



# The Business Case for PLM Test Automation

eBook

 KEYSIGHT

# Executive Summary

Product life cycle management (PLM) systems are highly complex, but they bring a whole array of business benefits for modern manufacturers looking to embrace digital transformation.

Testing is critical to any successful PLM system, which means it is also critical to the success of your manufacturing business. However, the pace of new releases, customizations, and upgrades to your PLM can increase test requirements exponentially. Manual testing is time-consuming, expensive, and not scalable. So, what's the solution?

Continuous, intelligent PLM test automation is the logical next step in the digitalization of manufacturing. Generate valuable business insights by harnessing new technologies in artificial intelligence (AI), data analysis, and monitoring to automate test creation and execution.

This guide explains why PLM is so important, why testing PLM systems is difficult but necessary, and how investing in automated testing can bring business benefits that outweigh the costs.



# Why Product Life Cycle Management Systems Are So Important

PLM is, as the name suggests, the process of managing your products' life cycles from initial concept through design and manufacturing to sales, service, and retirement.

Manufacturers have adopted PLM — and the software that supports it — to aid collaboration, support innovation, and boost growth. It plays a critical role in the development of next-generation products at a lower cost and with a faster time to market.

An effective PLM system does the following:

- Makes it easy to track and share data along your product value chain, from design and manufacture to supply chain management and asset maintenance.
- Builds and maintains a strong digital thread connecting all data and decisions made along the product's life.
- Gives designers and engineers access to the critical data they need in real time, streamlining project management by linking computer-aided design data with bills of materials and other enterprise data sources.
- Provides insight into external sources of information, including customer and analyst feedback, performance data on products in the field, and visibility into the limitations of downstream processes like manufacturing.
- Offers the ability to monitor all quality activities centrally, helping reduce the total cost of your quality-assurance and quality-control processes.



## Meeting business challenges

You are undoubtedly challenged to reduce operating costs, find efficiencies, and drive innovation. Customer demand calls for continuous product improvement, hyper-personalization, and a controlled, ethical, and environmental impact.

Against this intense backdrop, discovering and adopting new approaches and new technologies is crucial to operating a successful manufacturing business — today and tomorrow.

There are five key reasons manufacturers choose to invest in PLM solutions:

- Improvements to development, engineering efficiency, and effectiveness.
- Elimination of errors during the engineering release process.
- Reduced time to market and improved project delivery.
- Higher quality designs.
- Proof of compliance with customer, industry, and governmental requirements.

## The future of PLM and manufacturing

For many manufacturers, PLM has not yet reached its full potential. With access to more operational data on your manufacturing process than ever before, the key is using it effectively. Digitalization should enable you to quickly and cost-effectively create and test new concepts and ideas. Technologies like digital twins and big data analytics can help you connect this data and turn it into actionable insights that enable you to become more customer-centric, agile, and sustainable.

Beating competitors to market, hiring top talent, and making the highest quality product possible using sustainable practices is only going to get harder in the future. PLM systems can help you meet these demands with shorter, better-informed product life cycles. But they can only do this if they are working and integrating as intended, which means they need rigorous testing.

