique database architecture has enabled the creation of a brand new class of CAD collaboration tools that just weren’t possible in old file-based CAD systems. Let’s take a look at the variety of tools that help distributed design teams communicate more efficiently and streamline their processes:

1. SIMULTANEOUS COLLABORATION

- Onshape enables real-time CAD collaboration, allowing multiple engineers to work simultaneously on the same 3D model from anywhere.
- Simultaneous access, viewing, and editing facilitates parallel work, instant feedback, and real-time issue resolution.
- This approach eliminates delays and misunderstandings associated with file-based CAD, providing a single source of truth for all users.

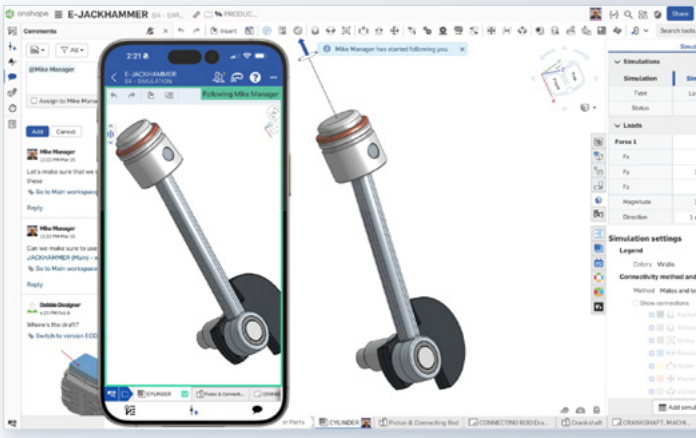


2. BRANCHING AND MERGING



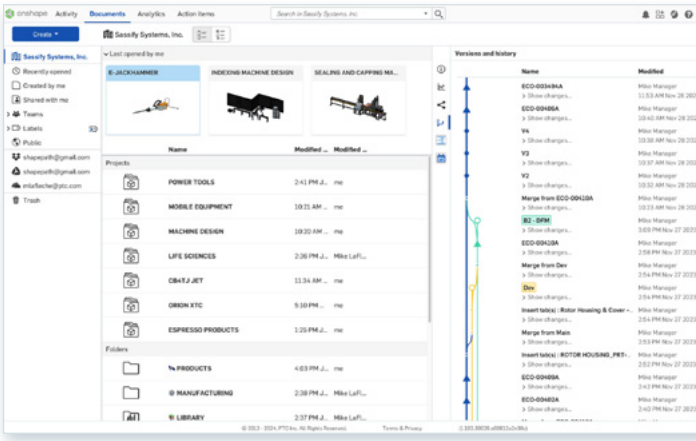
- Onshape's Branching and Merging feature allows teams to explore alternative design ideas independently and merge the best elements later.
- The feature encourages taking creative risks by enabling users to easily return to any previous design stage, without overwriting original work.
- This unique capability eliminates the need for manual recreation when combining ideas, allowing parallel exploration of multiple design solutions.

3. FOLLOW MODE



- Onshape's Follow Mode enables real-time, multi-user design reviews, demonstrations, and training sessions.
- Users can share information and engage with internal or external teams as if they were in the same room.
- Participants can see live geometry selections, view rotations, and model changes, while adding suggestions using built-in commenting tools.

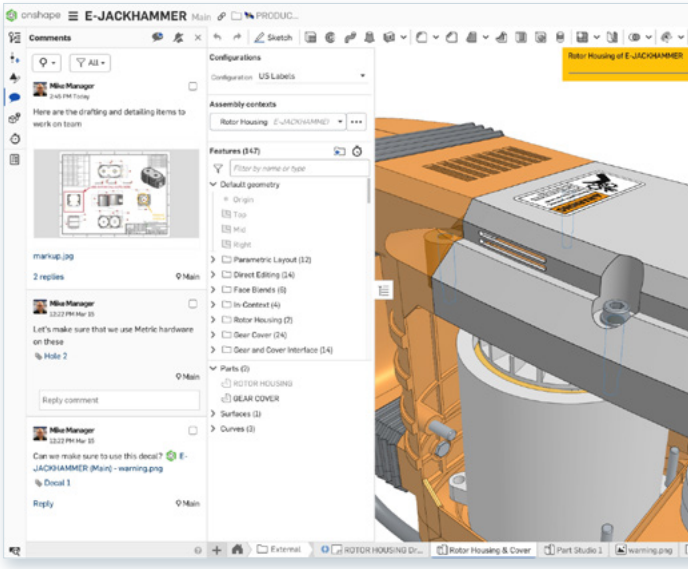
4. EDIT HISTORY



- Onshape's Edit History feature provides unlimited "undo" and "redo" capabilities, allowing designers to move freely through the creative process.
- The comprehensive, unalterable audit trail of all changes enhances team collaboration and provides documentation of the design project at all times.
- This feature encourages bold design choices and experimentation, as users can confidently revert to earlier versions if needed.

