cycle labs

Automated Testing Guide:

What It Is and How To Do It Right

Table of Contents

Testing is a crucial part of any system implementation. Yet most planning leaves the testing phase until the very end of the project.

Organizations of all sizes face mounting pressure to test properly. By understanding the nature of automated testing, we can also see a clear path to tread in order to test in the right way with minimal disruption to business operations.

The consequences of failing to test properly or at all not only cause delay, but have serious cost implications. Moreover, failure to test creates significantly more business risk. This is not just undesirable — it's also avoidable.

Built into the fabric of the whole implementation process, automated testing bypasses a lot of these issues, minimizing cost and risk. Cycle Labs helps companies understand and utilize continuous automated testing for a smooth implementation process.

Continuous automated testing is business-critical, and Cycle Labs is here to facilitate the process.

Deciding what and how to automate is a challenge rendered easy by determining organizational priorities and objectives. By applying the 80/20 rule and taking account of the two key factors of severity and probability of fault, organizations reduce risk accordingly.

The ROI of testing in the right way is outsized, and businesses can't afford not to tackle the task head-on. If organizations can count on anything today, it's change. Adapting to this change requires a rigorous and continuous automated testing regimen — the gateway to business success.

Oftentimes, "automated testing" or "testing automation" conjures up images of software development — software and code quality and correct functions and methods — but in the context of deployments, it takes on a more important meaning.

Automated testing is the validation of system stability and alignment to quality standards and business fit in an automated fashion.

There are five key facets of automated testing:

Product Quality	Automated testing increases the quality of the solution being deployed, which makes customers happier.
Product Stability	Testers discover system issues before production (not during or after), ultimately reducing overall cycle time and deployment frequency.
Test Efficiency	Automated testing is more efficient, so manual testing can focus on edge-cases and interpreting automated testing results.
Risk Detection	Bugs are detected quickly — with risk reports failing the test and making the error primary — which results in the same outcomes as more product stability.
Risk Documentation	Tests are recorded in an easy-to-read output panel, making them easily accessible to testers.

As with any other automated process, test automation is accomplished with a particular set of tools and systems. It combines a suite of modern and integrated technologies which automate and orchestrate software testing at scale, without the need for human intervention.

These technologies are critical for organizations to eliminate testing bottlenecks and create an ecosystem which involves faster feedback, faster validation, and ultimately a reduced time to value (TTV). Otherwise, cost and risk skyrocket.

The Pressure To Improve Testing Processes

Customer expectations are higher than ever. Users demand more high-quality products and services, more frequently. Consistent, rapid deployment frequency is quickly evolving. It's going from a business nice-to-have to a business need-to-have.

Packaged software solutions exist across most industries — be it labor, transportation, or warehouse management systems (WMS).

As a result, many core business systems are under-tested. This costs everybody — organizations, customers, and partners — time, money, and even trust.

Larger systems for more business-critical processes tend to lack rigorous testing processes, simply because there hasn't been an accessible way to test at this level.

But perhaps most importantly, companies are unable to innovate. This means they can't make a change when they need or want to, because of the negative implications of making that change. Innovation is what drives business forward — without it, companies die. Adaptation to changing business landscapes is the heart of organizational survival and success.

What Does Automated Testing Look Like?

At an enterprise level, effective automation, in general, requires deploying specific tools to meet organizational goals. Most businesses are moving away from homegrown solutions constructed in-house toward leveraging "best-of-breed" applications and technology.

Best-of-breed technology can be utilized or plugged in when needed, as opposed to the "all-or-nothing" approach of integrated applications in packaged solutions. Automated testing falls into this bracket for businesses that want to leverage the very best solution for their needs.

It's helpful to view automated testing as having six stages:

✓ The **automation framework** makes or breaks testing — shared context for business alignment is crucial.

✓ **Revision control** manages configuration, source, rollouts, and hotfixes.

✓ The **automation server** is mission control - the stronger, the more integrated.

✓ **Containerization** uses a virtual shared operating system (OS) to keep testing infrastructure simple.

✓ **Cluster management** involves startup, execution, and teardown of containers.

✓ **Compute solutions** "live" on-prem or on a public or private cloud — that's where the testing takes place, and computed solutions are the resources used to that end.

