



Unleashing the Potential of Agentic AI Within Design & Functional Verification



Presenters



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Questa One Verification IQ



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Product Engineer
Coverage and Verification Management

Agenda

Introduction

- Introduction to **Questa™ One** and **EDAi Platform**
- How **Siemens** is Unlocking the Potential of AI
- Introducing **Smart Verification**

Demos

- Smart **Creation** powered by **GenAI**
- Smart **Regression** & Smart **Debug** powered by **Predictive AI**
- Smart **Analysis** accelerated by **Analytical AI**

The Future

- A look at **The Future of AI Driven Functional Verification**



AI won't take your job, but
someone using AI will



... **BUT**
oversimplifies the
TRUE impact of AI

Innovation Continually Reshapes Jobs

Transformative Change is the Constant in Story of Progress

15C



Print

17C

Agricultural

19C



Rail
Revolution

21C



Internet
Revolution

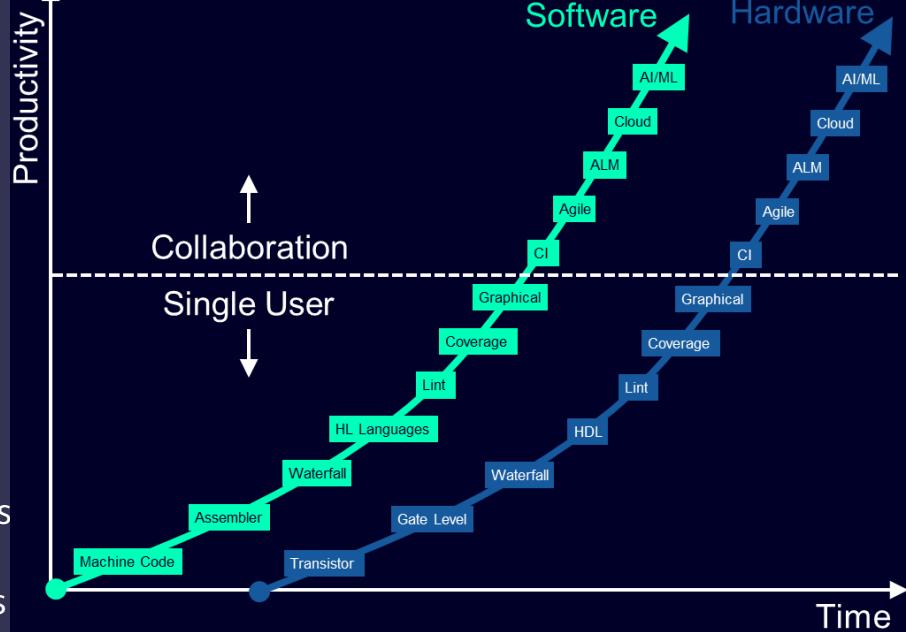
- ↓ Travel agents, print journalists, video rental, traditional retail staff
↑ Web developers, digital marketers, e-com managers, social media managers, app developers

SW Dev AI Revolution

- ↓ Scribe
↑ Print
book dis

↓ Software testers, Entry level coders, Bug triagers, basic technical support, documentation writers, Build/release engineers, Legacy code maintainers

↑ Prompt engineers, AI/ML engineers and data scientists, AI integration specialists, AI ethics and compliance managers, Model trainers and validators Synthetic data creators, Human-in-the-loop quality assessors, AIOps engineers



Gunpowder
Revolution

- ↓ Archers, bow craftsmen, armoured knights
↑ Musketeers, gunsmiths, artillery officers, firearm tacticians, common soldiers

- ↓ Handweavers, cottage craftsmen, artisan producers
↑ Factory workers, machine operators, industrial managers, engineers

EDA AI
Revolution

21C
Beyond



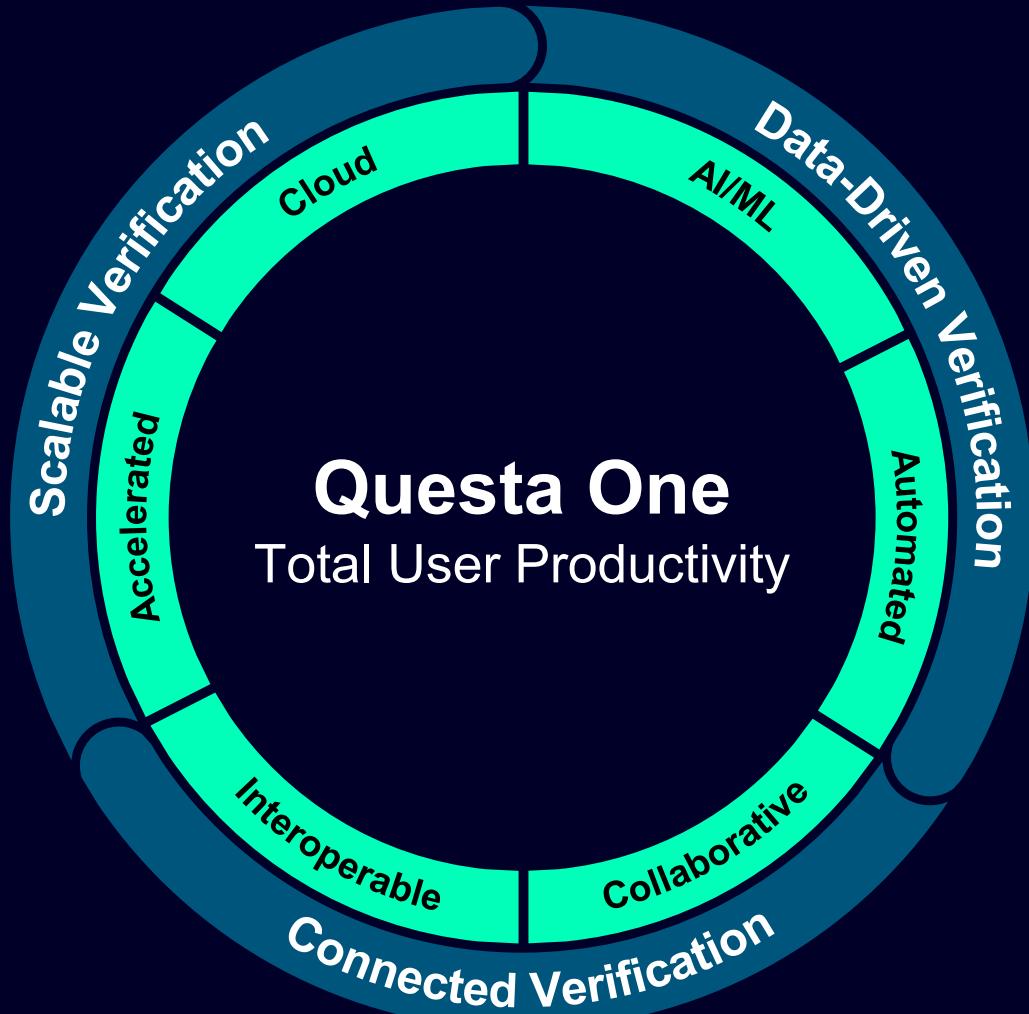
Digital
Revolution

- ↓ Switchboard operators, manual accountants, assembly line workers
↑ Programmers, IT specialists, systems analysts, automation engineers

Questa™ One Smart Verification Solution enabled by AI

Preparing for Transformation and Accelerating User Productivity

Launched at
U2U 13th May



Faster
Engines



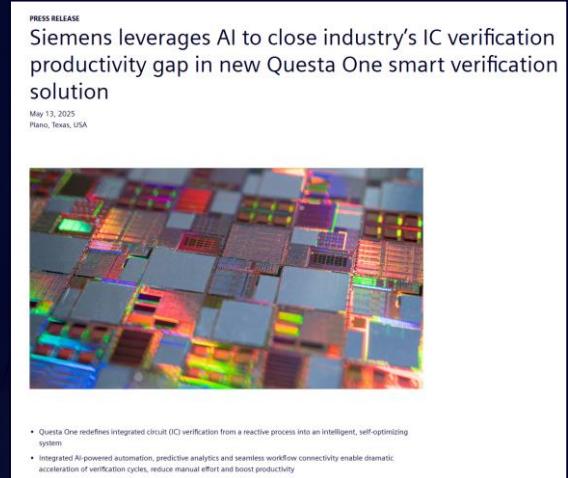
✓ Delivering up to **5x** improved
Total User Productivity

✓ **Scalable, connected, data-driven**
infrastructure for transformation to
Agent based verification

Faster
Engineers



Fewer
Workloads



Launched at
U2U 13th May

Questa™ One Smart Verification Solution enabled by AI

Supports Connected, Scalable and Data-driven Agentic Foundations

Questa One Sim

One engine with breakthrough performance for functional & fault sim for RTL, GLS, & DFT applications with parallel processing & profiling

