



Vital Signs

Key Trends and Projections for Software Testing in Healthcare

The healthcare industry faces a critical challenge: ensuring the safety and quality of care while navigating an increasingly complex software ecosystem with rapidly evolving technologies and regulations. Keysight Technologies commissioned the Healthcare Information and Management Systems Society (HIMSS) to conduct a study of major US healthcare providers about their software testing practices and plans.

A Pressing Paradox in Software Testing

The digital healthcare world is a complex web of ecosystems, rapidly evolving devices, and vast amounts of unstructured data. In this intricate environment, healthcare software testing plays a crucial role in ensuring patient safety and maintaining the quality of care.

And herein lies the testing paradox. Despite zero room for error in mission-critical software, 94% of software testing decision-makers reported that insufficient software testing practices increasingly risk patient lives.

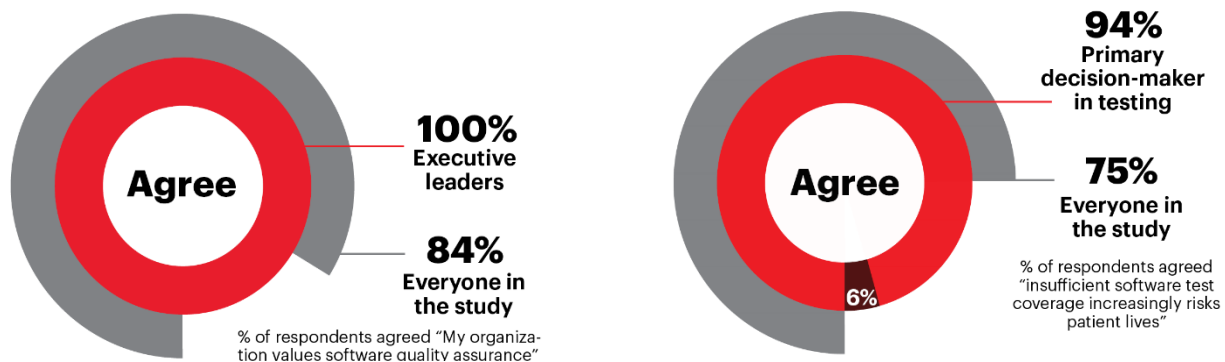


Figure 1. A paradox in the field of healthcare software testing¹

This finding is particularly alarming because nearly two out of three of the study's respondents didn't think their team had enough resources (time, budget, or talent) to scale software testing to fix that gap.

1. Source: A commissioned study conducted by HIMSS on behalf of Keysight, March 2023.

Manual and DIY Testing Lead to Scalability Challenges

The study examines the underlying causes of scalability challenges in the testing industry, focusing on the prevalent use of manual testing methods and do-it-yourself (DIY) approaches. It reveals the limitations of both approaches in addressing emerging test requirements, developing test coverage across various devices and browsers, and enhancing QA team satisfaction and productivity.

Among the study’s critical findings:

- 38% of respondents reported using manual software test methods, leading to difficulty scaling their testing capabilities.
- Nearly two-in-three testers using manual approaches are not satisfied with their organization's ability to address emerging test requirements and / or develop test coverage across all devices and browsers.
- 44% use DIY test approaches, which often come with challenges in growing infrastructure costs and maintenance challenges.
- Only 38% using DIY approaches reported satisfaction with their organization's ability to meet emerging testing requirements, 10 percentage points lower than manual

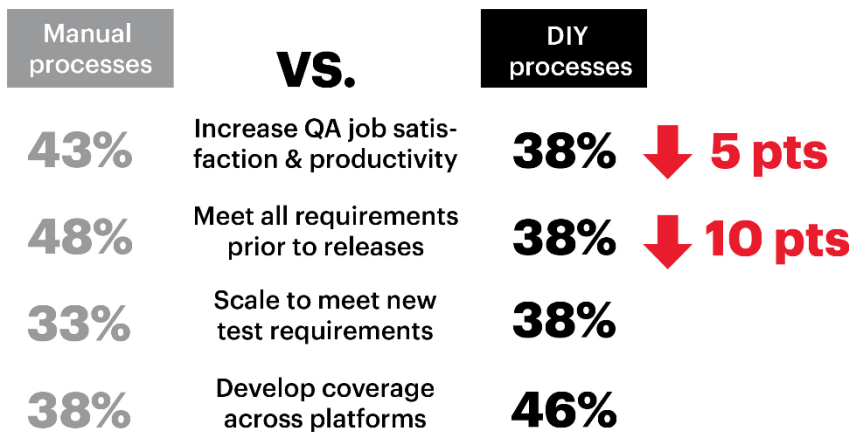


Figure 2. Percentage of respondents using manual (left) and DIY (right) testing approaches who are satisfied with their organizations’ capabilities in specific areas.²