Testing should occur regularly, and automation makes this easier to achieve. Though not necessary daily, it should be more frequent than is currently happening across most organizations today.

Pipelines with each of the six pieces of the puzzle generally satisfy most business goals and objectives.

Increased deployment velocity and quality empower organizations to make the right choices faster than ever before.

Testing sustainability depends on eliminating bottlenecks and reducing repetitive testing, data setup work, and stress. The number one priority should be leaving talented employees with the energy and focus for more forward-thinking approaches in order to tackle greater business challenges. Automated testing brings organizations many steps closer to achieving this goal.

The Costs and Risks of Failing to Test Properly

Organizations that don't test properly — failing to heed the benefits of automated testing — aren't the only ones to suffer the consequences. Their customers and partners do too.

The Need for Automated Testing

With ever-rising customer demand and expectation, continuous automated testing is the best way to increase development velocity, maximize productivity, and achieve testing sustainability.

No matter how well-intentioned companies are, achieving true test coverage and a high-quality product is simply not achievable without automated testing in place.

Proper project planning — and testing — is the backbone that ensures organizations excel at what they do best.

Rushed testing causes bottlenecks, implementation delays, and hampered project potential. Deprioritized testing hurts everyone: Teams, organizations, customers, and their customers all bear the brunt of poor planning.

The Seven Factors of Cost & Risk

Failing to properly plan and test normally results in increased cost and risk. Dodge the drawbacks and ensure successful project implementation by being aware of how it happens.

1 Disruptive Necessary Updates

Cloud migrations and associated upgrades are unavoidable — even under hybrid models with decades-old on-prem infrastructure. Delaying the inevitable only makes these necessary updates to business-critical infrastructure and systems more disruptive. With proper testing built into the process from the get-go, this problem goes away.

2 Less (Necessary) Updates

Organizations that don't provide more well-functioning high-quality updates in line with demand face a competitive disadvantage. Without rigorous testing, it's impossible to do this. Organizations are forced to spend more time fixing infrequent, buggy updates and end up lagging in the long run. Automated testing has all the benefits of a full testing team for a fraction of the cost.

3   Less (Necessary) Change

The traditional waterfall project management strategy tends to be bound with a fear of change. But successful and stable implementations are only as good as the length of time they function. In a rapidly changing world, such length is growing shorter and shorter. To remedy this, incremental change via regular updates reduces overall risk associated with change itself.

4   Testing Bottlenecks

Poor testing at the very end of implementation delays the project as a whole and causes ripple effects through the project plan. This is the number one cause of workflow and project bottlenecks. Spotting defects earlier in the cycle with regular testing avoids this significantly.

5   Miscommunication and Assumptions

Miscommunication and assumptions correlate with the size of the organization because more business units and functions create more room for misalignment. Goals are fragmented. Because it's often most evident with the actual implementation, organizations end up increasing the likelihood that such disarray happens, by avoiding change and proper testing. Automated testing — using a commonly understood framework and set of objectives — keeps risk low and cost down.

6 Slow User Feedback

User feedback is a vital part of improved iterations as well as deployment velocity and frequency. Less change and updates mean less feedback. Regular, early automated testing throughout the cycle time leads to improved outcomes on all fronts.

7 Suboptimal Resource Allocation

Many organizations spend resources on fixing avoidable problems because they avoided testing earlier and often. Automated testing encourages optimal resource allocation with correspondingly lower cycle time and smoother overall implementation.

The Benefits of Automated Testing

By using automated testing, updates are more frequent and of higher quality. More and more frequent user feedback means better future iterations. Resources are allocated appropriately, projects run more smoothly, and cycle time is shorter.

Minimize Cost & Risk

Enterprises suffer from high cost and risk exposure by not prioritizing testing during project implementation. Putting off testing until the end of a project leads to detrimental cost impact and greater risk — which means there's more firefighting on the backfoot.

**Automated testing is built in from the start — minimizing cost and risk.**

Reduced risk and cost allows organizations to focus efforts and resources on bigger issues.

When organizations improve their processes with proper testing and feedback systems in place, they eliminate avoidable problems later in the cycle and flourish as a result. Instead of just focusing on business risk, they can focus on business growth.