Questa One SFV

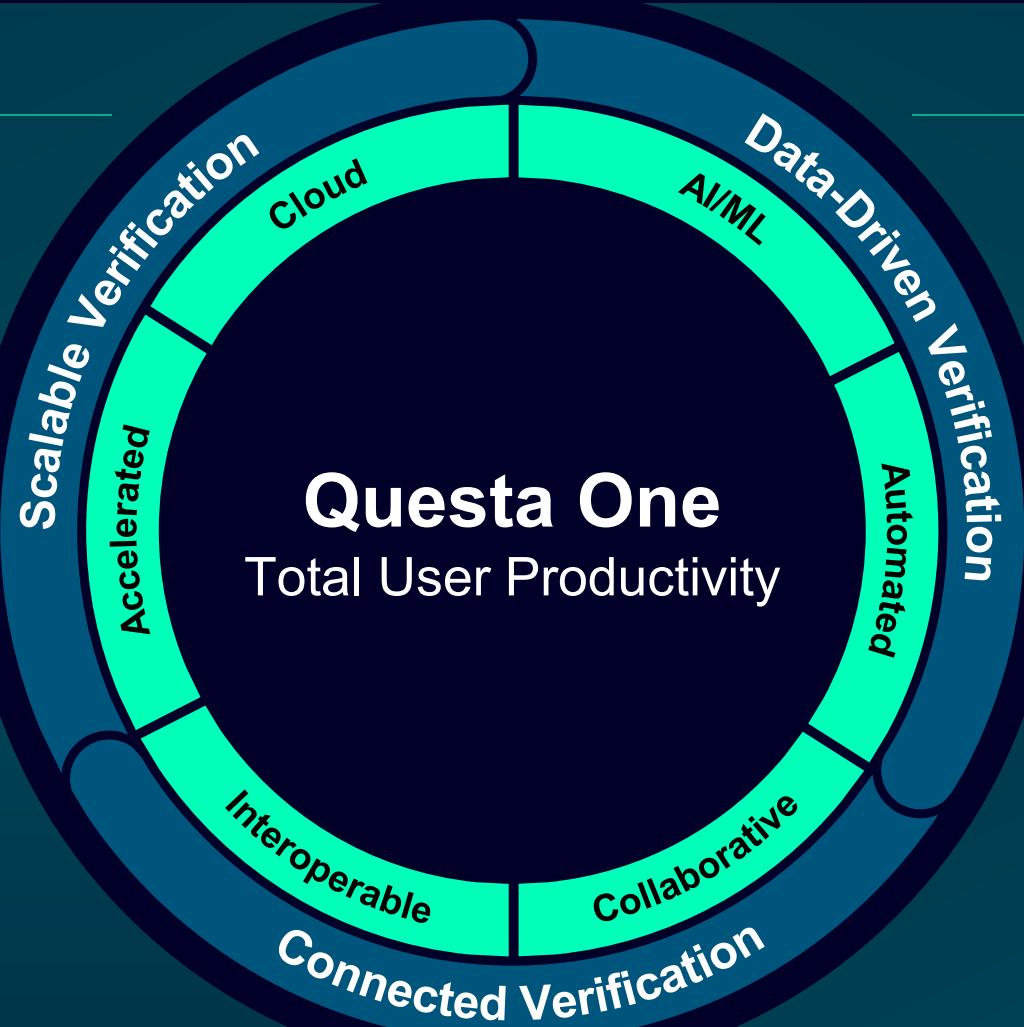
One stimulus free verification solution delivers total user productivity through synergistic combinations of static & formal analyses, AI, automation & parallelization

Questa One Verification IQ

One smart common management solution that utilizes generative, analytic, & predictive AI to drive to verification closure faster, with fewer workloads

Questa One Avery VIP

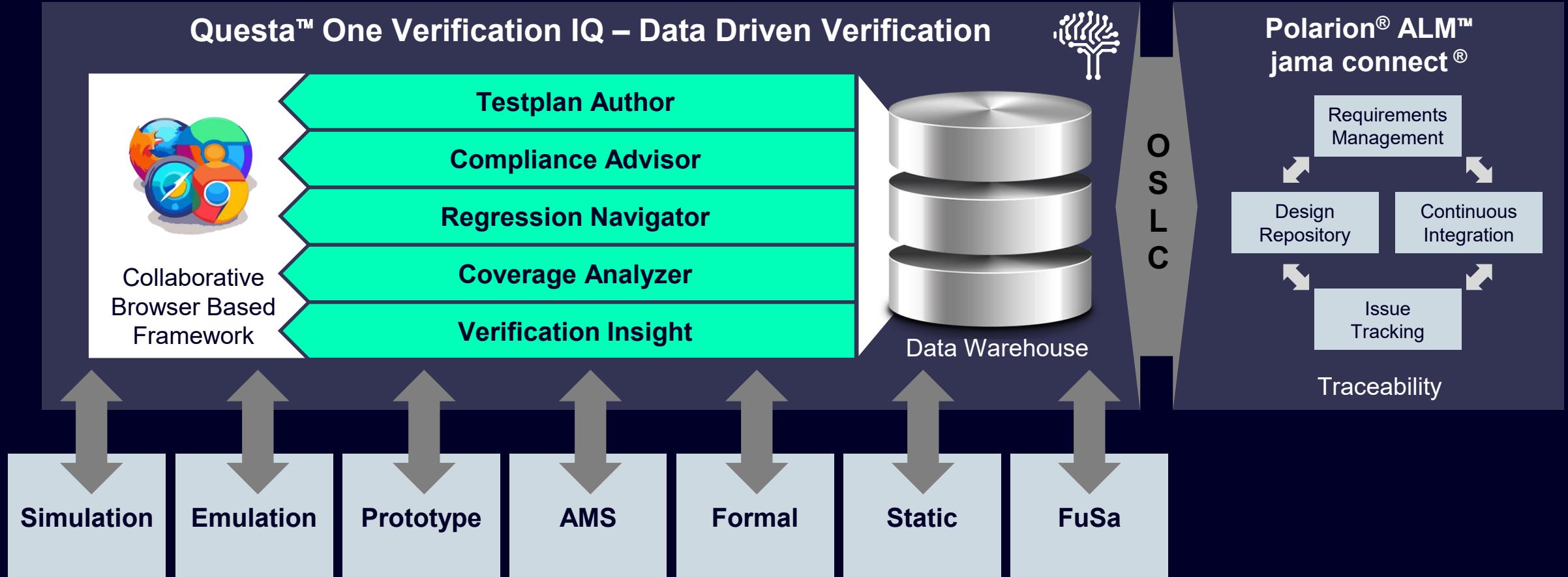
One industry-leading VIP solution that supports 3DIC & chiplet verification from IP to SoC, seamlessly integrating simulation & emulation



Launched
Jan 2023

Questa™ One Verification IQ Maximizes Productivity

Data-Driven Verification Management Solution

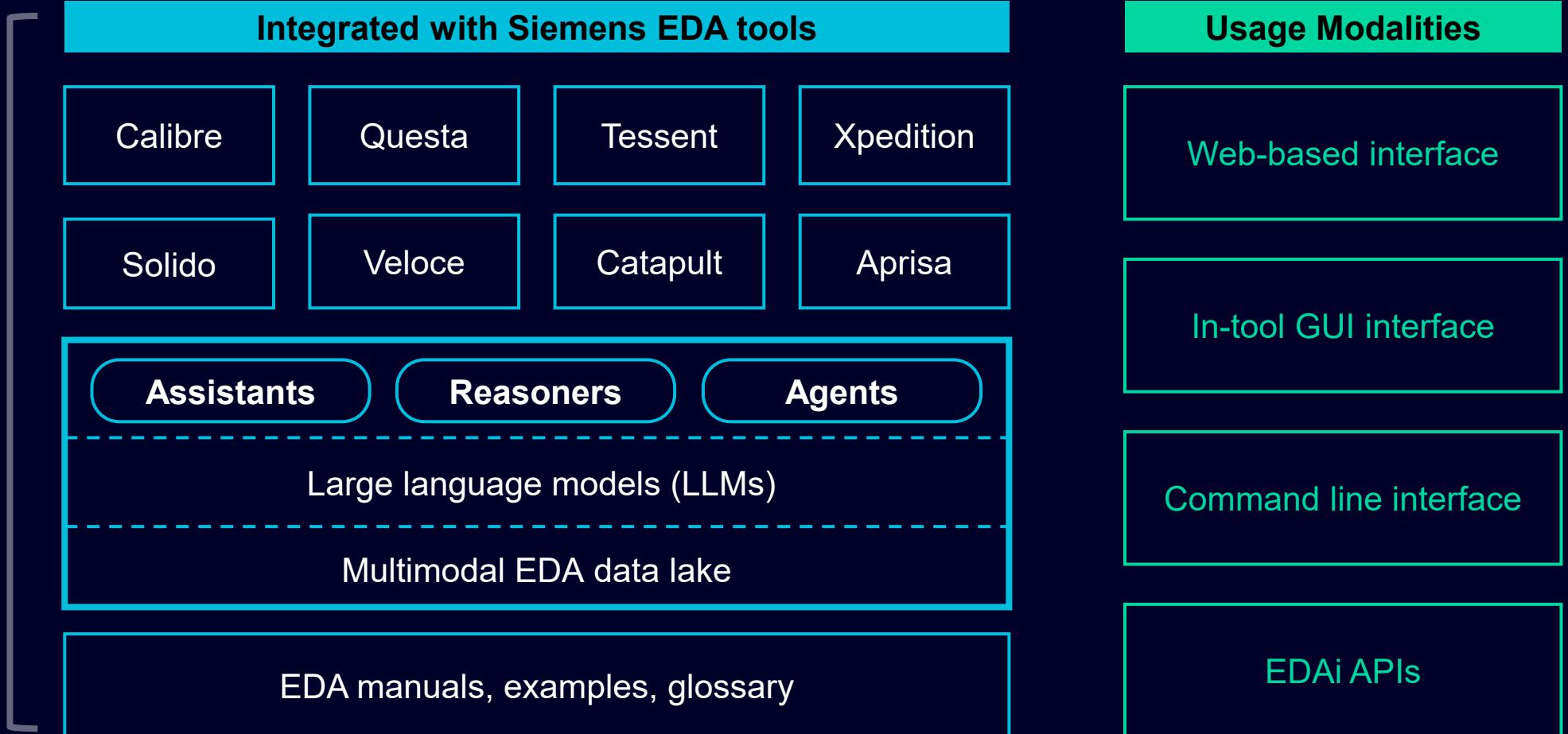


Launched at
DAC '25 (June)

