Infosys topaz ARTIFICIAL INTELLIGENCE-LED QUALITY ASSURANCE
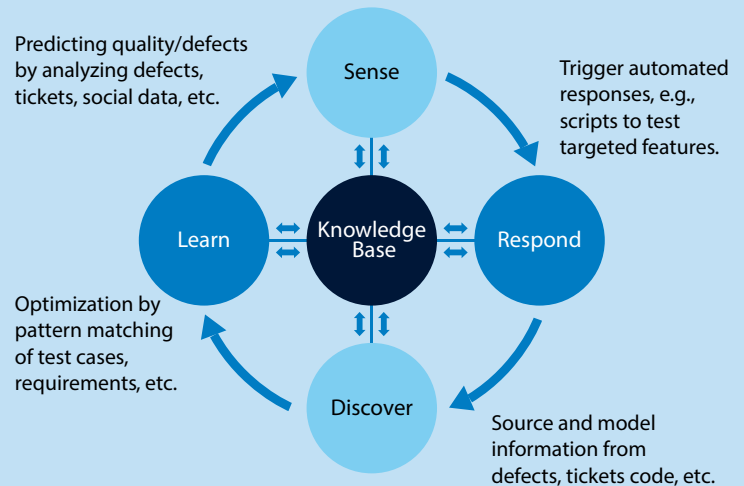
Applying machine intelligence to assurance practices

Our approach on artificial intelligence (AI) / machine learning (ML) based quality assurance is design-based complying with the following steps - Discover > Learn > Sense > Respond cycle. The knowledge base constantly helps in storing and building pattern, which in turn helps in self-learning and responding to actions.

Discover - Create smart assets using data repositories including defects, tickets etc. that can be used for analysis.

Learn - Identify causal relationships between test assets such as defects and software requirement documents for developing insights.

Sense - Predict the occurrence of an incident, impact and likelihood led by analytics and insights.

Respond - Respond to an incident, input the resolution, and results for continuous learning.

Predicting quality/defects by analyzing defects, tickets, social data, etc.

Trigger automated responses, e.g., scripts to test targeted features.

Optimization by pattern matching of test cases, requirements, etc.

Source and model information from defects, tickets code, etc.

Sense — Knowledge Base — Respond — Discover — Learn

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Test Suite Optimizer (TSO)

Need:
- Growing test repository —Duplicity or considerable overlap
- Huge regression suite versus short time boxed execution window
- Reduce automation effort

Benefits:
- Test case optimization — Up to 15 percent effort savings due to identification of similar test cases
- Structured Risk Based
- Testing Reduced Automation effort
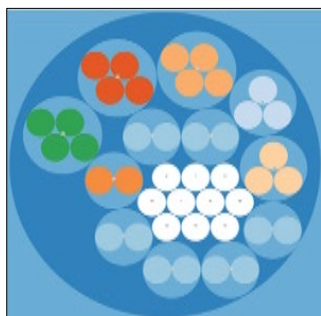
Predicting the next

Need:
- High test coverage within time boxed window
- Unavailability of scientific methods to identify buggy modules
- Enables prioritizing regression

Benefits:
- Helps in regression suite prioritization
- Stop test framework – strategic decision to abort testing of a module
- Shift left on high risk area
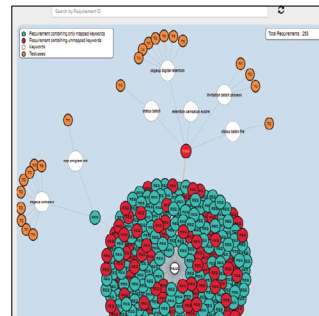- Better positioning of skills
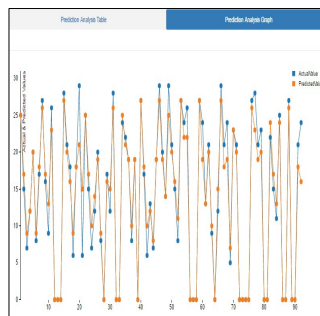
Find Missing Testcases

Need:
- It proves to be of help when test cases do not get written for some requirements. Owing to poor review or traceability, these missing test cases are not detected until the end of the LC stage

Benefits:
- Expensive rework can be avoided by identifying missing and impacted test cases early in the life cycle

Data analytics

Need:
- Perform analytics on huge amount of data on defects / incidents / tickets
- Identify granular contributors of defects which cannot be done by the conventional tools
- Identify key issues responsible for majority of the defects
- Identify applications at higher risk
- Ensure adequate testing for frequent changes and roll outs

Benefits:
- Improved risk management through prioritization of critical areas
- Increased testing efficiency by identifying optimal regression suite
- Detection of top issues for different applications
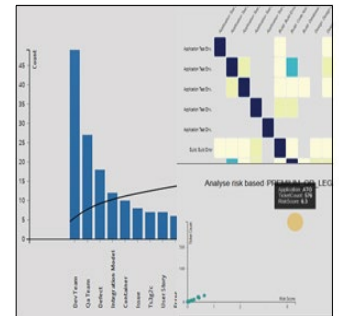
We have implemented our AI led quality assurance (QA) solutions successfully across verticals, including proof-of concepts (PoC), projects, etc. Here are few of our success stories:

- For one of the largest food and beverages companies in North America, a large test case suite had accumulated over a period of time. Test Case optimizer of AI led QA tool helped in identifying the duplicate test cases ensuring higher risk-based testing with an effort savings of around 10-15 percent per cycle.

- For a leading Australian bank with the largest branch network, Test Case Optimizer of AI led QA tool was used to optimize a huge regression suite. It helped realize significant reduction in test case count leading to effort savings per cycle and higher risk-based testing with more confidence.

- For a leading aerospace manufacturing company, Test Case Optimizer of AI led QA tool helped in reducing automation preparation and execution time by 10 percent through optimization of regression test suite.

- For the world's largest health care insurer in the US, data analytics of AI led QA tool was used to improve test effectiveness during last minute changes in agile environment.

- For one of the leading banks in Australia, we have implemented our "find missing test cases" solution and "predicting the next" solution to improve efforts savings up to five percent in test coverage review and predict the weakest module.

Infosys Topaz is an AI-first set of services, solutions and platforms using generative AI technologies. It amplifies the potential of humans, enterprises and communities to create value. With 12,000+ AI use cases, 150+ pre-trained AI models, 10+ AI platforms steered by AI-first specialists and data strategists, and a 'responsible by design' approach, Infosys Topaz helps enterprises accelerate growth, unlock efficiencies at scale and build connected ecosystems. Connect with us at infosystopaz@infosys.com

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