How Cycle Labs Can Help

Cycle Labs offers organizations a collaborative relationship based on continuous automated testing throughout the end-to-end implementation of a project. This makes it a far less painful transition than if there was no automated testing or if testing was pushed to the end of implementation, creating a host of new problems to deal with.

The Cycle® platform automates critical business process validation as a supplement to manual testing, facilitating realistic and comprehensive performance (as well as standard) testing. Its front-end monitoring sets up a library of scripts customized to the solution at hand.
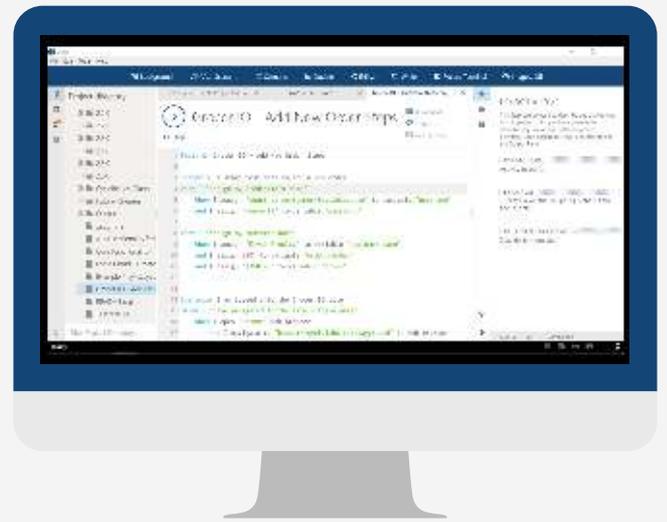
And once solutions are successfully implemented, Cycle Labs forges a path in continually modernizing and streamlining them. That's because better addressing additional business needs through ongoing communication and relationship-building never stops.

Deciding What and How to Automate

There's a clear need for automated testing. An agile, iterative methodology for project management beats traditional methods hands down. From thousands of test cases, it's now a case of deciding what and how to automate.

The natural tendency with a new strategy and platform is to try to automate everything. If it's hybrid — partly automated and partly manual — something might break. But total, 100% automation is not realistic without a large allocation of resources unavailable to most cost-constrained organizations.

Test automation is like a configurable knob that you can dial up or down: It's not all or nothing. The degree to which an enterprise embraces automation depends on its specific business goals and needs.

Determining Priorities & Reducing Risk

Organizations still need to mitigate risk even with cost constraints. Risk-based testing (RBT) offers a guide.

Some goals will be more important and have a deeper impact on the business. Others might not be crucial to the survival of the business, but need fixing anyway. By associating risk with test coverage — either of business processes or functional areas — organizations focus on the highest-value business-critical processes.

There isn't always a correlation between the amount of testing the business needs and the ideal level of risk reduction. But RBT offers a dramatically reduced risk profile — with far less test cases than was initially anticipated.

Severity and Probability of Fault & the 80/20 Rule

Focusing on the severity and probability of fault in critical processes yields a quantitative value, determining overall business risk — the first step to reducing the risk profile. If a process faltering would have a severe impact and the probability of fault or breakage is high, that's a priority for automated testing.

A matrix helps establish what is most frequently run, what failed with half its users, and what increases operational risk. If 80% can rely on automated testing, that's a win all round — for organizations, their customers, vendors, and partners.

The ROI of Automated Testing

It's one thing to talk about shifting left in the abstract, and quite another to justify it in concrete terms. Organizations need an ROI to fund business cases.

Cycle Labs assesses business-critical processes with ROI and potential savings at the front and center of the assessment.

The more automation is implemented and the longer it's invested in, the greater the ROI derived.

The faster issues that need patching with regression testing after going live are solved, the quicker organizations can (continue to) service customers. More implementations correspond to less value — less value means the company is dying. This isn't even about the value of the systems themselves, but rather the TTV.

Automated testing keeps these issues, the time it takes to fix them, and TTV to a minimum, enabling companies to retain competitiveness. Quantitative improvement quickens the process because testing isn't dragging.

While it's possible to hire a team and build scripts, in-house teams need to maintain and update these scripts. Configurations change and so does the data that flows through the operation. Collaborative and continuous automated testing makes these non-issues.

