CausalDiscoverer YieldPro

TAKING AUTOMATION TO THE NEXT LEVEL

Business Context

In PCB manufacturing, better quality fuels better automation – and vice versa. This virtuous cycle unlocks faster processes, fewer errors, and continuous improvement across production lines. The result? Higher efficiency, lower costs, and a clear competitive edge.

But to get there, manufacturers must overcome fragmented data, siloed insights, and traditional tools that only explain what went wrong – not why. True progress demands more than dashboards. It requires a shift to causal, connected, and automated quality intelligence that helps you act fast and smart.

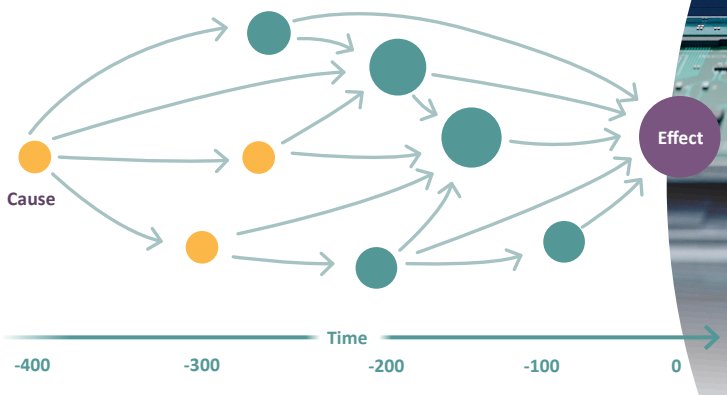
"It's time to connect the dots – and let your data drive real decisions."

Solution Description – Causal AI fuels Automation

Achieving exceptional quality in PCB manufacturing is no longer a guessing game. With Causal AI, you don't just know what went wrong – you understand why. That's the key to smarter automation and better quality.

The patented **Xplain Data ObjectAnalytics** database provides a 360° view of the production process by aggregating all data from multiple sources and processing steps. Thanks to the object-centric representation, complex queries analyze relationships between different sub-objects like work-pieces, process parameters, events, messages etc. – and can be executed in real time.

The **Xplain Data CausalDiscoverer YieldPro** cuts through complexity to reveal what truly drives failures, quality issues, and undesired outcomes. Instead of drowning in correlations and noise, it pinpoints the few causal factors that matter – helping you understand why things went wrong and where to act.

