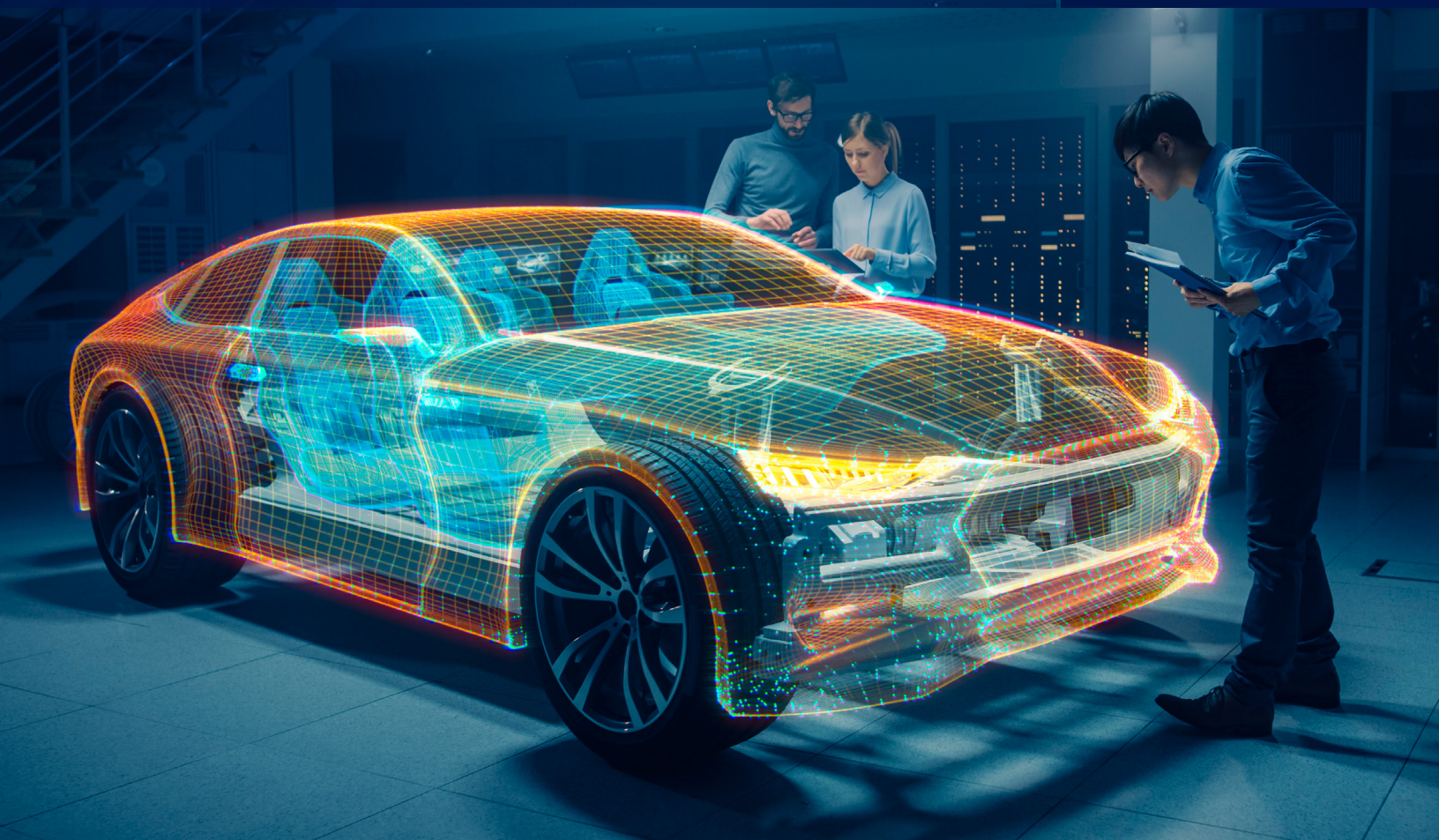




Automotive Electronics Manufacturer Revs Up Yield by 5%

Organization

- Automotive electronics manufacturer in the U.S.

Challenges

- Limited analytical resources and engineering staff

Solutions

- PathWave Manufacturing Analytics (PMA)

Results

- Improved yield by 5% in two weeks

Quality is non-negotiable in the automotive industry. Rigorous testing is critical to ensure vehicle safety in all road conditions. Today's vehicles host a network of numerous connected devices, each one optimized for power efficiency, communications, data processing, and data connectivity. Manufacturers now have more data to process, analyze, and interpret, making data analytics software a necessity on the manufacturing floor. One automotive electronics manufacturer quickly discovered the importance of analytics software when faced with unexpected challenges.

Challenge

Operating in a new business environment, the customer's traditional business model, which involved traveling and gathering feedback from factories, had to be digitized. These manual feedback loops collapsed when travel was restricted, inducing time delays and affecting quality, yield, and throughput. Old processes, using Excel files or even screen captures from the production line monitors, were insufficient to optimize board yield with the customer's contract manufacturers.

The team's scrap rate was increasing, and they were unable to identify the root cause to fix the problem. They did not have the time or capability to diagnose yield issues manually.

Solution

To address these challenges, the engineering manager sought out Keysight's **PathWave Manufacturing Analytics (PMA)** solution. PMA enabled the entire team from management to technicians to monitor and fine-tune production quality. With PMA integrated into their manufacturing line, the team quickly detected and addressed deviations of key quality parameters for their devices under test without sorting through data manually. The machine learning algorithms detected anomalies and rate, score, and categorize alerts by the severity of potential incidence. The team took quick action upon receiving alerts and made fast decisions. In one case, the team identified a fault in a test fixture in hours, when it used to take days manually.