AI platform by Siemens EDAi

Secure, on-prem / cloud, open, modular, and integrated with all Siemens EDA tools

Secure
environment,
on-premises
or **cloud-**
deployed

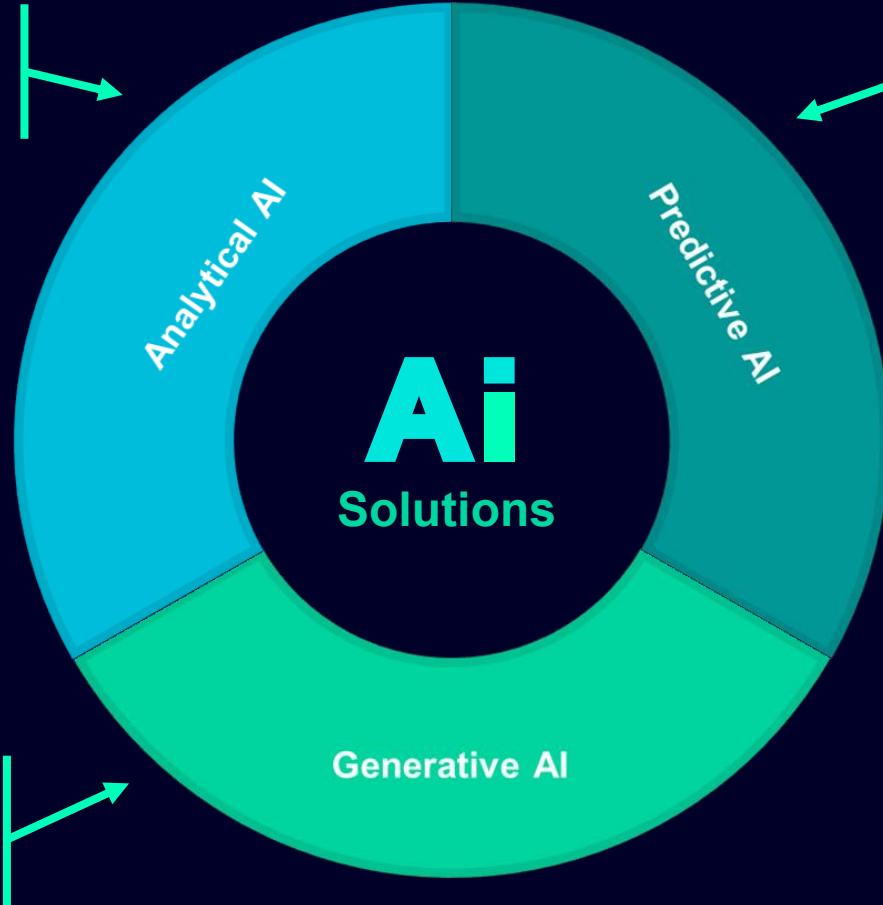
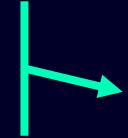


Focusing the Potential of AI for Verification Productivity

The Different AI Approaches and Product/Feature Targets

Analyze

Identification of key data insights not practical with traditional methods



Optimize

Domain specific predictive models to reduce computational requirements and accelerate decision making



