

BID Group uses PTC's IIoT and augmented reality solutions to digitally transform the wood processing industry

In the world of business, no one can afford to remain stagnant. Those who emerge as leaders are experienced yet agile, willing to push the limits to disrupt age-old industry norms. Read on to learn how an established wood processing solutions company leveraged innovative technologies and partnerships to transform their own operations and revitalize an entire industry.

The drive to collaborate and innovate is in BID's DNA

If anyone knows the value of collaboration, it's BID Group. With more than 35 years of experience, BID is one of the largest integrated suppliers of innovative turnkey solutions to the wood processing industry. BID Group delivers a complete range of customer-focused engineering, innovative equipment, digital technologies, turnkey installations, and aftermarket services. From single to multiple production lines, BID provides its valued customers smart equipment and connected factories.



BID wanted to tackle fundamental, industry-wide challenges head on

Historically, the wood processing industry has failed to embrace change with the same speed and adaptability as other manufacturing industries. When starting with raw material as highly variable as natural wood, the ability to find and standardize a technology with proven incremental value has been a challenge for the industry at large. After all, if individual manufacturers can't control the specifications of the key material consumed, how can an entire industry possibly standardize technologies?

The biggest cost for any wood processing business is raw material, so maintaining enough valuable fiber is critical to profitability. In this

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industry, each piece of raw fiber has unique characteristics like size, shape, or moisture content that have implications for how that particular piece is processed. Further, market demand for specific configurations and cuts fluctuates continuously. Even at optimal material recovery, factors such as unplanned downtime, productivity loss, and quality control issues hinder a sawmill's throughput. For many mill operators, there is a heavy investment in equipment up front, and that investment must be carried on a balance sheet for over a decade or more. Over time, assets become less reliable, and operators must choose between poorly functioning equipment or another heavy financial investment.

Despite these obstacles, BID saw the opportunity to disrupt the status quo—but that wouldn't come without addressing the longstanding challenges. With cloud and Industrial Internet of Things (IIoT) technologies transforming manufacturing operations across other industries, BID recognized the potential to combine state-of-the-art technologies with their deep domain knowledge to pave the way for digital transformation in the wood processing industry.



BID's transformation took off with the right partners in place

Knowing they wanted to leverage cloud connectivity and IIoT, BID initially partnered with a small software development firm to create a platform to collect and monitor production data. But they struggled with the proposed platform and couldn't produce the desired insights needed to move forward. Ultimately, they realized that the software development firm lacked domain knowledge in BID's area, and a new plan was needed.

Rethinking their approach, BID sought to build a team of strategic partners, each with expertise in their own fields. Having previously attended PTC's 2019 LiveWorx event, BID realized PTC solutions fit their business models and vision for growth. Chris Wells, BID Senior Vice President, Aftermarket Service and Reliability, was struck by PTC's approach to business continuity and product lifecycle management. "As soon as we started thinking of the entire product lifecycle, all these tools suddenly added huge value to the solutions we were contemplating," says Wells.

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BID also knew that a complete team would require other strategic partners. In addition to PTC, they turned to longtime partner Rockwell Automation for operational technology expertise and hardware—including analytics, MES, automation, industrial control, sensors, and networking. In addition to easily programmable software, product longevity was a must. Since there aren't many technicians regularly staffed in sawmills, Rockwell Automation's reliable, long-lasting hardware and collaborative culture was a crucial component to avoiding downtime.

Maintaining a relationship with existing partners was equally important to BID—and PTC's ability to seamlessly integrate with other software made this possible. For example, BID integrated PTC's IIoT technology with Grafana Labs for open source analytics and monitoring, and they leveraged Influx Data for real-time visibility into stacks, sensors, and systems. Additionally, by using PTC Cloud Services, BID received data management and security support from PTC along with infrastructure provided by Microsoft Azure. This put BID in a position to leverage their industry experience as an original equipment manufacturer alongside leading technology partners to serve their wood processing customers in digital transformation efforts.