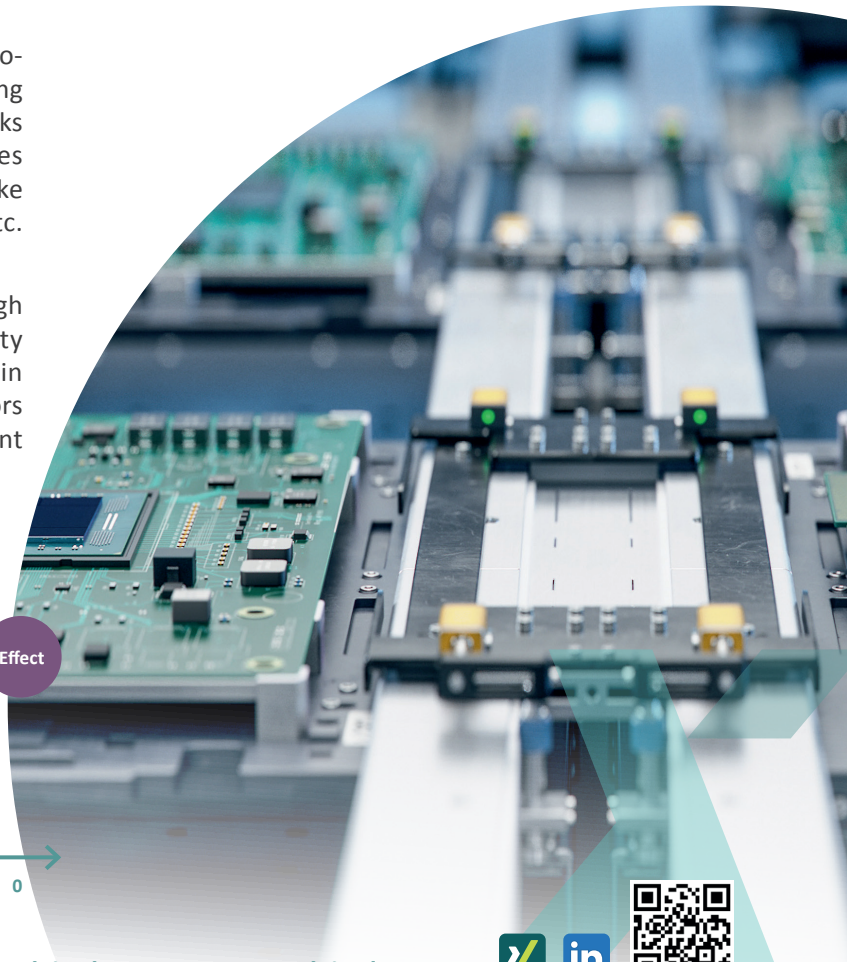


KEY BENEFITS:

- Holistically analyze factors that influence quality in process & design
- Fully automate quality control, specifically root cause analysis
- Identify previously undetectable causes to design-related failures
- Reduce the error rate leading to optimal product quality, cost savings, accelerated processes and a decisive competitive advantage

"Causal AI is a game changer in electronics production. For us, this represents a breakthrough in how we can improve production."

Erik Schwulera, IoT Lead for Manufacturing and Six Sigma Director



More Info: Xplain Data · info@xplain-data.com · www.xplain-data.com

Winner of the productronica Innovation Award 2025

Xplain Data
Discover Causality

Root Cause Analysis on Autopilot: Act before Failures escalate

The **Xplain Data Causal DiscoveryBot** embeds Root Cause Analysis directly into your production flow – eliminating the need for manual investigations.

Once deployed, it continuously scans live production data, detecting early signals of emerging quality threats or production issues.

When new causal factors become statistically significant, the right people are instantly alerted via email or messaging tools.

No more waiting. No more surprises. With the **Causal DiscoveryBot**, you can take timely, targeted action – before small issues develop into major disruptions.

What makes it work: Capabilities that set Xplain Data apart

SCALABLE BY DESIGN

Causal Discovery thrives on data – and lots of it. Our platform is purpose-built to handle massive, complex production datasets, with real-time performance. Whether you're tracking thousands of process variables or multiple production lines, it delivers speed, scale, and deep insight – without compromise.

OBJECT-CENTRIC DATA MODEL

Thanks to our unique object-centric architecture, you can instantly analyze relationships between all relevant elements – from workpieces and process parameters to events and messages. This enables fast, powerful analysis across the full production flow, not just isolated stations.

EMBEDDED CAUSAL DISCOVERY MODELS

Forget manual feature selection. Our platform enables intuitive, scalable modeling of causal relationships across your entire production environment – empowering domain experts and analysts to work together on what really matters.

HIGH-PERFORMANCE AD-HOC ANALYSIS

Explore your data from any angle – fast. Combined with the **Xplain Data ObjectExplorer**, our **ObjectAnalytics Database** lets you perform powerful on-the-fly analysis and simulate "What-If" scenarios to test the impact of interventions before applying them.

OPEN & FLEXIBLE INTEGRATION

We play well with your tech stack. Whether via Python, JavaScript, or WebAPI, our flexible interfaces make it easy to integrate Xplain Data solutions into your analytics workflows, quality systems, or web applications.

THE RESULT:
FASTER INTERVENTIONS, SMARTER DECISIONS – AND A CLEAR EDGE IN QUALITY, COST, AND COMPETITIVENESS.

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About Xplain Data

Xplain Data specializes in Causal AI technology, helping manufacturers uncover hidden cause-and-effect relationships within real-world data. By identifying the true drivers of production inefficiencies and quality issues, our algorithms enable proactive interventions to optimize yields, reduce defects, and enhance overall efficiency. Leading enterprises in mechanical engineering and manufacturing rely on our solutions to move beyond correlations and make data-driven improvements with precision.

Contact us to discuss, how to best take advantage of Xplain Data's Causal AI solutions in your PCB production!

More Info:

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