FASTER ENGINES

Complimenting heuristics and graph analytics in core engines & tools



FASTER ENGINEERS

Enabling new creation, analysis, assistant and debug capabilities

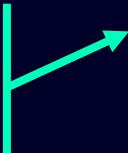


FEWER WORKLOADS

Predictive technologies to stream-line & accelerate verification

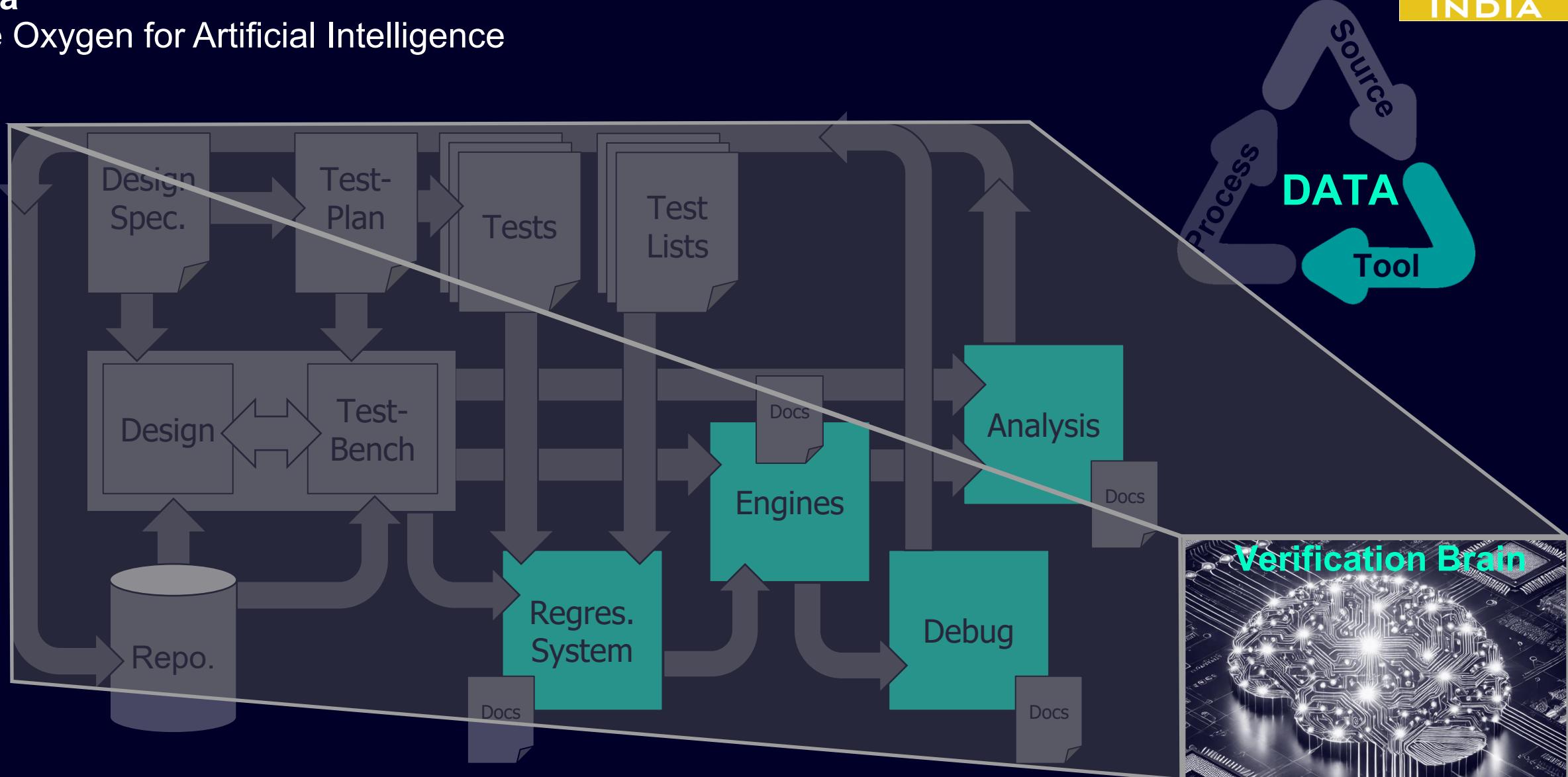
Generate

Accelerate design creation, system optimization, and model abstraction



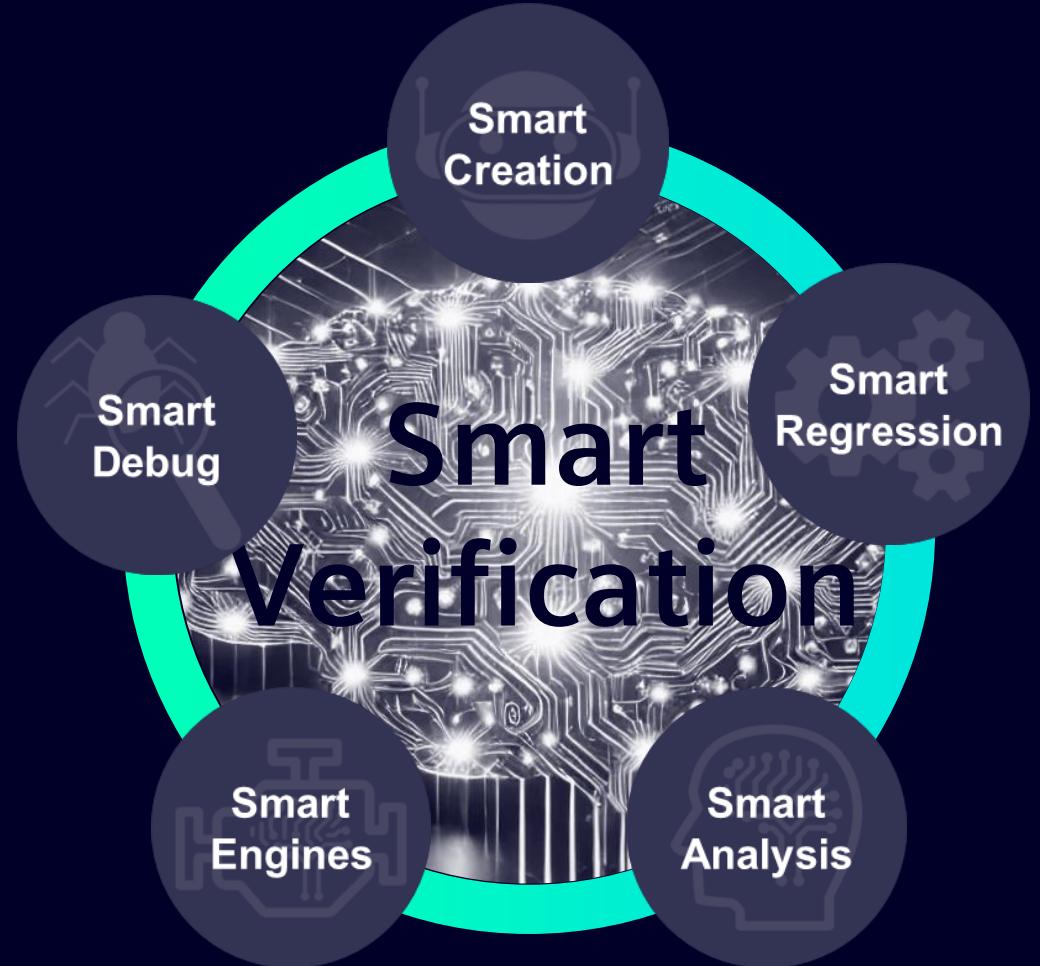
Data

The Oxygen for Artificial Intelligence



Smart Verification

Accelerating Functional Verification

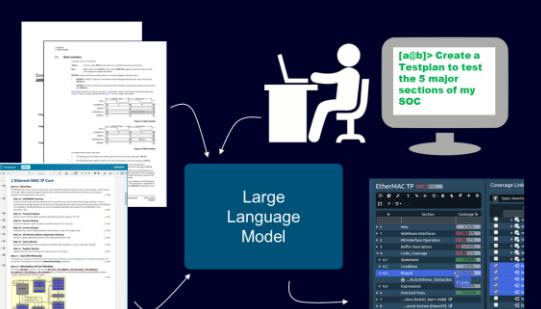
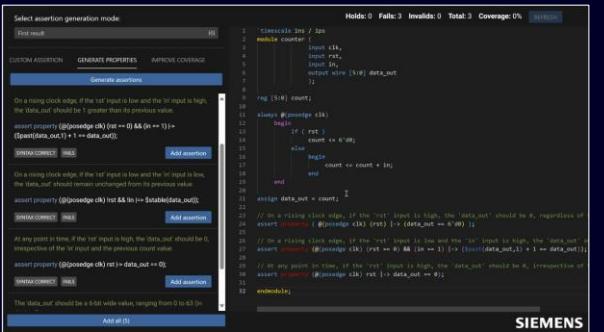
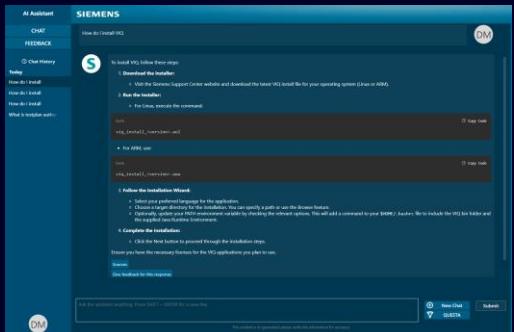


Solving Creation Challenges with Smart Creation

How Can AI/ML assist me to ...



FASTER ENGINEERS



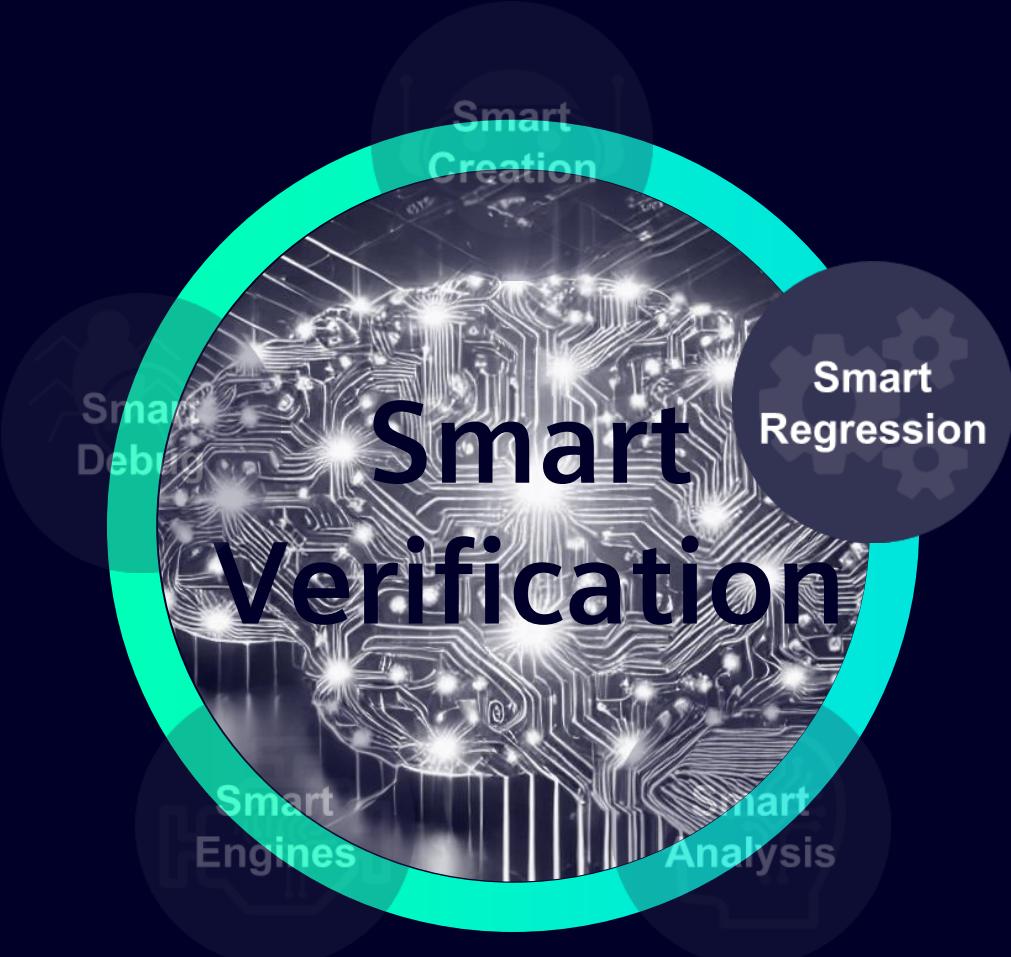
Smart Creation

Faster Engineers with Property Assist

Generative AI

Smart Verification

Accelerating Regressions



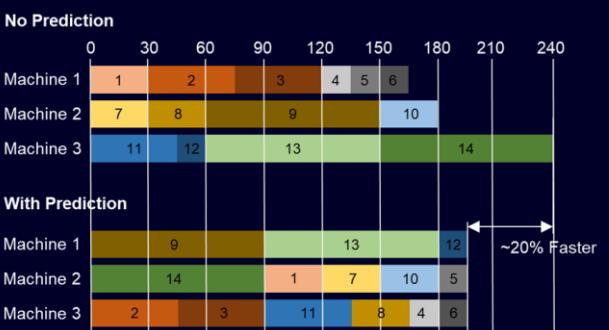
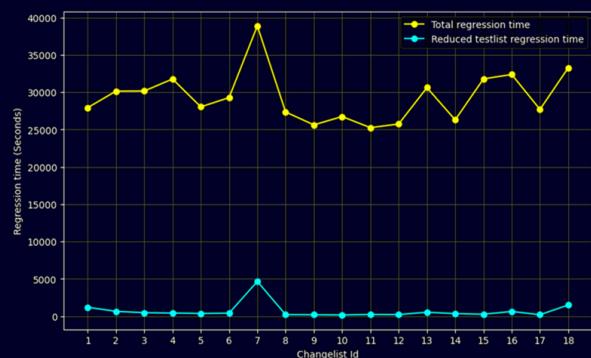
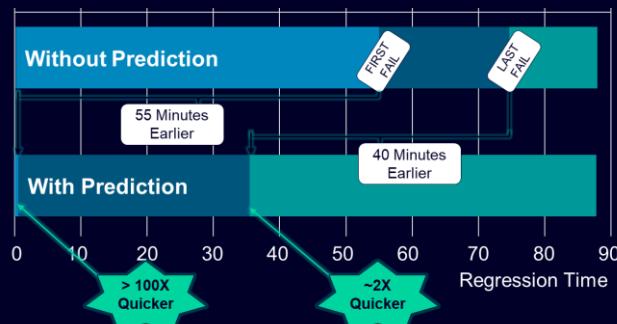
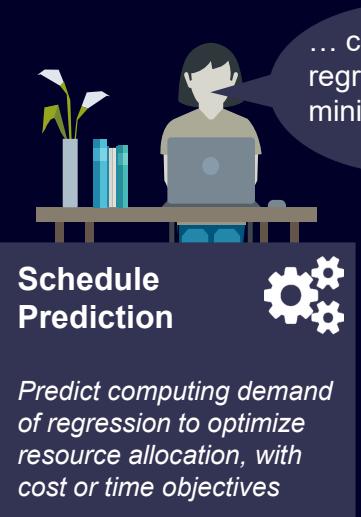
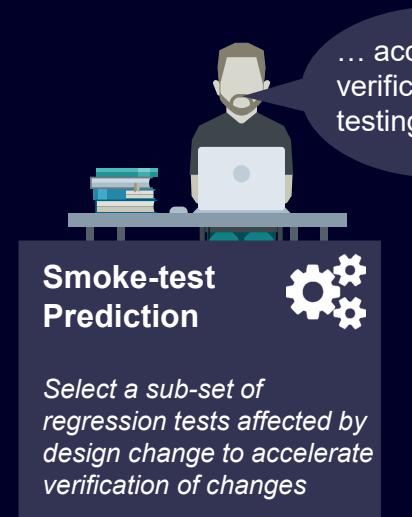
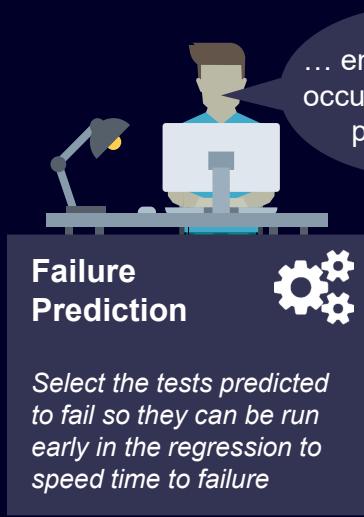
Solving Regression Challenges with Smart Regression

