CitiusTech

Shaping Healthcare Possibilities

Gen AI-driven QA transformation to accelerate delivery and quality with Shift-Left & Shift-Right

About the Client

The client is a leading healthcare innovation technology provider specializing in medical image management solutions. Their flagship PACS platform is a robust, intuitive imaging software that streamlines radiology workflows, enhances diagnostic accuracy, and integrates seamlessly with healthcare IT systems. With advanced visualization tools and customizable features, it empowers clinicians with faster, more precise insights.

CitiusTech has been a long-standing strategic partner for the client, supporting multiple initiatives across product engineering, quality assurance (QA), and healthcare interoperability. This engagement reflects the deep trust and collaborative innovation between the two organizations.

Business Challenge

CitiusTech, as an existing service provider, proactively identified critical gaps in the existing QA Test Plans and other test artifacts that could impact delivery timelines and product reliability. The PACS platform, being mission-critical for radiologists and care teams, required a robust QA framework to ensure clinical-grade performance.

The team highlighted that:

- Test plans were abstract or non-executable, limiting validation effectiveness.

- Multiple legacy codebases (Java, C++, Perl, Python) lacked documentation, making workflow comprehension and test scope definition challenging.

- Limited availability of business analysts created bottlenecks in requirement clarification.

- Defect detection was often delayed, leading to expensive rework and release delays.

  These challenges, if left unaddressed, posed risks to operational efficiency, clinical performance, and end-user satisfaction.

The Solution

CitiusTech initiated the transformation with a strategic advisory engagement, conducting a comprehensive QA maturity assessment. Based on this, CT recommended a Gen AI-powered Shift-Left/Shift-Right QA framework tailored to the client's complex environment.

Advisory-led interventions included:

- QA maturity assessment & roadmap: Evaluating current QA practices, identifying systemic gaps, and proposing a phased Gen AI-led transformation.

- Change management & enablement: Training QA teams on Gen AI tools to build internal capabilities.

Key interventions included:

- **Shift Left with Gen AI empowerment:** Training QA teams on reverse-engineering, prompt engineering, and Gen AI-driven test discovery.

- **Reverse engineering the codebase:** Using GitHub Copilot and ChatGPT to analyze complex Java, C++, Perl, and Python codebases to derive functional insights, workflows, and dependencies.

- **Smarter test discovery:** Leveraging Gen AI to uncover hidden workflows, edge cases, and missed conditions; translating Java JOOQ queries into plain SQL for deeper test data understanding.

- **AI-powered test design:** Auto-generating meaningful, business-aligned test cases and test data through Gen AI tools (Copilot, ChatGPT, Perplexity).

- **Early feedback loops:** Delivering QA-derived test plans helped highlight the design gaps early in the requirement/analysis phase with business analysts and architects. It also enabled developers to integrate QA insights into unit and integration testing.

- **Shift Right practices:** Extending QA support to post-QA activities like PACS upgrade testing, enhancing deployment readiness.

- **Code-level enhancements:** Partnering with developers to enhance logging, tracing, and debugging, enabling better feature understanding.

- **Technologies used:** VS Code, GitHub Copilot, Git, ChatGPT, Perplexity, Java, Python, Perl, C++.

Value Delivered

The Gen AI-powered QA transformation, anchored in strategic advisory and deep technology enablement, delivered measurable impact. By embedding Gen AI into QA practices, the client achieved a complete Shift-Left transformation, empowering QA teams to move beyond execution and become strategic contributors. The approach accelerated delivery cycles, improved quality, and enhanced collaboration across development and testing functions, resulting in stronger releases and better end-user outcomes.

500 hours saved in 4 months, driving faster delivery (time-to-market), and reduced resource strain.

Accelerated test planning with Gen AI-generated test scenarios and plans, reducing dependency on BAs.

Early defect detection minimized costly post-release fixes and improved release confidence.

Improved test coverage & quality by uncovering edge cases and hidden logic through GenAI and reverse engineering code.

Reduced rework & QA cycle time with actionable test scenarios, streamlining functional and regression testing.

Minimized manual effort to create test case design and requirement analysis was replaced by GenAI automation, freeing up QA bandwidth for strategic tasks.

Stronger strategic value ·with QA contributing to design improvements and product usability insights in early development phases.

Enhanced QA autonomy, making teams self-sufficient and lowering communication overhead.

Through Gen AI-powered QA, the client not only accelerated delivery and improved quality but also transformed QA into a strategic partner in innovation. The team was involved in BRS (Business Requirements Specification), SRS (Software Requirements Specification), architectural designs, and discussions. With this solution, the business risk was reduced, and smoother releases led to better user experience.

CitiusTech's consulting-led approach ensured the transformation was not just tactical but strategic, aligning QA with product goals, enhancing stakeholder confidence, and laying the foundation for sustainable, scalable, AI-driven excellence in healthcare technology.

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