A shift left with automation means shorter testing cycles and easier regression testing when issues do happen. Product quality is higher, which means customers are happier. Multiple sites can be tackled in parallel or started earlier as organizations can take a more proactive approach — instead of putting out old fires. Less hours spent fixing problems means more savings and better ROI.
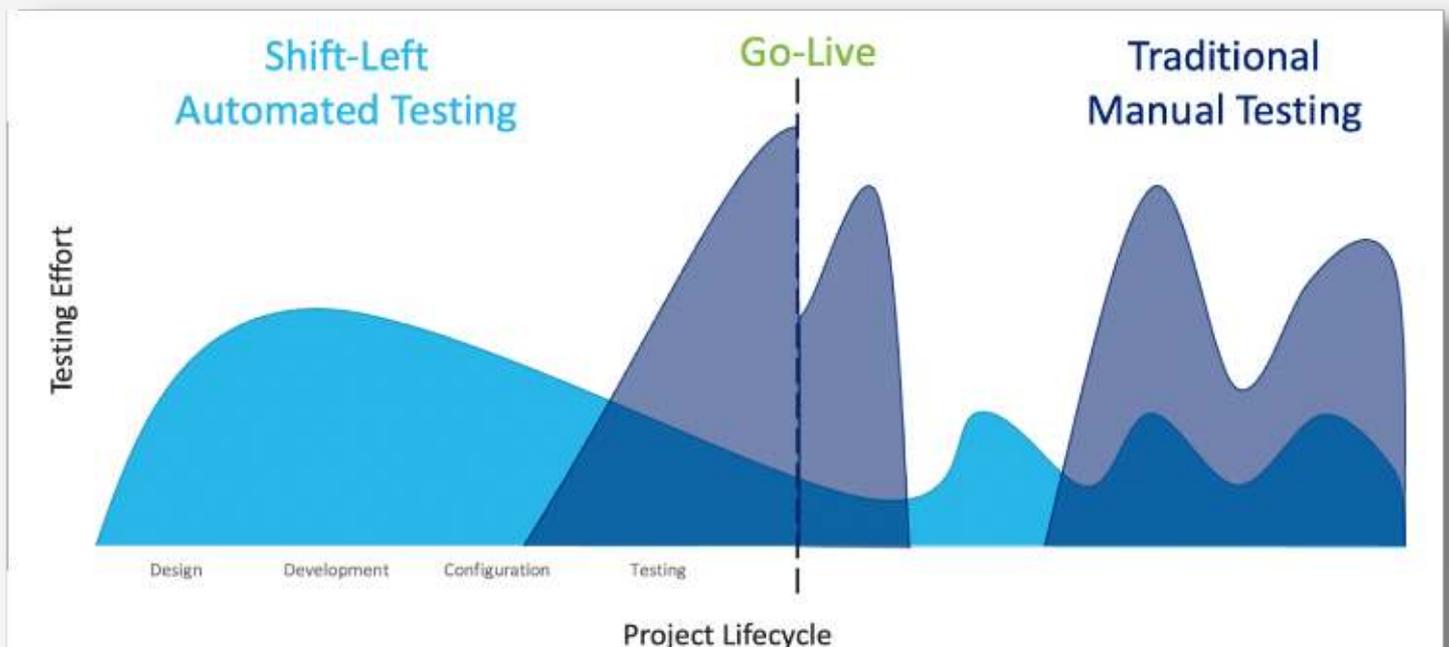
If You Count on Anything, Count on Change

There are many reasons to automate testing. Even in the last two decades, the rate and pace of technological change has exploded. What hasn't are the processes.

This problem spans industries across the board: Producing and deploying cutting-edge systems with the right support to sustain and evolve them is lagging as much as ever.

But the winners know where their outsized gains are coming from. By changing the process, they get an edge on their competitors. The need to do so is no longer a luxury companies can afford to ignore.

Putting off necessary change pushes pain further along in the process — and creates more of it along the way. It's better to deal with it head on — reducing fear, cost, and risk to focus on true business growth and success.

Automate testing — successful system implementation and business growth depends on it.

Ready to streamline and optimize?

Request a demo today.

Don't just take our word for it. Read our customer success stories.

cycle labs

Cyclelabs.io
(866) 366-1402