How Can AI/ML ...



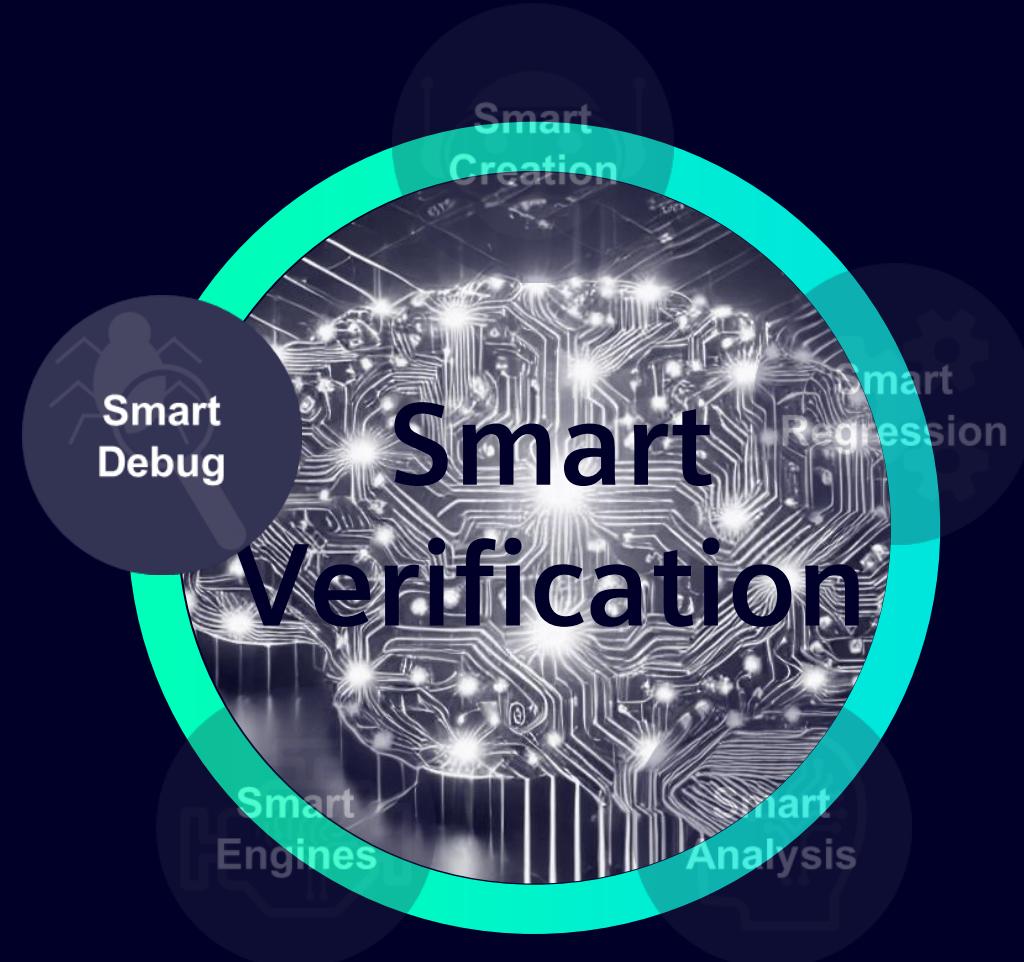
FEWER WORKLOADS

LOAD



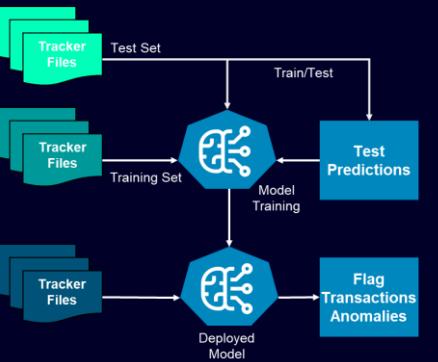
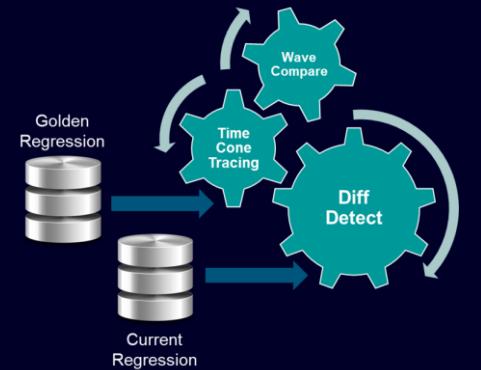
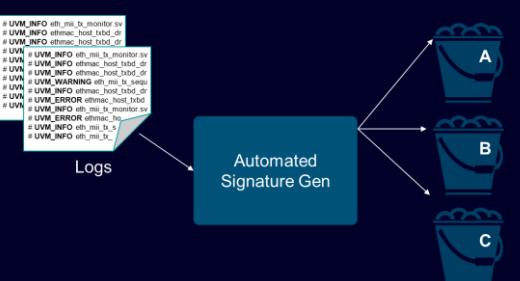
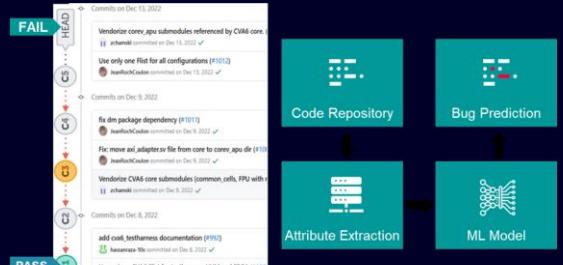
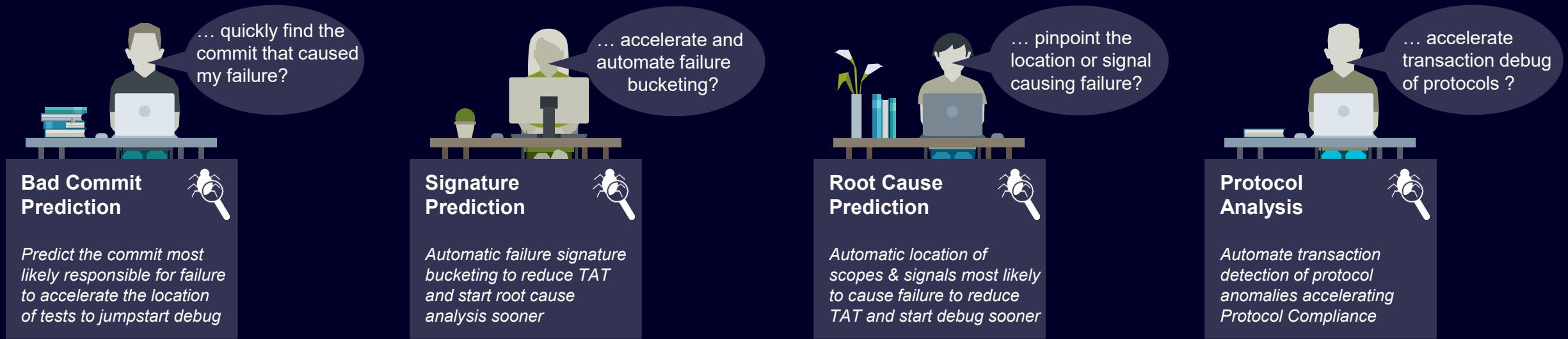
Smart Verification