BID leveraged PTC's ThingWorx to create digitally enabled, connected sawmill facilities

As a customer-centric business, BID had clear objectives: reduce unscheduled downtime and set a new bar for asset utilization and performance so customers can make the most of their investments. Starting with a proof of concept in a customer mill, they began by using PTC's ThingWorx, an end-to-end industrial IoT platform, as the connectivity backbone of their smart,



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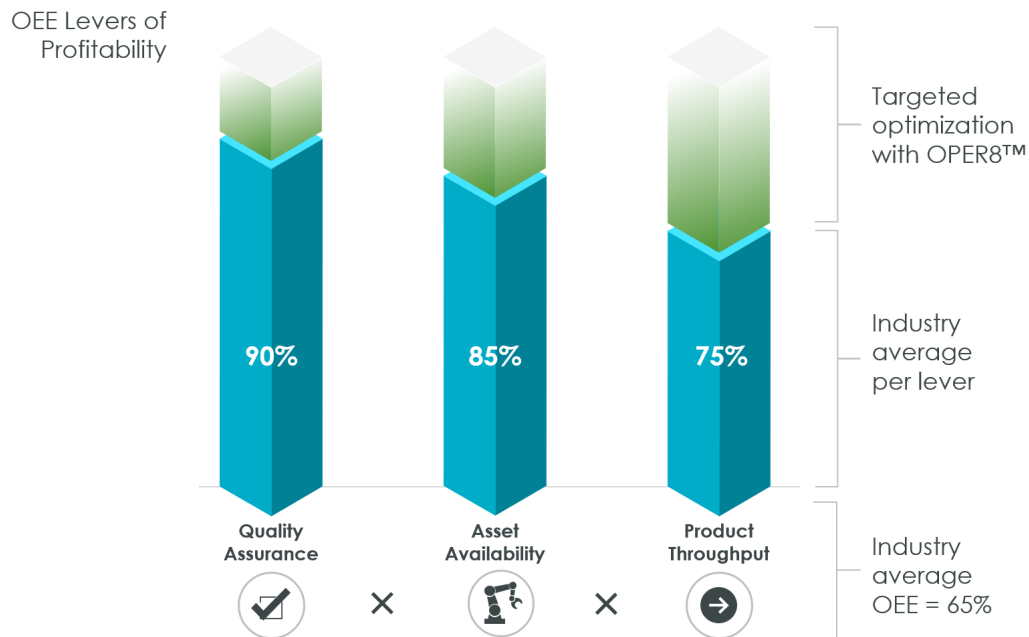
Steven Hofer,

BID Executive Vice President, Strategy and Business Development

connected facilities. The platform enabled BID to gain visibility into production and asset health with real-time data analytics and a rich array of insights and production reporting. BID also leveraged ThingWorx to implement predictive analytics for maintenance and reliability optimization.

Through the proof of concept, BID improved the overall reliability of the manufacturing processes and equipment. They added alerts to their high-speed bearings and applied other component-level monitoring, alarming, and analytics to identify abnormal conditions and better monitor asset health. Importantly, BID was able to move from a reactive to a preventive and proactive service and maintenance approach, driving unprecedented reliability on the equipment.

With these improvements, BID was able to quickly provide connectivity to its customer facilities. The initial implementation drove incredible results, including double-digit OEE improvement. BID was ready to take its proven approach and scale with substantial speed.



BID leveraged early success to go to market with an improved customer offering

While the success of transforming BID turnkey facilities was impressive, they also knew there was a large market opportunity to digitally transform facilities that were only partially stocked with their hardware. BID had nine customers with exclusively BID equipment, but another 400 in which they would need to formulate a wider approach, focusing less on BID equipment and more on connecting and servicing brownfield sawmill equipment.

Working from this premise, BID approached other customers who had mixed equipment facilities.