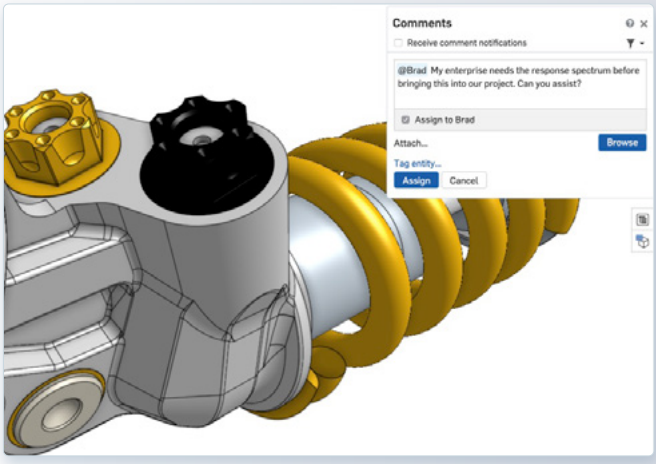
5. LIVE COMMENTS

- Onshape's Live Comments feature enables real-time feedback sharing within shared Documents.
- Users can comment anywhere in the design, mention specific individuals or teams, and receive email notifications for new comments.
- The intuitive, chat-like interface improves efficiency, eliminates ambiguity, and reduces delays associated with traditional feedback methods.



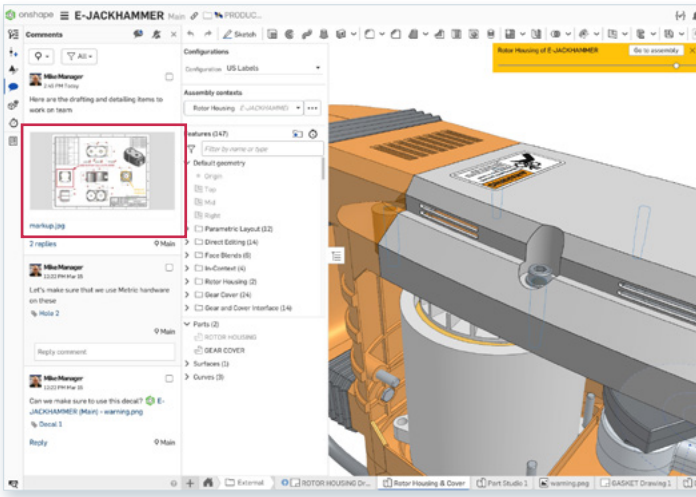
6. REAL-TIME NOTIFICATIONS

- Onshape's real-time notifications provide timely updates on comments both in the application and via email.
- Extended team stakeholders are alerted to new comments in threads they're part of, improving team engagement.
- This feature streamlines collaboration by reducing manual check-ins, enhancing communication, and accelerating time-to-market.



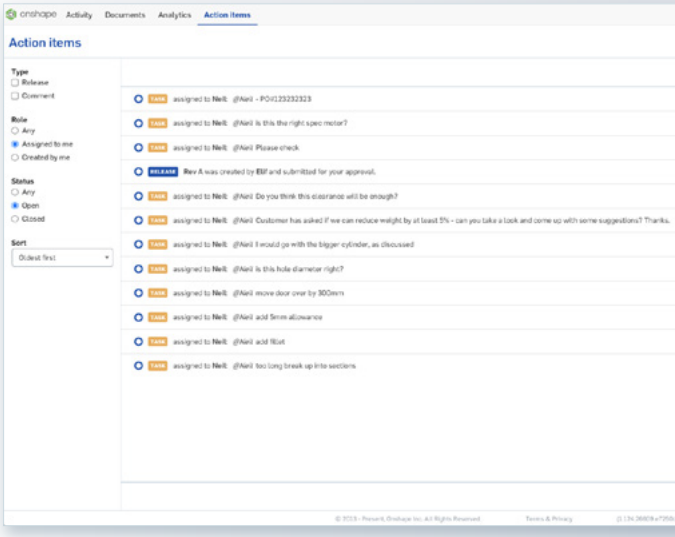
7. MARKUPS

- Onshape's Markup feature allows users to capture, annotate, and share product images directly within the platform.
- This streamlines feedback by eliminating the need for multiple software applications and keeping all markups in Onshape's secure cloud workspace.
- The feature provides a documented workstream of changes, improving communication and maintaining a clear record of design decisions.