Accelerate Debug Turn-around



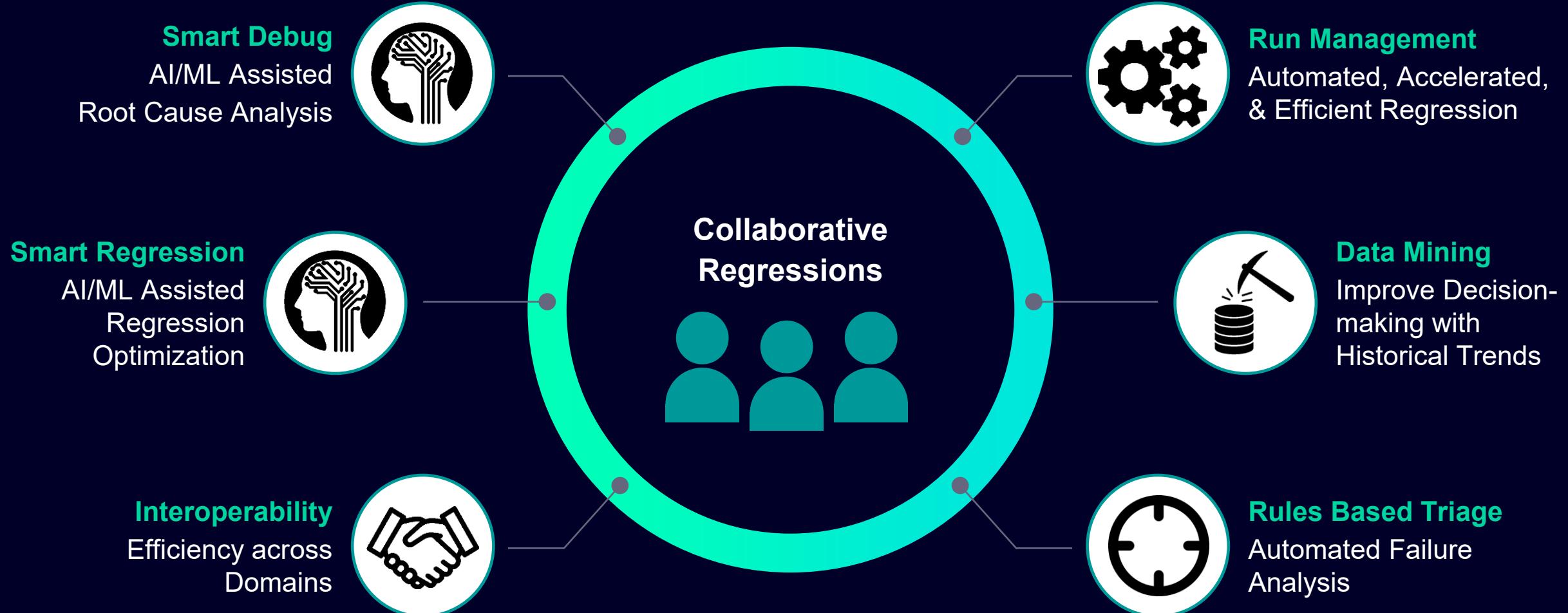
Solving Debug Challenges with Smart Debug

How Can AI/ML ...



Optimize Regression Cycles & Accelerate Turn-Around Times

VIQ **Regression Navigator** Provides Intelligent Regression & Debug



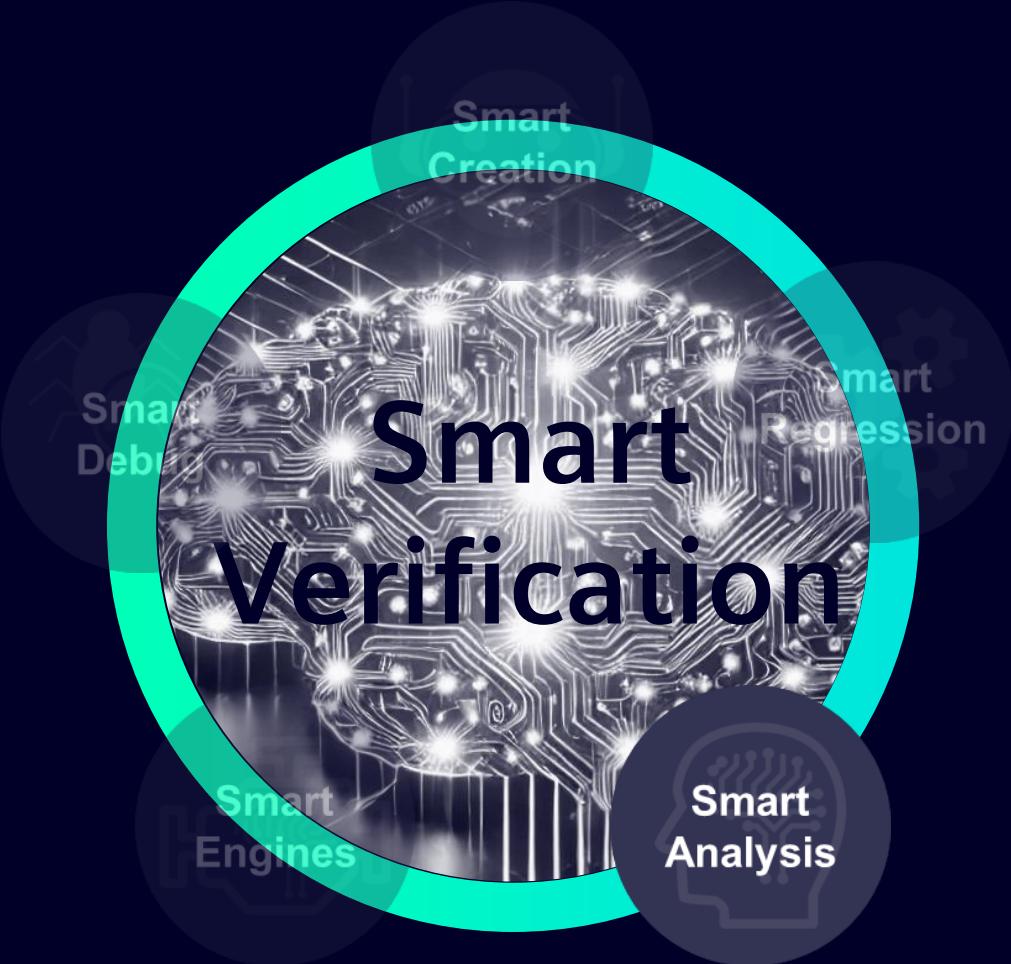
Smart Debug & Regression

Faster Engineers, Fewer Workloads with Regression Navigator

Predictive AI

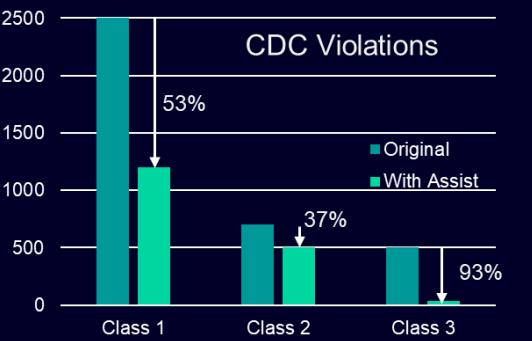
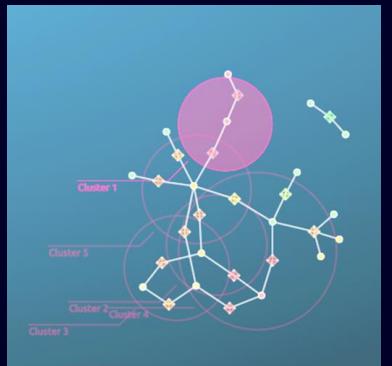
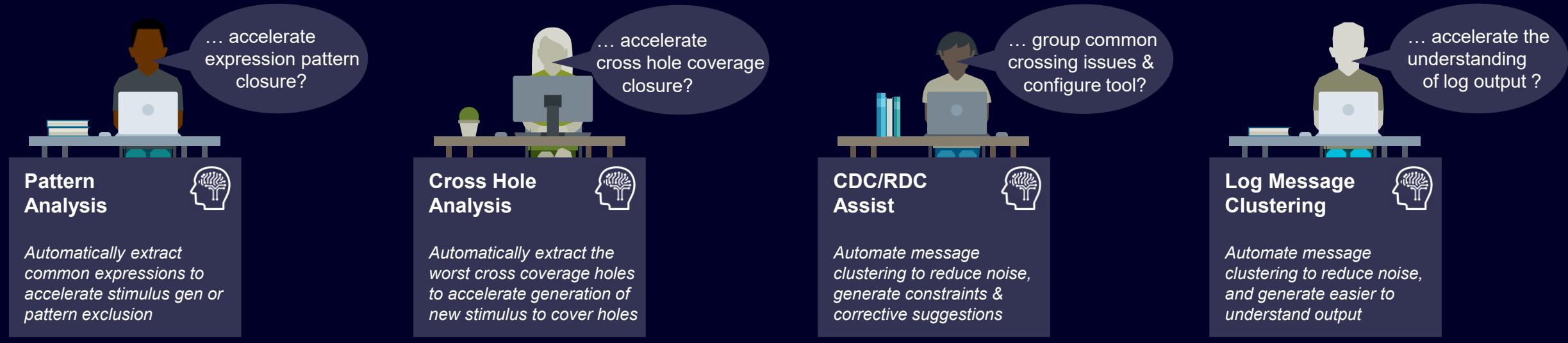
Smart Verification

Accelerate Verification Analysis



Solving Analysis Challenges with Smart Analysis

How Can AI/ML ...