2. Source: A commissioned study conducted by HIMSS on behalf of Keysight, March 2023.

There Is a Cure in Sight

The HIMSS study reveals that early adopters of test automation platforms have seen remarkable improvements in their test analytics and scalability, which position them well for future challenges. Specifically, test automation platforms can:

- Boost satisfaction with organizations' testing analytics by a staggering 1.8X
- Enhance satisfaction with organizations' ability to scale and meet emerging testing requirements by an impressive 2.2X

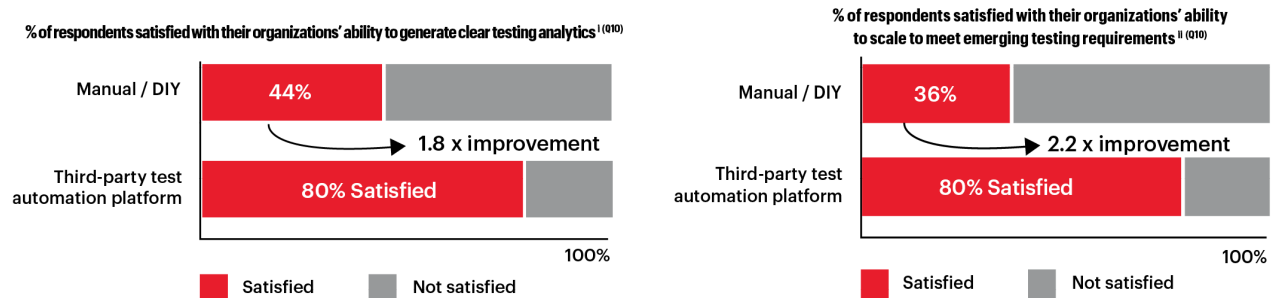


Figure 3. Respondents using test automation report greater satisfaction in testing analytics and meeting new testing requirements than with manual / DIY regarding approaches.³

The Use of Automated Software Testing to Rise

Projections indicate that in the next five years, the percentage of healthcare providers primarily using automated software testing will jump from 25% to 75%.

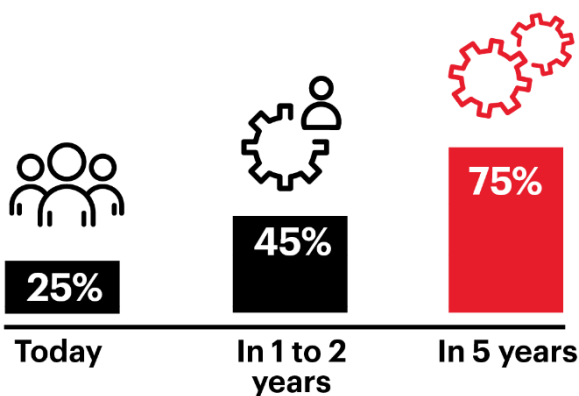


Figure 4. Percentage of healthcare providers using primarily automated software testing will triple⁴

i. Low base size, insights directional only.

ii. Low base size, insights directional only.

3. Source: A commissioned study conducted by HIMSS on behalf of Keysight, March 2023.

4. Source: A commissioned study conducted by HIMSS on behalf of Keysight, March 2023.

Key Recommendations

At Keysight, we share healthcare providers' dedication to bringing quality care to everyone and are committed to building intelligent test automation solutions tailored to providers' specific objectives. We have identified three critical needs for those transitioning to automated testing for the first time or seeking to upgrade existing tools with a platform-based approach:

- Gain a thorough understanding of evolving healthcare quality assurance requirements
- Ensure tools' capabilities to test interoperability
- Focus on long-term process and productivity improvements

About Keysight Technologies

At Keysight (NYSE: KEYS), we inspire and empower innovators to bring world-changing technologies to life. As an S&P 500 company, we're delivering market-leading design, emulation, and test solutions to help engineers develop and deploy faster, with less risk, throughout the entire product lifecycle. We're a global innovation partner enabling customers in communications, industrial automation, aerospace and defense, automotive, semiconductor, and general electronics markets to accelerate innovation to connect and secure the world. Learn more at [Keysight Newsroom](#) and <http://www.keysight.com>.



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