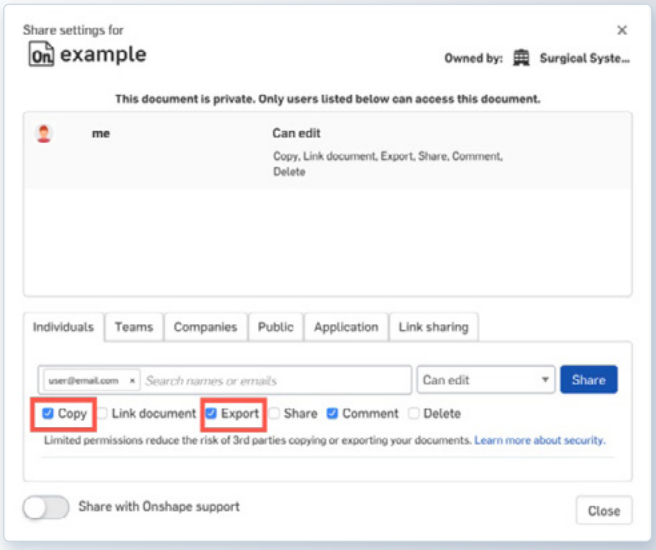
8. ASSIGNING TASKS

- Onshape's Assigning Tasks feature allows project leads to delegate assignments to individuals or teams directly within the platform.
- Users receive a clear, easily referenceable task list in the Comments section, improving workload management and accountability.
- This built-in feature eliminates the need for separate project management software, centralizing all critical information in real-time.



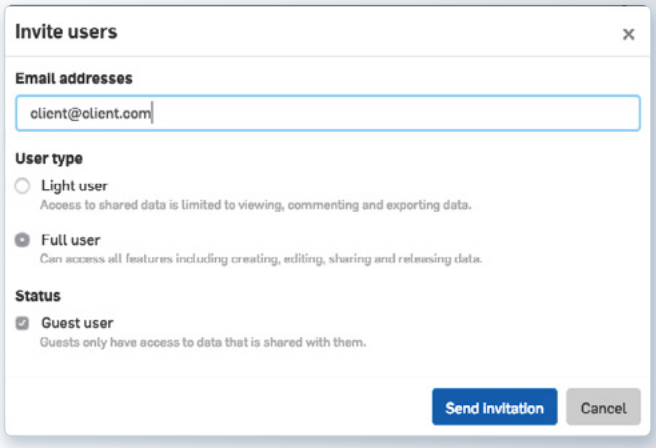
9. SHARING AND ACCCESS PERMISSIONS

- Onshape provides robust sharing and permissions settings, allowing users to control access to their CAD models.
- Users can grant various levels of access, from full editing privileges to view-only rights, depending on the recipient's role.
- The feature allows original owners to maintain control over their intellectual property, with the ability to quickly revoke access when needed.



10. LIGHT USERS (Onshape Enterprise)

- Onshape's Light User function allows core team members to grant limited permissions to internal or external stakeholders for design feedback.
- Light Users can securely access, view, measure, or comment on CAD models without editing rights, ideal for sharing with suppliers, manufacturers, or customers.
- This feature enhances collaboration between design teams and external partners while maintaining secure, controlled access to designs.