They introduced OPER8™, an IIoT solution that provided real-time insights that optimize fiber recovery and productivity while boosting sales. Using the knowledge gained from their own experience with OPER8™, BID was able to go to market with a package of solution options designed to digitally transform customers' operations and help them connect their brownfield sawmill equipment.

The solution has been well received by customers. "OPER8™ provides the technical expertise needed to excel in monitoring of sawmill reliability and manufacturing," says Dan Bowen, General Manager Biewer South, Biewer Lumber. "It provides the visibility to help us monitor all processes and make real-time adjustments, to ensure that we're operating within predetermined control limits and maintaining production efficiency." Bowen adds, "OPER8™ provides a total sawmill package that monitors machine reliability, provides alerts when a process is outside its control limits, and tracks quality control across all machine centers."

BID's industry experience was instrumental in the ability to offer transformative solutions to customers. "We bring the sawdust in our boots—we immediately bring industry expertise to the table in the conversations we're having with customers," says Steven Hofer, Executive Vice President, Strategy and Business Development. "There isn't anyone in the industry that can connect as many disparate pieces of equipment into a common platform like OPER8™, as we demonstrated utilizing the PTC technology suite," says Hofer.

A shift toward augmented reality is expanding BID's aftermarket services

Building on the momentum from their IIoT transformation, BID recognized the opportunity to take their operations to the next level by leveraging augmented reality (AR). Across BID and customer facilities, AR is beginning to improve their aftermarket services—one of the most important aspects of business that continually drives revenue.

In particular, they recognized the inherent challenge of providing fast and accurate service to a customer that is miles away, as many of their customers are—especially during emergency or high-stakes repairs. In these situations, traditional service methods like phone calls, text messaging, and emails lead to longer service wait times and unplanned downtime for customers. With travel being increasingly challenging for BID field technicians, AR has become the obvious solution.

Using Vuforia Chalk, an out-of-the-box, remote assistance and collaboration tool, they can

now provide accurate and precise instructions to customers using AR in real-time, wherever and whenever needed. Customers can simply download the app and connect with BID service experts to troubleshoot unexpected issues or problems. By combining real-time audio and video with AR technology, Chalk allows the service expert to view the end-customer's environment and equipment and annotate directly onto the screen. Because the tool's digital annotations are powered by AR, they "stick" to the location and environment on which they're drawn, which helps the customer easily follow along and complete the steps to resolution. "Chalk has been a particularly useful tool for providing remote diagnostics to customers," says Alistair Cook, BID Group CEO. "With its advanced technologies fully implemented, we can continue to grow that business so we don't have to travel as much to service our customers. Using Chalk is a huge benefit to everyone involved."

Chalk has also dramatically changed how BID service experts connect with each other during customer service calls. In many cases, a local BID field service technician will travel to the customer for maintenance or repairs. Using Chalk, the technician can connect with a remote expert for guidance if they encounter unknown problems that they can't resolve on their own. Chalk helps frontline workers gain access to the valuable expertise of BID's subject matter experts, regardless of location.



