CYIENT | Microsoft Solutions Partner

AI-DRIVEN PRECISION: REDEFINING QUALITY IN SAFETY-CRITICAL SECTORS

A Quality Non-Conformity Solution

Quality Non-conformity, an Industry Challenge

Aerospace and other safety-critical industries, such as rail manufacturing, defence systems, and healthcare products, prioritize precision, reliability, and safety. These sectors demand the highest standards of quality conformity to ensure that every part and process meets rigorous specifications. The complexity and potential consequences of failures necessitate stringent quality control measures throughout the manufacturing process.

In aircraft design and manufacturing, this conformity supports not only the safe operation of aircraft but also drives industry efficiency. However, discrepancies in fit, form, and function often arise during the manufacturing or assembly phases, complicating the identification and resolution of quality issues.

Additionally, long lead times and supply chain difficulties can hinder timely delivery, resulting in a backlog of engineering change notices (ECNs). Engineering managers often find that 15-20% of their team's efforts are consumed by ECN and non-conformity approvals, diverting focus from critical areas like design improvements, innovation, and new product development.

Key Challenges

- Regulatory and Safety Compliance
- Complexity of Systems
- Economic impact
- Operational Efficiency
- Reputational and Market impact

Our Solution

In addressing the multifaceted challenges of quality non-conformity, Artificial intelligence (AI) is proving to be transformative. These advanced tools offer innovative solutions to streamline processes, enhance precision, and reduce the impact of quality issues. We have developed an advanced digital platform through the Microsoft-Cyient Center of Excellence (EnGeneer) to leverage AI and Generative AI technologies. This platform electronically documents, manages, and tracks non-conformities in materials and components. By utilizing AI, it quickly generates dispositions based on historical engineering decisions, correlating data from concessions, maintenance logs, and repair actions with the relevant components. Has the ability to feed the data from the non-conformance into Product development or Engineering to reduce future non conformances. The platform boosts productivity by 80-90%, cuts resolution time from days to minutes, accelerates time-to-market, and enhances quality management while improving communication across teams.

Benefits

Productivity improvement by **80-90%**

Improved Accuracy levels of more than **50%** from the baseline

Aerospace & Defense Case Study

Enabling faster QN resolution for a leading engine manufacturer.

Business Challenge: To optimize turnaround time, clear backlogs and improve the accuracy of review method that analyzes deviations from the standard for a particular part, assembly, or associated materials.

Cyient's Solution: We created an AI solution that analyzes historical data on resolutions for specific QN's. By identifying patterns in earlier resolutions, the system provides the quality management team with the top three or four recommendations for each QN. It extracts data from various sources, including concessions, plants, maintenance logs, and repair actions, correlating them with the relevant components. The platform assigns accuracy and conformance ratings to suggest the best resolution within seconds.

Results: With an AI platform for QN processing, the client gained a robust recommendation engine that facilitates the quick handling of high volumes of QN's. The platform automates the identification, tagging, quarantining, and tracking of components not meeting specifications. This solution empowers manufacturing engineers, plant managers, and operators to make immediate decisions regarding non-conforming materials, such as rework, repair, re-grading, scrapping, or redesigning products. The platform boosts productivity by 80-90%, cuts resolution time from days to minutes, accelerates time-to-market, and enhances quality management while improving communication across teams.

DESIGNING TOMORROW TOGETHER

Industries today face significant challenges in maintaining quality, safety and operational efficiency. By adopting innovative AI-driven solutions, these sectors can overcome those challenges, leading to safer, more efficient, and highly optimized operations. Through our strategic partnership with Microsoft at the EnGeneer Center of Excellence, we focus on enhancing engineering agility by developing platforms that provide engineers with advanced automation and support, ultimately boosting productivity and quality through AI.

Our focus is on building solutions that are not only cutting-edge but also future-ready. By combining our deep industry knowledge with advanced digital tools, we develop intelligent engineering solutions to help our customers unlock sustained value across sectors.

About Cyient

Cyient (Estd: 1991, NSE: CYIENT) partners with over 300 customers, including 40% of the top 100 global innovators of 2023, to deliver intelligent engineering and technology solutions for creating a digital, autonomous, and sustainable future. As a company, Cyient is committed to designing a culturally inclusive, socially responsible, and environmentally sustainable Tomorrow Together with our stakeholders.

For more information, please visit www.cyient.com

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