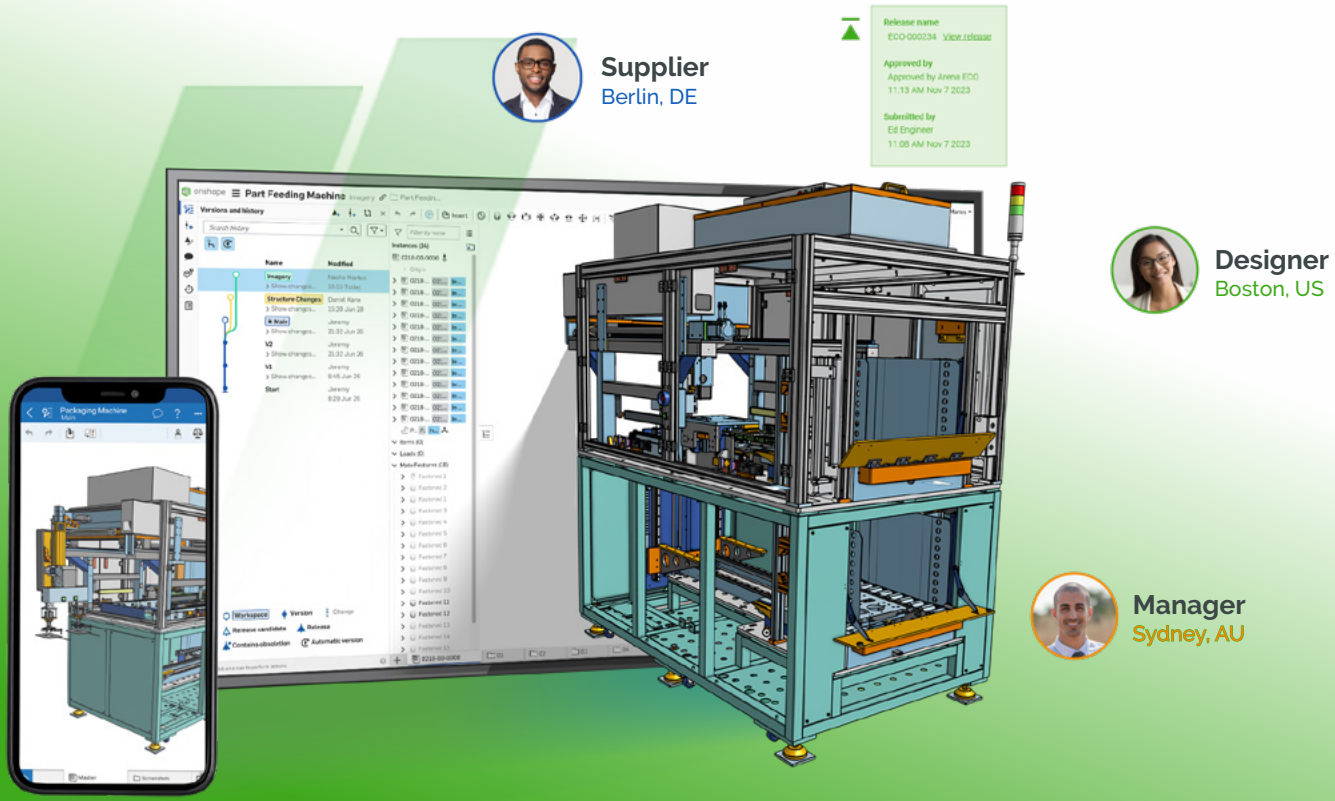


How Onshape Users Collaborate with Onshape Technical Support

By design, the same real-time collaboration tools can be used by Onshape customers to better communicate with Onshape's Technical Support team. Instead of describing an issue through a lengthy email or long verbal description, you can more easily "show" where you need help in your CAD model by using Follow Mode, Markup tools or temporarily granting access to your model with the Sharing feature.

When your Support session is over, you can then instantly "unshare" your model.

For additional Tech Tips, visit Onshape's Collaboration Resources page.



How BOA Benefited from Onshape's CAD Collaboration Tools

Industry:
CONSUMER GOODS

BOA
Denver, Colorado

BOA was founded in 2001 with a performance footwear fit system for snowboarders. Using micro-adjustable dials, high-tech material laces, and low-friction lace guides, the BOA Fit System today is integrated into more than 300 brand products across winter sports, cycling, hiking/trekking, golf, running, court sports, workwear, and medical bracing.

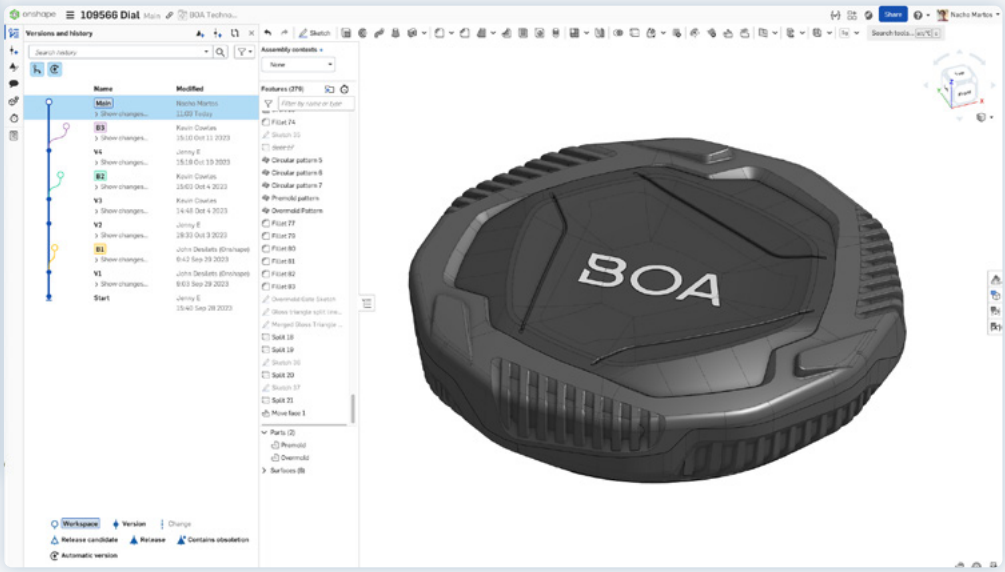
In 2023, the BOA product development team grew increasingly frustrated with the stability of their file-based CAD system. The team estimated it was losing 15 engineering hours per week due to CAD crashes, frequently resulting in lost work. BOA was also being slowed down by the serial workflows of file-based Product Data Management (PDM), which allows only one engineer at a time to work on a design file. The company was seeking a more reliable/stable CAD and PDM system that would speed up time-to-market with parallel workflows.