PMA software detects and alerts engineers to test readings trending toward failure thresholds by exposing marginally passed boards that cannot enter mission-critical applications such as automotive manufacturing. The company invested in the PMA software solution as part of their industry 4.0 roadmap across their worldwide production sites. Shortly after, the team found that PMA had another unanticipated benefit — remote accessibility.



Results

When faced with the global pandemic's unexpected challenges, the automotive manufacturer stayed connected to their production floor despite lockdowns and stay-at-home regulations across its various sites. With a significant percentage of their test engineers under global travel restrictions, the PMA software solution became an essential collaborative tool for test managers and engineers to monitor and fine-tune production quality remotely.

The first pass yield improved from 94% to 99% within two weeks while relying on the PMA solution (Figure 1). Besides avoiding material waste and scrap costs, the production team reduced the number of boards that needed retests due to invalid failures or false calls. The solution freed up valuable test resources keeping their lines up and running.

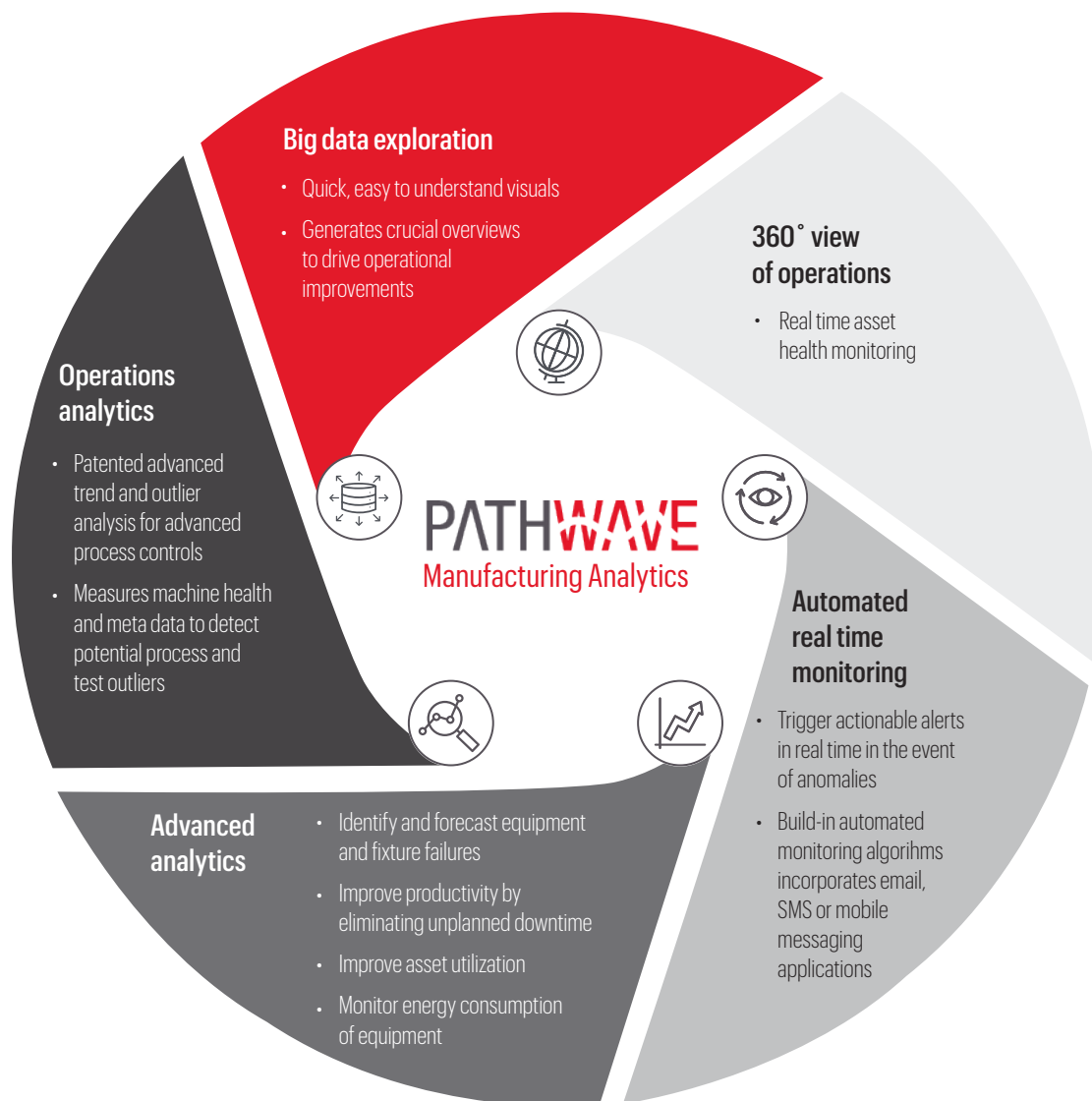


Figure 1. The manufacturing team improved the first pass yield from 94% to 99% within two weeks

Looking Ahead

Since putting the PMA software to use, the engineers have saved an estimated 44 engineering hours a week by no longer performing tedious data mining and troubleshooting. They can visualize and solve marginal issues by observing real-time measurement data to identify the problems as they come up. The PMA's design is optimal for the electronic manufacturing industry and its unique use cases.

PMA manufacturing analytics software provided the much-needed analytics capabilities and remote access to allow work to continue smoothly amidst the pandemic chaos. The solution provided improved results during a challenging time with results that have far outlasted the pandemic.



For More Information

- Technical Overview: [Keysight PathWave Manufacturing Analytics](#)
- Application Note: [Effective Production Debugging with Actionable Insights](#)
- Brochure: [Design and Test Solutions for Automotive & Energy](#)
- Brochure: [PathWave Data Analytics Software](#)
- Blog: [Yield Improved by 5 Percent in Times of Uncertainty](#)