

GARMIN...

Garmin

Industry: CONSUMER GOODS

The Challenge

Headquartered in Olathe, Kansas, Garmin designs and manufactures GPS navigation devices and wearable technology for the automotive, aviation, marine, outdoor adventure, and fitness markets. The company has more than 19,000 associates in 35 countries around the world, with production facilities in the United States, Europe, and Asia. Garmin's engineering team has used file-based CAD and PDM software to design its products, but consistently faced the most common bottlenecks associated with these tools. These challenges include software crashes, downtime and costs from system upgrades, locked files in the PDM vault, and difficulty syncing international servers. In 2022, Garmin was seeking a cloud-native CAD and PDM solution to address these challenges, reduce inefficiencies, and streamline its data management.

Results

- Garmin estimates that Onshape's cloud-native PDM and reduced IT footprint will save tens of thousands of dollars annually in reclaimed engineering time previously devoted to software and server maintenance.
- Onshape's real-time collaboration tools accelerate communication between teams based in the United States, Europe and Asia – versus the old way of emailing screenshots back and forth or repeatedly uploading files to a cloud-storage site.
- Onshape's Simultaneous Editing feature allows multiple engineers to concurrently work on the same CAD model to speed up the design process.
- Built-in PDM delivers automatic version control, ensuring that everyone on the team is always working off the same most up-to-date design.



"With Onshape, more people can easily get in the model and provide input versus first needing to install software, downloading the latest file, opening it up, and not really knowing what they are looking at. Onshape is going to help us get more candid feedback from a greater plurality of people – and I think that will be really critical."

- Mike Wiegers, Vice President of Consumer Engineering, Garmin



OPTIMIZING PERFORMANCE AND SAFETY FOR OUTDOOR ADVENTURE

Garmin's product development team credits Onshape's built-in PDM for helping reclaim thousands of dollars annually in lost engineering hours

Although many consumers associate the Garmin brand with automobile GPS units, the multinational company is an industry leader across nearly every category involving navigation from point A to point B. Garmin's wide footprint includes smartwatches for elite athletes, <u>adventure watches</u> for outdoor explorers, <u>health trackers</u> for everyday fitness enthusiasts, <u>marine instruments</u> for boating and fishing, and <u>a wide array of avionics</u> for both commercial pilots and the military.

The <u>Aero Club of New England</u> (ACONE), the oldest aviation organization in the United States, honored Garmin in 2023 with its coveted Cabot Award – an <u>aviation lifetime achievement award</u> previously bestowed upon helicopter pioneer Igor Sikorsky, legendary test pilot Chuck Yeager, and Apollo 13 heroes James Lovell and Gene Kranz. ACONE cited Garmin for developing the first aviation GPS certified by the Federal Aviation Administration, and for creating <u>Autoland</u>, an autonomous system that can land planes without human intervention in an emergency.

Garmin has a remarkable track record for keeping people safe on the ground, particularly <u>outdoor</u> <u>adventurers</u>. The company's blog features a "<u>Saved By Garmin</u>" section, in which injured or lost hikers, climbers, boaters and snowmobilers share how Garmin Inreach handheld satellite devices helped them communicate with rescuers – from remote areas where cell phones are inoperable.

Headquartered in Olathe, Kansas, Garmin has more than 19,000 associates in 35 countries around the world with <u>design and manufacturing facilities</u> in the United States, Europe, and Asia. Not surprisingly, the company attracts a large number of employees who are outdoor enthusiasts eager to pressure-test the latest product improvements and innovations.





Overcoming Crashes, Upgrades, and Locked Design Files with Cloud-Native CAD and PDM

To develop new products for its Outdoor, Marine, Aviation, and Fitness business segments, Garmin has adopted Onshape, a cloud-native CAD platform that includes built-in PDM and real-time collaboration tools. The company faced common challenges with file-based CAD systems and PDM vaults, software and server crashes due to bugs or large file sizes, costly and time-consuming system upgrades, and updating and syncing data servers between its global teams.

File-based, on-premises systems can crash as often as once a day. The combined time of the lost work and the added rework can easily stretch into hours over the course of a week. Similarly, upgrading to new versions of file-based, on-premises systems can be a costly and time-consuming effort.

Meanwhile, traditional data management systems enable only one engineer at a time to work on a file, which must be checked in and out of the vault. While a file is checked out, it is "locked" from being used by anyone else on the team. No one can make edits until the file is checked back in, which can result in version control problems.

Together, these challenges can add up to hundreds of lost hours each year for engineering teams – especially for globally dispersed teams at large companies like Garmin. Rather than spending time on new designs or improving existing ones, engineers are forced to spend time recreating work and troubleshooting software.



🇐 onshape^{*}

Garmin is embracing Onshape's cloud-native, built-in PDM approach to avoid these kinds of challenges. Onshape maintains 99.9% uptime and, with no time lost, automatically upgrading users to the latest version, which is released every three weeks. When designing in Onshape, there are no files to check in or check out. Multiple users can simultaneously view or edit the design, with confidence that they are always looking at the most recent version. Whenever anyone makes a design change, everyone else on the team can instantly see it happen. A comprehensive Edit History function catalogs who made which changes and when, allowing users to quickly revert to any prior stage of the design if desired.

Garmin estimates that Onshape's cloud-native PDM and reduced IT footprint will save tens of thousands of dollars each year in reclaimed engineering time previously devoted to software and server maintenance.

"Garmin is much better served by allowing our designers and engineers to focus on their areas of expertise, rather than spending time maintaining and troubleshooting the tools they are using," says Mike Wiegers, Garmin Vice President of Consumer Engineering.

Onshape Accelerates CAD Collaboration

Garmin has hundreds of CAD users spread across multiple time zones, sometimes making communication between teams more challenging. The difference between Garmin headquarters in Kansas and its engineering office in Asia is 13 hours, for example.



"Onshape saves us time communicating with our global colleagues," says Wiegers. "Because historically even for what should be quick communication, we would have to open up our previous CAD system, take several screenshots, mark them up in an editor, and then put them in a PowerPoint with additional notes. We now can have much quicker conversations directly in Onshape," he says.

Onshape's <u>Live Comments</u> tool allows feedback to be tagged to specific parts directly in the CAD model, replacing the need to email screenshots back and forth. Colleagues can also use built-in <u>Markup</u> tools to better visually explain issues instead of having to describe them through text.

Wiegers adds that Onshape's Simultaneous Editing feature gives Garmin the flexibility to easily add more team members to high-priority projects on tight deadlines.



Enhancing Early Feedback

Onshape is ideal for giving non-CAD users – such as executives, product managers, marketing, sales, customer service, etc. – quick access to product designs by sharing a web link. Sharing permissions can be instantly revoked if needed.

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Wiegers adds that Garmin has yet to fully leverage all of Onshape's features, saying he looks forward to teams taking advantage of <u>PCB Studio</u> for electrical engineers to collaborate on circuit boards, and creating <u>custom CAD features</u> (FeatureScript) to automate some repetitive design tasks.

"Cloud-native technology in general is the future of enterprise software," he notes. "Though we can't predict all the benefits that will come, we feel optimistic that the Onshape platform will help us capitalize on future opportunities."

Sign up for a Free Onshape Professional Trial

and experience the benefits of cloud-native product design today!