# Why Testing Your PLM Is So Important (and So Difficult)

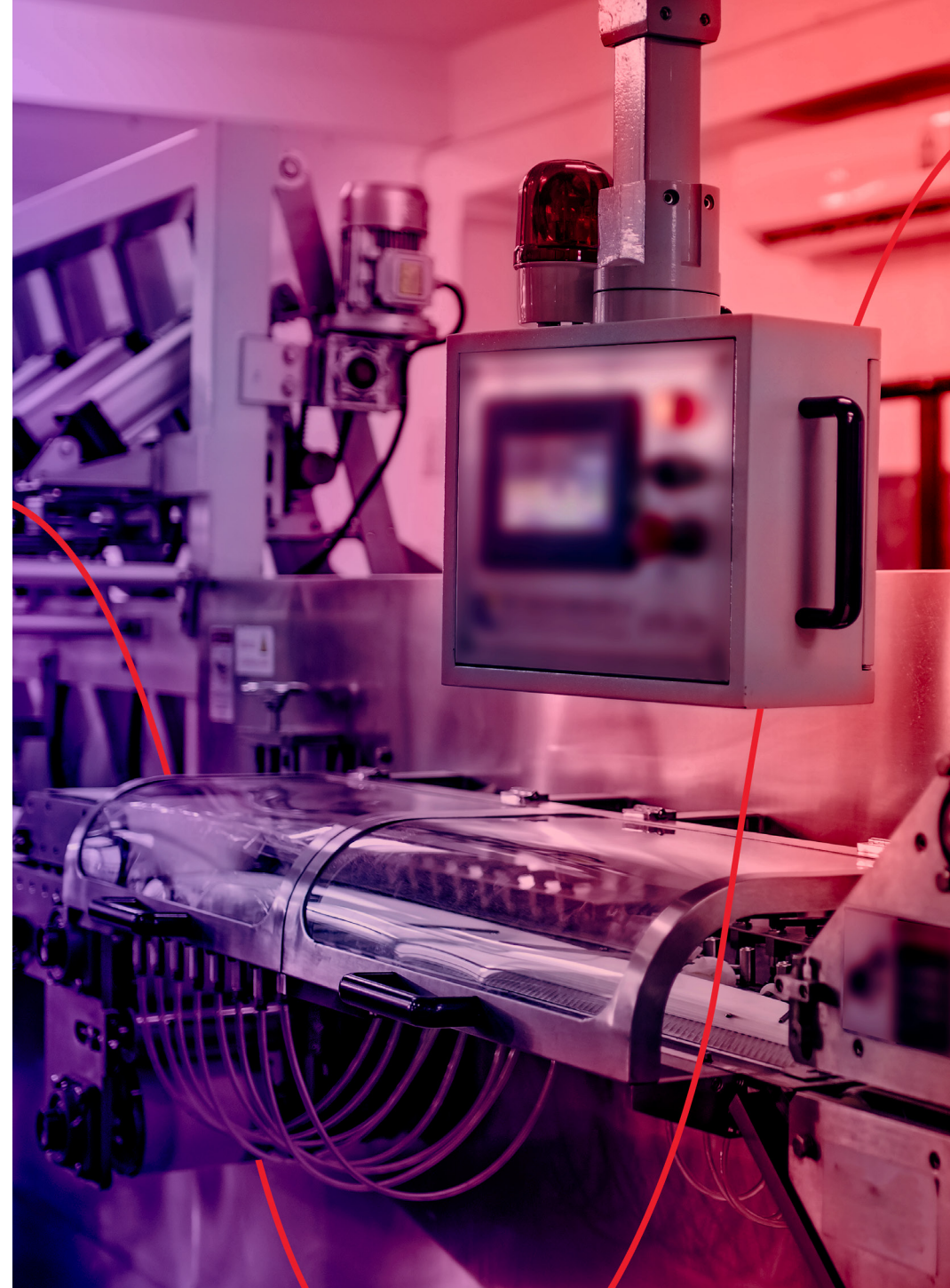
As a manufacturer, you are always under pressure to speed up every part of your operation. Short, aggressive timelines are a fact of life. But while you need to deliver in a timely manner, you also need to make sure that the quality of your PLM solution is high enough to achieve user acceptance.

Many companies are trying to reduce their test implementation costs. However, increasing design sizes and more stringent quality requirements make thorough testing of your PLM implementation crucial.

## Minimal business impact

A PLM environment involves multiple applications, databases, and devices. Even the smallest adjustment can affect the individual pieces, as well as the interactions between them. As systems age and personnel leave, manually testing new updates and functionality becomes practically impossible.

When executing PLM upgrades, customizations, and maintenance, you need to minimize the business impact of those changes. Any downtime can have a significant impact on product delivery and customer experience. Automated testing is the only feasible solution to mitigate these risk factors.



# Traditional testing does not work for most PLM environments

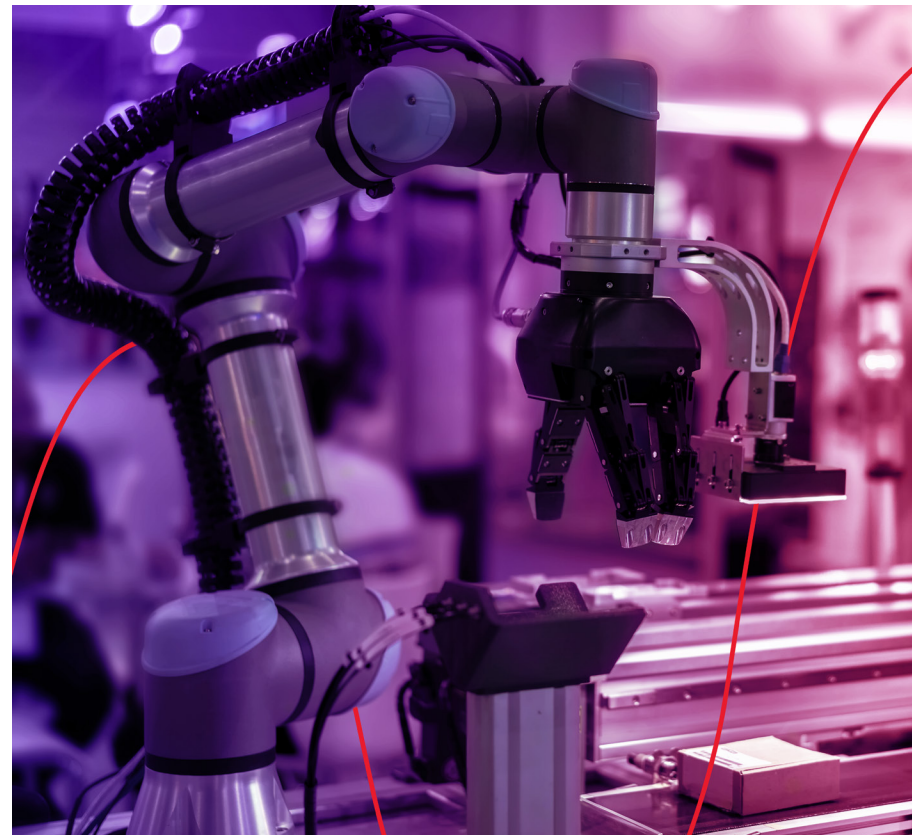
Disruptions and errors in data can impact multiple departments, so it's critical to identify changes in the functional, system, and user interface (UI) layers. A shift toward continuous integration / continuous delivery (CI / CD) in software development calls for a corresponding change in the way you test.

