



REVOLUTIONIZING SOFTWARE QUALITY: UNVEILING THE SIX GAME-CHANGING BENEFITS OF AI IN TESTING

Software development is an area of constant innovation and rapid evolution, and testing plays a pivotal role in ensuring product integrity and market readiness. However, testing has often been the bottleneck in the process, riddled with repetitive tasks and time-consuming processes that delay progress. The advent of Artificial Intelligence (AI) in test automation is causing a major paradigm shift, transforming the testing landscape from a potential roadblock to a catalyst for efficiency.

In the digital landscape, software testing is a key component for business success and customer satisfaction. Serving as the foundation of quality assurance, testing ensures that software not only satisfies, but also surpasses the rigorous standards expected by end-users and stakeholders. It plays a critical role in identifying and resolving issues early, thereby preventing costly post-launch corrections. Plus, with growing concerns over data security and compliance, thorough testing can help prevent breaches, while ensuring software meets current standards and maintains user confidence.

CHALLENGES WITH TRADITIONAL METHODS

For decades, traditional software testing methods have served as the bedrock of quality assurance. But today, these time-tested approaches are being outpaced by the sheer velocity of technological change and the intricate challenges of modern software development—and here's why:

✓ **Scalability:** It is becoming increasingly challenging to scale manual testing processes in line with the rapid development and deployment cycles that modern IT innovation demands. According to a Forrester study of 316 software testing technology decision-makers, a lack of automation and testing assets is making it difficult to test quickly when software changes occur.¹ This bottleneck not only slows down product releases but also makes it infinitely harder to efficiently address market changes and customer needs.

✓ **Resource-intensive:** According to research, 35% of digital enterprises say manual testing is the most time-consuming activity within the testing cycle.² Because manual testing requires substantial human resources, it not only swallows productivity but is also costly and prolongs time-to-market.

✓ **More room for error:** Manual testing is inherently dependent on human input, which can lead to oversight and inconsistent results that compromise software reliability. As automation expert Michael Da Silva explains, “Manual testing is susceptible to human errors, such as bugs caused by tiredness, lack of focus, and distraction.” He adds, “Such bugs might not be detected if they are overlooked during testing.”³

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-MICHAEL DA SILVA, AUTOMATON EXPERT

✓ **Limited coverage:** Testers are often unable to exhaustively test all scenarios. In fact, manual testing has been shown to result in as low as 10–30% coverage of all available test cases.⁴ When that happens, critical defects may go undetected, leading to software failures in real-world operations, which not only degrades the user experience but can also have serious repercussions for a business's credibility and financial health.

AI-INFUSED TESTING IS THE FUTURE OF SOFTWARE TESTING

AI-infused testing is a revolutionary approach that incorporates AI technologies to enhance and automate the testing process. Leveraging machine learning, natural language processing, and predictive analytics, AI-infused testing has been shown to significantly enhance test accuracy and efficiency.

As the landscape of software development evolves and grows more complex, this groundbreaking approach represents a significant evolution from the manual paradigm to a more intelligent and efficient testing process capable of addressing the diverse and complex demands of modern software development. Research shows that AI-infused testing helps companies speed delivery, increase productivity, improve quality, and maximize efficiency.⁵

SIX BENEFITS OF AI-INFUSED TESTING

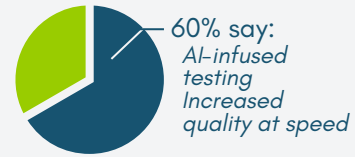
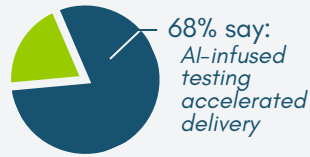
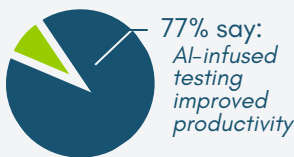
As the complexities of software development multiply, AI-infused testing is emerging as a pivotal tool in streamlining workflows and enhancing operational dynamics, with benefits that include:

1. Enhanced accuracy and quality assurance

AI significantly enhances the accuracy of testing, which directly contributes to higher software quality. Sixty-eight percent of respondents to the Forrester survey experienced improved quality with AI-infused testing, while 64% noted an improved customer experience.⁶

2. Increased productivity and efficiency

In the race to deliver high-quality software, AI-infused testing has become a critical accelerator, radically improving the rate and efficacy of the testing process. “The main advantage of automated testing over manual testing is that it allows you to conduct more tests in less time, [which] improves performance and extends testing capabilities,” says Arina Lukashik, codeless testing marketing expert.⁷ In fact, 77% percent of those surveyed said AI-infused testing improved productivity, 68% said it accelerated delivery, and 60% said it increased quality at speed.⁸



3. Intelligent test generation

Intelligent test generation leverages advanced algorithms within AI to understand and interpret complex software requirements. By drawing on extensive datasets, these algorithms can automatically generate detailed test cases that align closely with specified requirements. This not only streamlines the test case creation process, but also enhances the scope of testing by encompassing a wide range of scenarios, including edge cases often overlooked in manual testing.

4. Advanced defect detection

AI helps detect both functional and non-functional defects that may have otherwise gone undetected for higher software integrity, resulting in a more reliable and robust end product. Recent research of 90 software testing technology decision-makers in North America and the US revealed an average 10.8% reduction in production defects with AI-infused testing.⁹

5. Greater test coverage

AI can perform a wide range of tests, which ensures a more thorough examination of the software, leading to better quality and fewer bugs in production. Sixty-seven percent of software testing technology decision-makers surveyed said AI-infused testing improved test automation coverage, with an average 12.1 percentage point increase in test automation coverage overall.¹⁰

6. Cost savings

By reducing manual testing efforts, detecting bugs earlier, and improving the overall software quality, AI-infused testing results in a marked cost reduction, not only in testing costs but also in maintenance and post-deployment support. Forty-nine percent of testers surveyed said AI-infused testing helped them realize cost savings, while 47% saw an increase in revenue.¹¹

SUMMARY

Incorporating AI into software testing represents far more than an incremental IT advancement; it's a revolution that is propelling businesses toward a future of accelerated, reliable, and economically sound software delivery. OpenText™ UFT One is leading the charge in AI-infused testing, with a robust suite of tools that harness the power of AI to optimize testing strategies and enhance quality outputs. With UFT One solutions from Melillo, you can seamlessly integrate advanced AI capabilities into your testing operations for more precise results and faster time to market—so you can stay one step ahead in the competitive landscape of software development.

REFERENCES

1, 5, 6, 8, 9, 10, 11 <https://rb.gy/xx80a5>

2, 7 <https://rb.gy/3cdi0l>

3 <https://rb.gy/np2aet>

4 <https://rb.gy/mal7mv>

ABOUT THE AUTHOR

Melillo Consulting is a technology solution provider that helps organizations power their business through technology. With a full range of complete IT solutions that address customers' on-premises, hybrid, and cloud needs, Melillo offers advanced expertise in infrastructure, development, security, and data management. Backed by a team of seasoned IT solution architects, expert delivery consultants, and project management pros, Melillo offers an unsurpassed level of expertise that positions customers for success. Contact Melillo to discuss your approach to the hybrid cloud at getinfo@mjm.com.

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