BOA's product development team has seen remarkable improvements with Onshape. The built-in PDM system has boosted productivity, while eliminating CAD crashes, saves 15 engineering hours weekly, equating to $38,000 annually. Onshape's Simultaneous Editing enables parallel work, and Branching and Merging allows risk-free design exploration. These features have significantly streamlined BOA's design process, enhancing efficiency and innovation

"When we were considering Onshape, it was pretty amazing to see how you could collaborate in a document together. Even across a very close two-person CAD team or a design-engineer team, we used to have to hand things back and forth and talk about what we worked on," says Josef Duller, Design Engineering Manager at BOA. "There were a lot of manual steps we had to take to ensure we were working on the same version of the design and a lot of hiccups in the process. It was way more inefficient."

"Now the fact that we can both be in the same document is something we never even thought would be possible. And now that we can do it, it's crazy to think that we would ever go back and not have that ability," Duller adds.

Offering a big picture perspective, Duller estimates that Onshape's built-in version control, Simultaneous Editing, and Branching and Merging capabilities is boosting the productivity of his engineering team by 25% to 50%.



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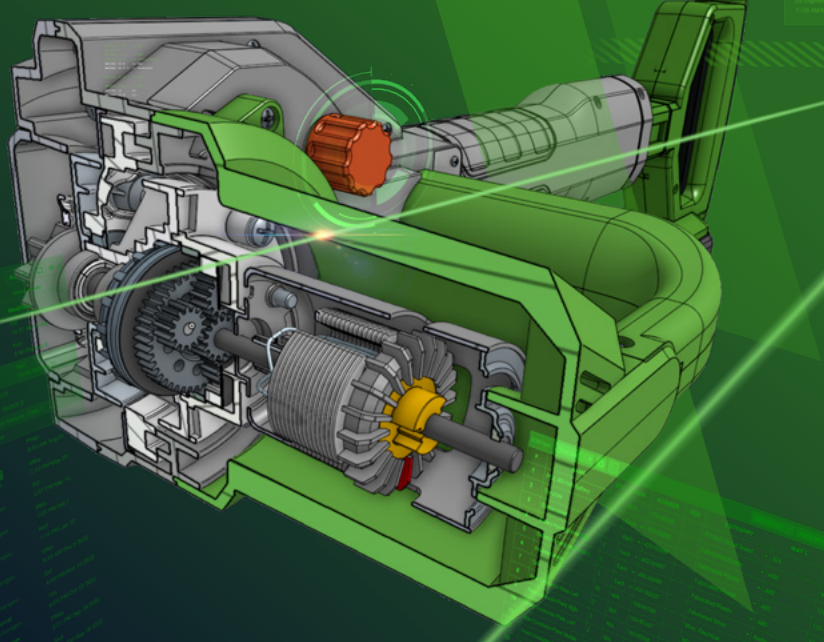

COLLABORATE MORE WITH ONSHAPE

With today's rapid pace of technology, it's no surprise that speed-to-market usually wins. Onshape is a professional-grade product development platform for design companies who are fed up with the errors, time waste, and hidden costs of outdated file-based CAD & PDM. Onshape is the leader in cloud-native CAD & PDM platform and runs on any device, anywhere - requiring zero IT.

Only Onshape:

- *Eliminates CAD crashes and never loses data*
- *Enables secure, real-time collaboration*
- *Tracks all activity and provides infinite restore*
- *Includes built-in PDM with branching and merging*

Sign up for a free Onshape Professional Trial and experience the benefits of agile product design today!

GET STARTED

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