Older ways of testing are no longer practical or easily sustained:

- Manual testing is intelligent but prohibitively time-consuming, expensive, and unstructured. It does not deliver business insights and becomes a barrier to continuous delivery. Not only that, it ties up your most valuable resources — your people — and is not scalable.
- Automated regression testing is faster to execute, tests only for historic bugs — not new problems — and is not intelligent. Testing components, rather than experiences, fails to deliver business insights or focus on business goals. You must build all tests manually, and they always use the same criteria.
- Siloed monitoring and testing keeps you from being able to truly learn from experience, with disconnected development, test, and operations teams often replicating work. Rapid release cycles are increasingly breaking monitoring frameworks, and teams rarely (if ever) use insights from production to identify problems and optimize testing.

These traditional ways of testing simply cannot address the ever-expanding test environment with increasing release frequencies across systems, databases, and Internet of Things devices. To succeed in the digital age, manufacturers need a comprehensive test strategy that engineering and operational teams can collaborate on to ensure product innovation, delivery, and quality.

The answer is continuous and intelligent test automation that brings together the intelligence of manual testing while leveraging new technologies for automation, data analysis, and monitoring.



## Why automate PLM testing?

Automating your entire PLM test process confers a significant advantage. It means you can quickly and easily test your PLM environment before deployment — whether it's a bug fix, upgrade, maintenance, security patch, or scheduled enhancement.

Automation enables you to easily validate and release new customizations and features, minimizing the risks of costly failures in production. The goal is to test early, often, and consistently for better productivity.

## The business case

Here are just a few of the business cases for automating PLM testing:

- Less downtime and minimal business impact from updates and customization.
- Faster release cycles and faster time to market.
- Better day-to-day user and customer experiences that lead to more satisfied customers for a more successful business.
- Higher-quality testing that does not compromise the quality of the product.
- Greater ability to track data to identify trends and drive better business decisions.

## The DevOps case

Here are just a few of the DevOps cases for automating PLM testing:

- Ensure a fully compliant and functioning system.
- Deploy, modify, and upgrade PLM systems quickly.
- Increase testing to maximize coverage.
- Test in off-peak hours.
- Reduce the effects of testing on systems and networks.

### Eggplant's automation solution

Keysight Eggplant is an industry-leading software test automation platform that uses AI and analytics to automate test creation and execution.

It can test any technology on any device, operating system, or browser at any layer, from the UI to application programming interfaces to the database. This automation enables quicker release cycles without any compromise on quality.

# Reasons to Automate Your Product Life Cycle

Your PLM software is a platform that you can customize, configure, and use to support corporate processes.



## Management testing

Constant testing is integral to agile CI / CD and, therefore, critical to success with your PLM — the ultimate aim of which is to produce designs and get products out of the door to your customers.

There are five core aspects to an effective PLM test automation solution that will help support this aim:

- **Cost and speed:** Keep up with continuous delivery. Realize faster release cycles. Continuously and intelligently test all aspects using AI.
- **Quality:** Deliver amazing customer experience and business outcomes. Go beyond “Does it work?” to test the real user experience across any browser, application, or machine. Extract valuable business insights.
- **Fragmentation:** Cope with multiplatform complexities. Compensate for and overcome technology fragmentation. Cover all technologies noninvasively.
- **DevOps:** Unite siloed and isolated dev and ops teams. Test and receive feedback in development and production.
- **Skills:** Embrace business and technical testers. Overcome the shortage of domain and technical skills. Use one platform to cater to test and business professionals.

## The bottom line

With their potential for streamlining design and production life cycles and providing valuable business insights, PLM systems are worth their weight in gold. Still, they are complicated and challenging to test. With vast amounts of functionality and multiple user journeys to achieve each function, the testing required goes well beyond standard. We have set out the business case for why this extensive testing is exceptionally important.

The goal of implementing your PLM is to provide stable tools that you can use to get your products to your customers. Continuous, automated, intelligent testing will be essential for manufacturers that want to succeed in the long term.

By reducing manual, time-consuming, and error-prone testing, test automation leads to faster software release times with greater test coverage and zero bugs. These efficiencies mean that your teams can spend more time on higher-value tasks and innovation where it matters.

## Get in Touch

Learn more about automated end-to-end testing with [Keysight Eggplant](#).





Keysight enables innovators to push the boundaries of engineering by quickly solving design, emulation, and test challenges to create the best product experiences. Start your innovation journey at [www.keysight.com](http://www.keysight.com).