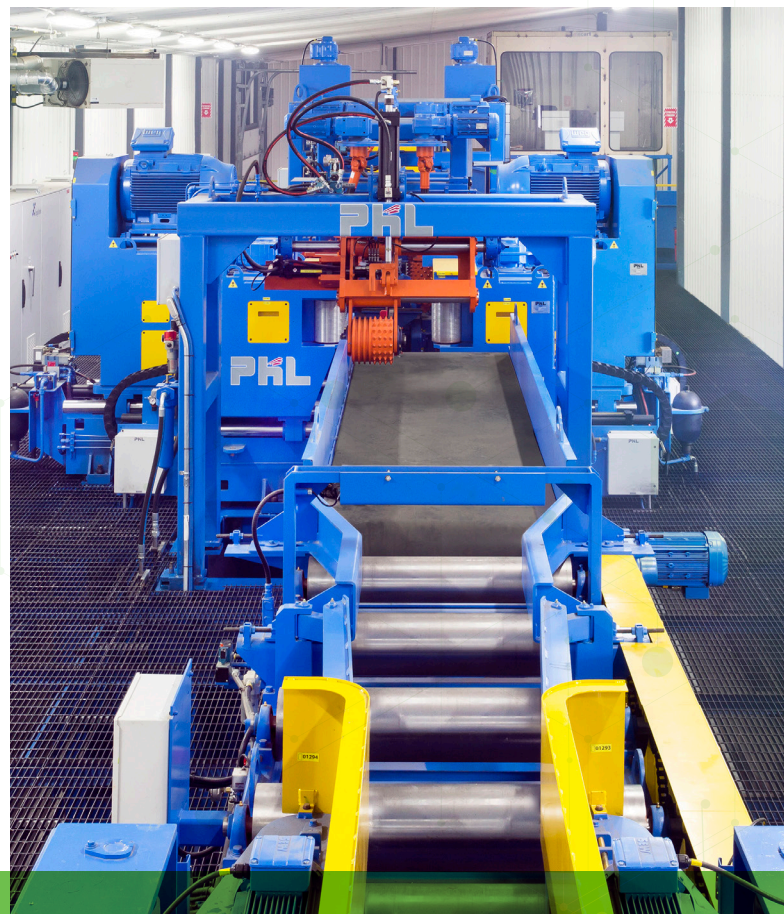
Augmented reality highlights BID's vision for continuous learning

The shift toward AR has been huge for how BID thinks about customer satisfaction. "PTC's AR technology is transformational for how we approach the overall aftermarket service opportunity," says Hofer. He notes that many customers have noticed a difference in daily workflow. "You can see that the ability to quickly transition into remote diagnostic and service capabilities has been incredibly important," says Hofer. "This type of technology can work, and it can be quickly deployed and add tremendous value."

Moving forward, the investment in AR technology will go one step further by helping them advance learning and development opportunities for both customers and BID employees. Traditional training methods involve lots of paper manuals that tend to lean toward dry reading. But a recent investment in Vuforia Expert Capture will allow BID to create a library of step-by-step virtual instruction manuals and standard operating procedures to help accelerate training on various equipment and processes. Using Expert Capture, their service experts will be able to perform and record a series of service procedures and publish the finished instructions for viewing by internal technicians and end-customers using a variety of mobile and hands-free devices, including the Microsoft HoloLens. The end-user can then follow along and complete the steps on their own as they perform a task. This will reduce service calls because customers will have easy-to-follow

instructions that empower them to conduct more of their own maintenance and repair when appropriate.

BID is looking into additional options for improving aftermarket services and driving revenue with AR, from add-on service offerings and site-specific instructional materials to monthly subscription portal access. In line with their long-held service model, BID will continue to push the envelope to better serve their customers—especially through AR. "The AR piece is all about responsiveness. We have a core belief that to be successful, we need to be easy to do business with—and AR enables that," says Wells. He explains that providing fast and easy customer care—or empowering customers to be knowledgeable about their equipment—benefits everyone in the long run. "That's time and money. There's no other way besides AR that will get us there."



BID remained true to their values

BID has undergone a significant digital transformation, both internally and in the services offered to customers. And with plans to build brand new plants, provide remote monitoring, and create customer-centric service experiences, there is undoubtedly no shortage of opportunities to expand upon with new technologies.

To further expand their digital transformation journey, BID will continue to rely not only on PTC products and solutions, but also on the people behind them. With PTC's Customer Success team providing continued guidance and support, BID is eager to leverage their technology achievements to step ahead of the competition.

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Most importantly, BID will continue to look to the past to guide the future. "We started out as a company with core values around building world-class teams and providing the best service we can for our customers," says Hofer. "We're going to continue to innovate and disrupt the industry so we can stay true to those values—because it's the people who guide our journey."

By better supporting both their customers and internal teams through digital transformation, BID has set the foundation for continuing to deliver exceptional results in record time. These are disruptions that will fundamentally change not only their business, but the wood processing industry at large—and BID couldn't be more ready for the challenge.

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