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Accelerate Coverage Closure

VIQ Coverage Analyzer Provides Intelligent Closure

Pattern Analysis

Smart Closure,
Expression Analysis



Hole Analysis

Smart Closure, Cross
Hole Analysis



Team-base Communication

Accelerate Closure with
Enhanced Team
Communication

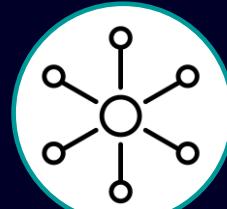


Collaborative Coverage Closure



Unified Coverage

Efficient Transition of
existing methodology



Analytical Navigation & Visualization

Accelerate
Understanding and
Closure



Exclusion Management

Accelerate Exclusion
Application and Auditing



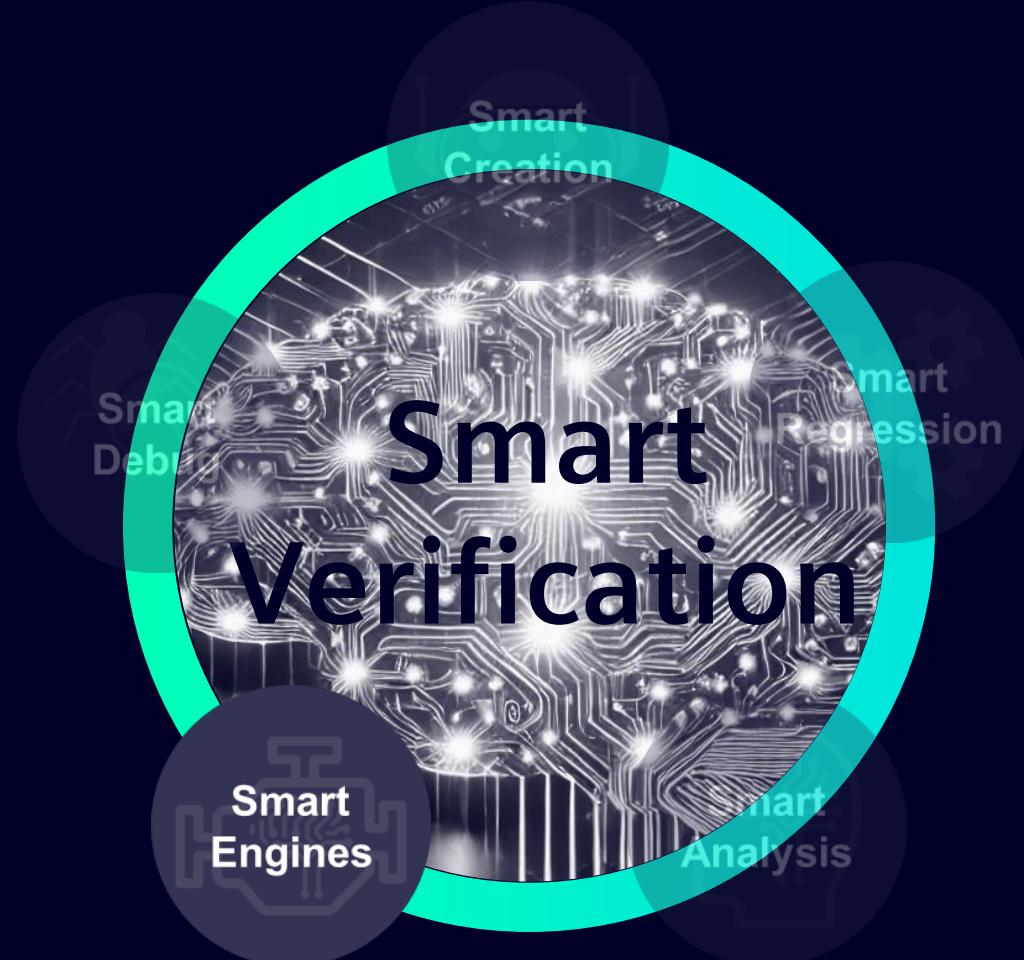
Smart Analysis

Faster Engineers with Coverage Analyzer

Analytical AI

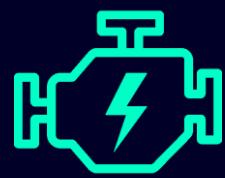
Smart Verification

Accelerate Verification Engines

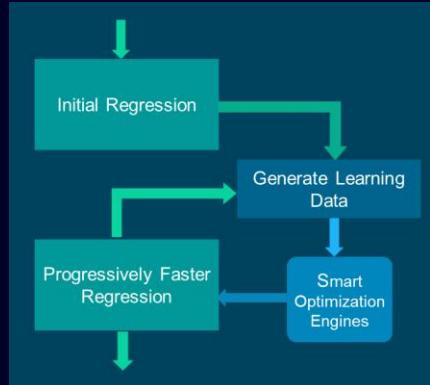
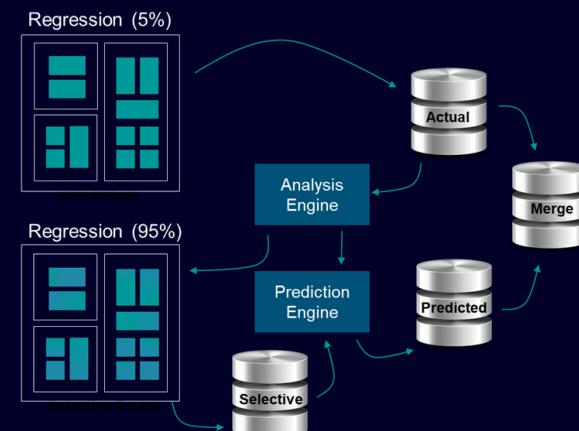
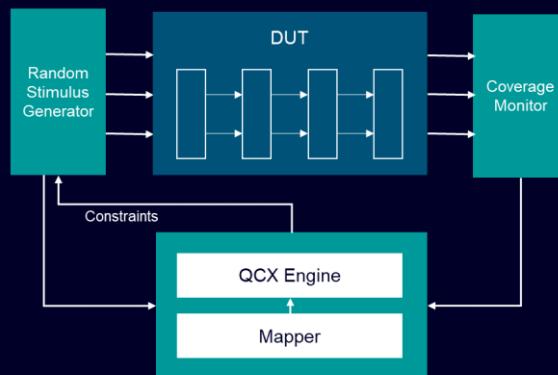
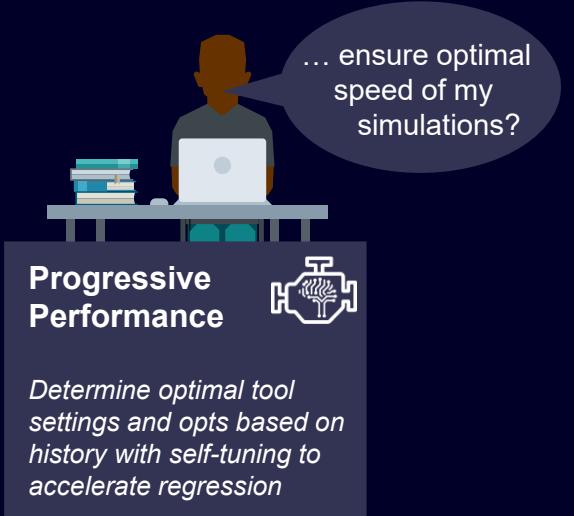
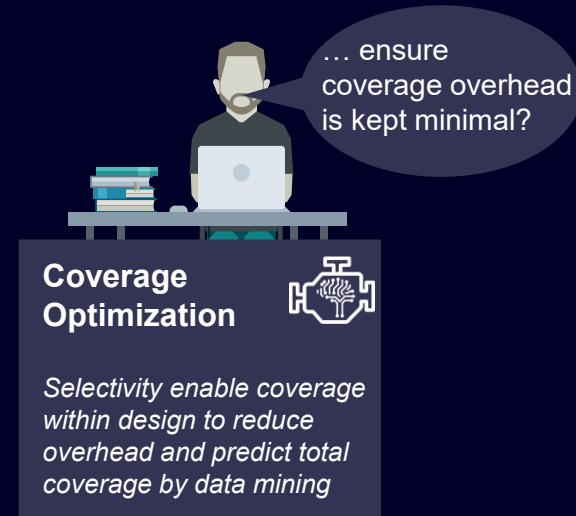
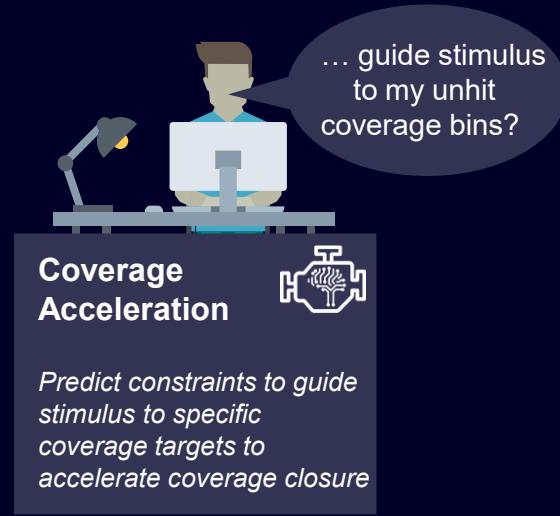


Accelerate Engines with Smart Engines

How Can AI/ML ...



