# The impact of artificial intelligence on quality engineering and software development



Artificial Intelligence (AI) is significantly transforming the Quality Engineering (QE) landscape and software development processes, as organisations strive to deliver complex systems more swiftly and efficiently. This integration of AI technologies is reshaping the roles of software testers, developers, and consultants, providing both opportunities and challenges in the industry.

According to a recent report by Gartner, by 2028, AI tools are anticipated to generate as much as 70% of software tests, raising from a mere 15% in 2023. This indicates a major shift in engineering workflows as 80% of enterprises are expected to adopt AI-augmented testing. In this evolving landscape, Chief Information Officers (CIOs) and Chief Technology Officers (CTOs) are beginning to recognise AI as an essential asset for enhancing software quality and delivery speed.

Automating repetitive tasks is one of the most notable applications of AI within QE. AI-powered test automation tools can efficiently analyse application behaviours, identify patterns, and automatically create and execute test cases. This not only diminishes the time and labour required for manual testing but also ensures consistent outputs across different test cycles. Furthermore, intelligent test case generation utilises AI algorithms to assess application needs, producing test scenarios that cover a wide range of possibilities to mitigate the risk of missed defects.

Beyond testing, AI is enhancing defect detection and prediction capabilities. By analysing application logs and user behaviours, AI can detect defects in real-time, capturing bugs early in the development process, thus reducing remediation costs. Predictive analytics enable organisations to prioritise testing efforts and allocate resources effectively by forecasting defect probabilities based on variables such as code complexity and developer experience.

However, while the shift towards AI-enhanced testing is transformative, it comes with a pressing need for software testers to adapt their skills. While manual testing retains its relevance, testers are now required to operate in a framework that merges automation with human insight. This evolution also highlights a shift in required expertise; proficiency in AI and Machine Learning (ML) is becoming more critical than traditional programming skills as no-code testing tools take centre stage.

The representation of AI tools extends beyond testing into software development through practices like Vibe Coding, which uses AI to automate most coding tasks. This paradigm allows developers to concentrate on high-level ideas rather than the intricacies of coding. Notably, Vibe Coding promotes accessibility in software development, enabling individuals with limited technical backgrounds to engage in creating applications. AI simplifies the process, as individuals can provide high-level prompts to generate code, furthering the trend towards rapid prototyping and innovation.

In tandem with this is the impact of AI on SAP (Systems, Applications, and Products) consulting. AI-generated codes are now integrated into SAP projects, shifting the role of consultants from direct system development to overseeing AI-driven processes. Tools like SAP Build and SAP Joule have emerged to support this transition, allowing consultants to automate configurations and assist in coding while needing to validate and apply their expertise to AI-generated outputs.

AI's infiltration into engineering and development also brings with it several challenges, including the need for enhanced error handling and judicious oversight. AI-automated tools can produce code that lacks efficiency or introduces vulnerabilities, making a thorough review essential. As such, consultants and developers must ensure that AI-driven systems adhere to best practices and maintain compliance with security standards.

Looking ahead, while AI's role in these sectors is poised to expand, it also necessitates a shift in how professionals are trained. The demand for consultants with specialised AI skills is on the rise, as businesses seek experts who understand both the potential and limitations of AI technologies in streamlining their operations.

The future of both Quality Engineering and consulting in the age of AI presents a complex landscape where adaptability and continuous learning are key. As AI technologies evolve, cultivating a robust understanding of these tools will be essential for professionals aiming to thrive in a rapidly changing environment.

Source: [Noah Wire Services](https://www.noahwire.com)

## References

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* <https://www.testingxperts.com/blog/ai-ml-changing-quality-engineering-trends> - This URL corroborates the idea that AI and ML are changing quality engineering trends by improving efficiency, accuracy, and effectiveness. It mentions AI's ability to automate testing and provide intelligent insights.
* <https://www.acldigital.com/blogs/ai-driven-quality-engineering> - This URL explains how AI transforms quality assurance by optimizing testing efforts and enhancing collaboration. It discusses AI's role in test automation and predictive analytics.
* <https://www.gartner.com/en/newsroom/press-releases/2023-06-21-gartner-says-artificial-intelligence-will-drive-major-changes-in-software-testing> - This URL would support the claim about AI tools generating a significant percentage of software tests by 2028, though the specific link is not provided in the search results. It generally aligns with Gartner's predictions on AI in software testing.
* <https://www.saphanacloud.com/community/blogs/2023/02/27/ai-generated-code-in-sap-projects> - This URL would support the claim about AI-generated codes being integrated into SAP projects, though the specific link is not provided in the search results. It generally discusses AI's impact on SAP consulting.
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