FASTER ENGINES



AI Maximising Verification Productivity

Faster Engines, Faster Engineers and Fewer Workloads

Smart Debug
 Intelligent Root-cause
VIQ Regression Navigator



Smart Creation
 Intelligent Assistance
Property Assist

Smart Regression
 Optimized Regression Cycles
VIQ Regression Navigator

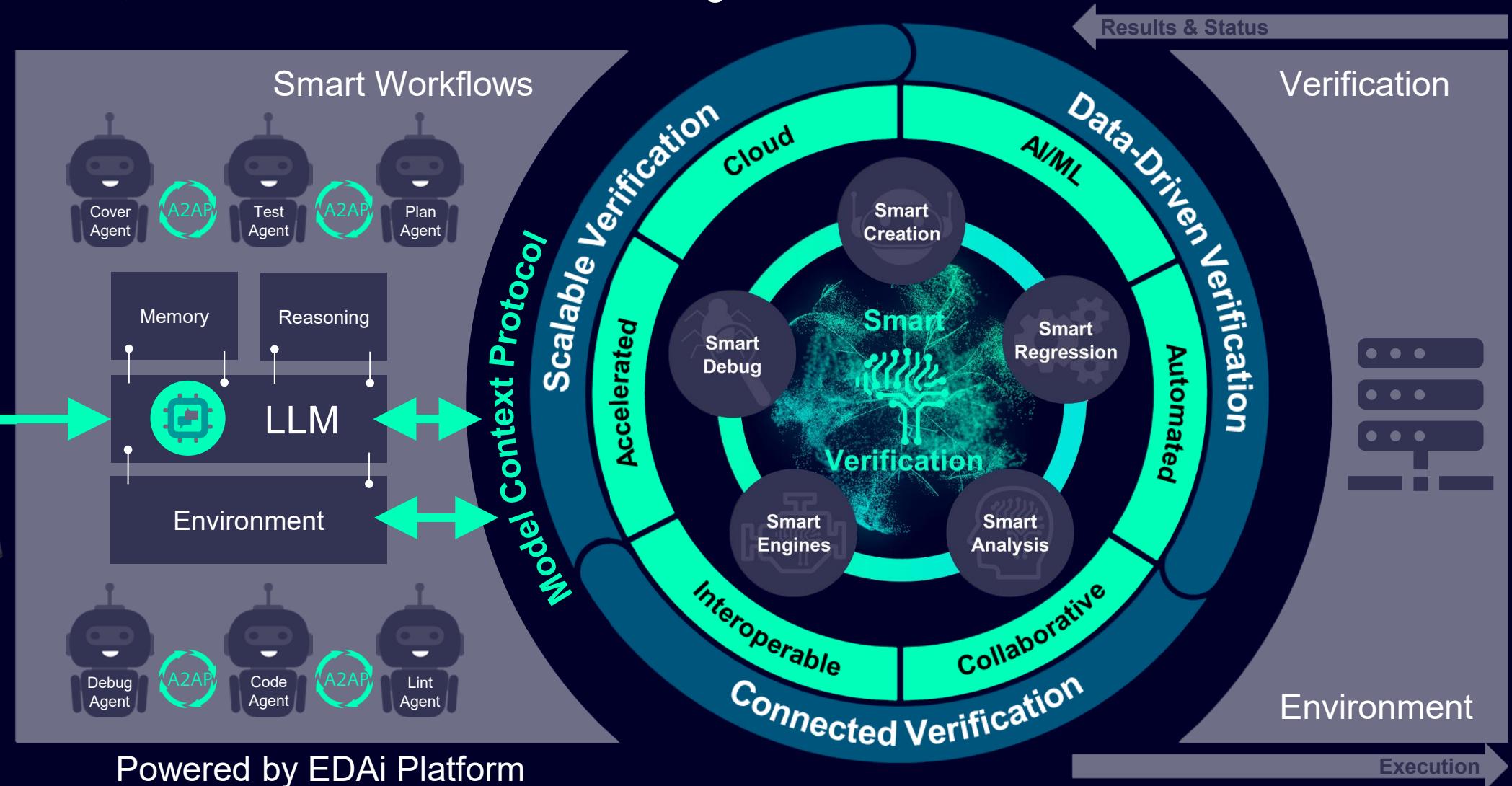
Smart Analysis
 Intelligent Insights
VIQ Coverage Analyzer

Expansion to Agentic AI Assisted Verification Workflows

Connected, Scalable, Data-driven Verification Technologies

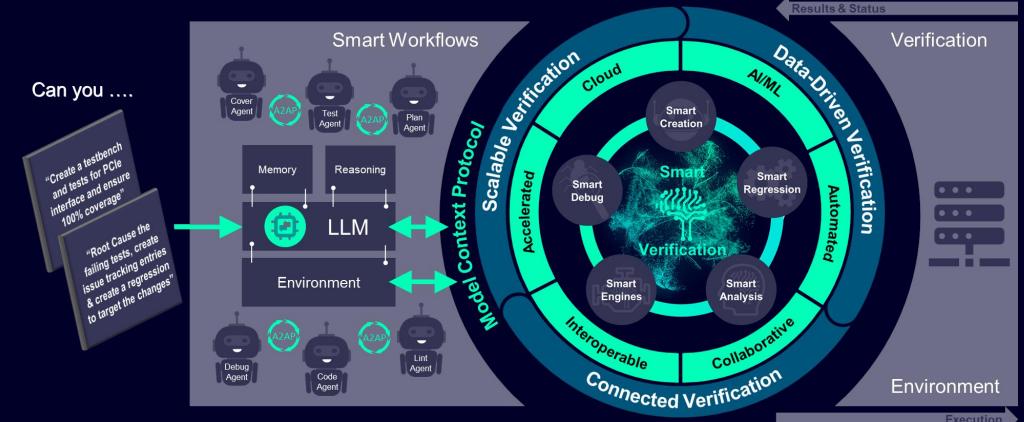
Can you

"Create a testbench and tests for PCIe interface and ensure 100% coverage"
 "Root Cause the failing tests, create issue tracking entries & create a regression to target the changes"



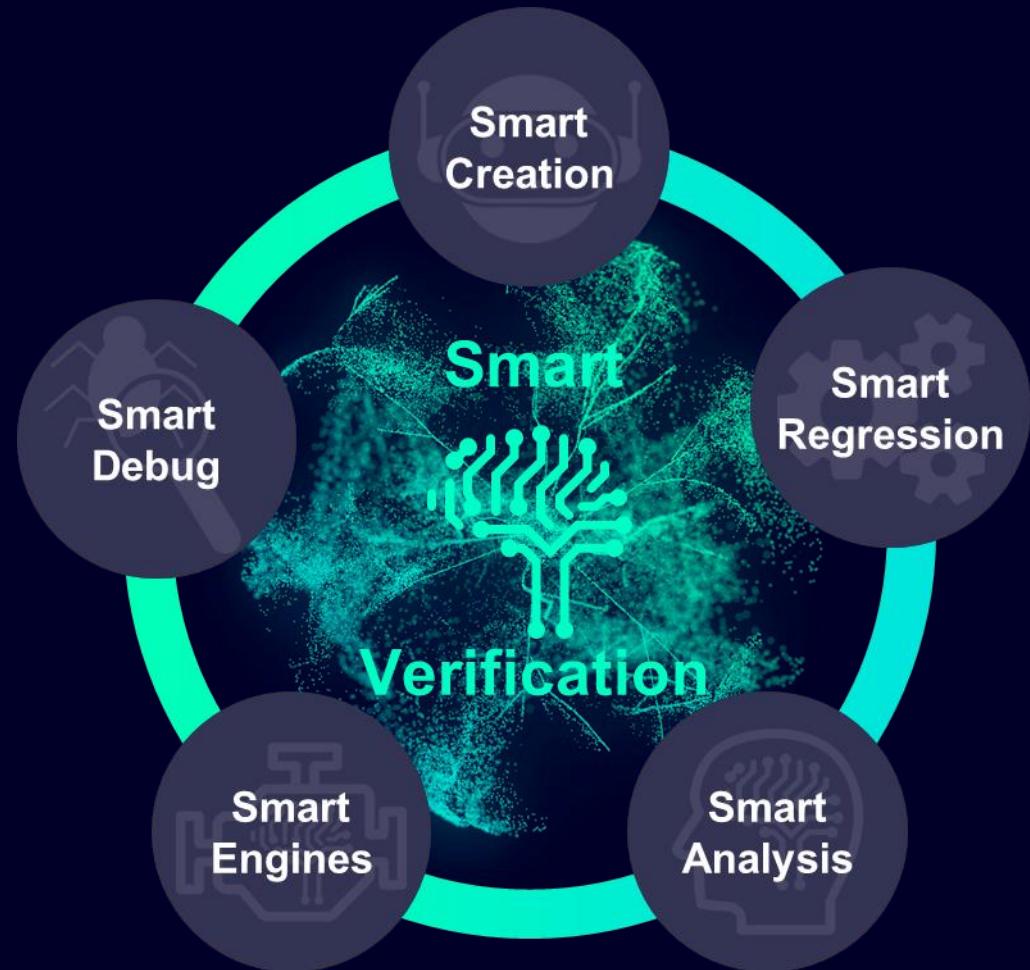
AI Assistants Just the Start

Smart Verification Staircase to Fully Autonomous Agents



Questa™ One Smart Verification

Transforming Functional Verification powered by AI



 **Faster Engines**

 **Faster Engineers**

 **Fewer Workloads**

Contact

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