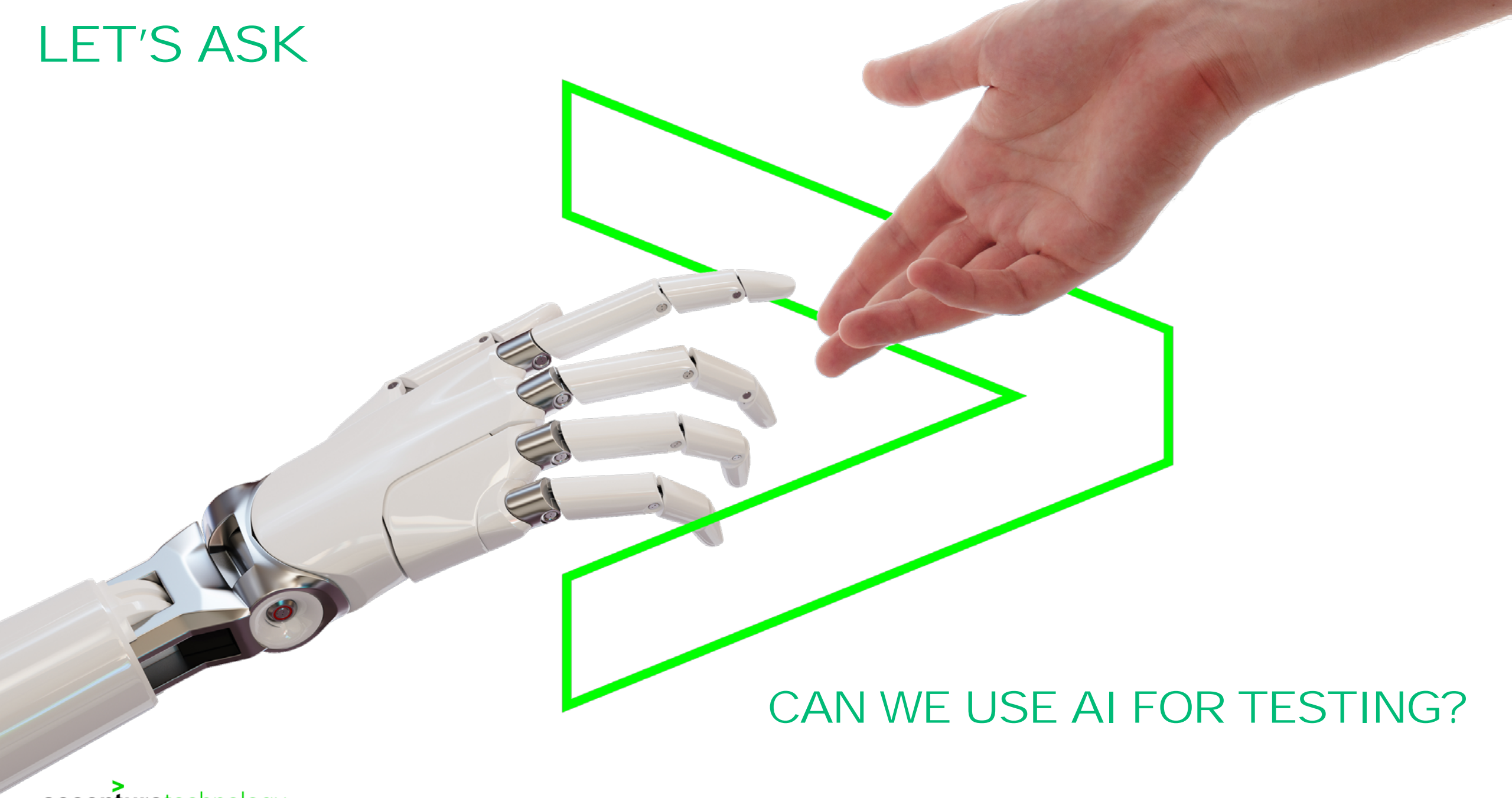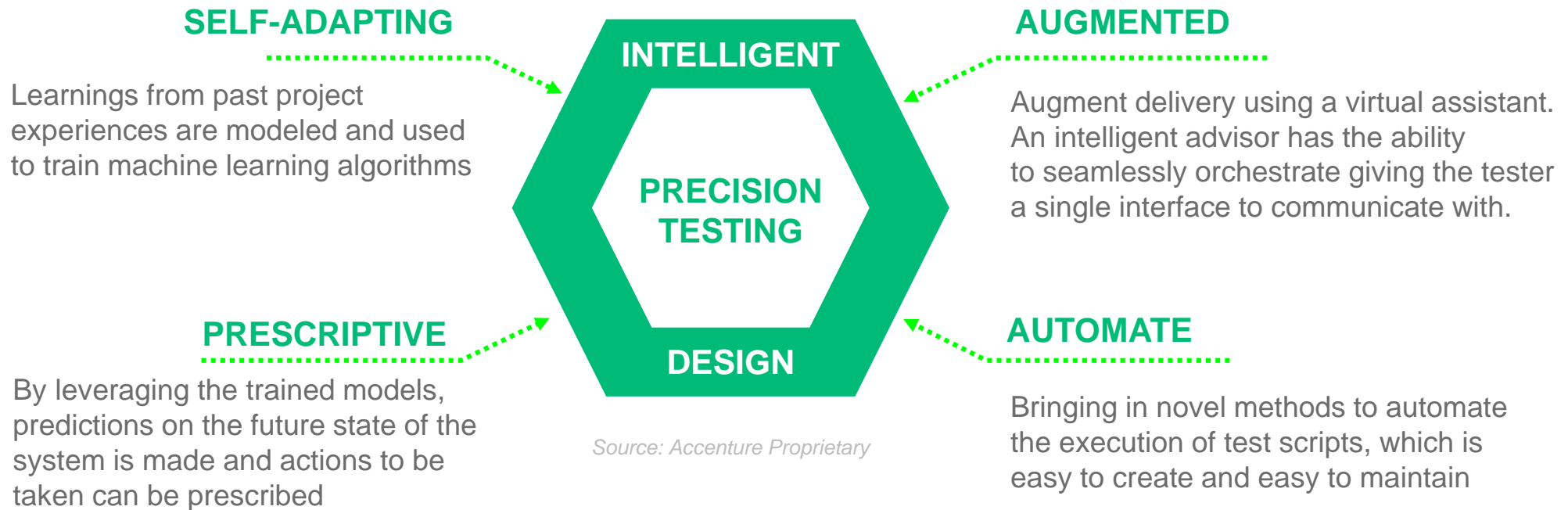# Technology's Next big Wave...

2
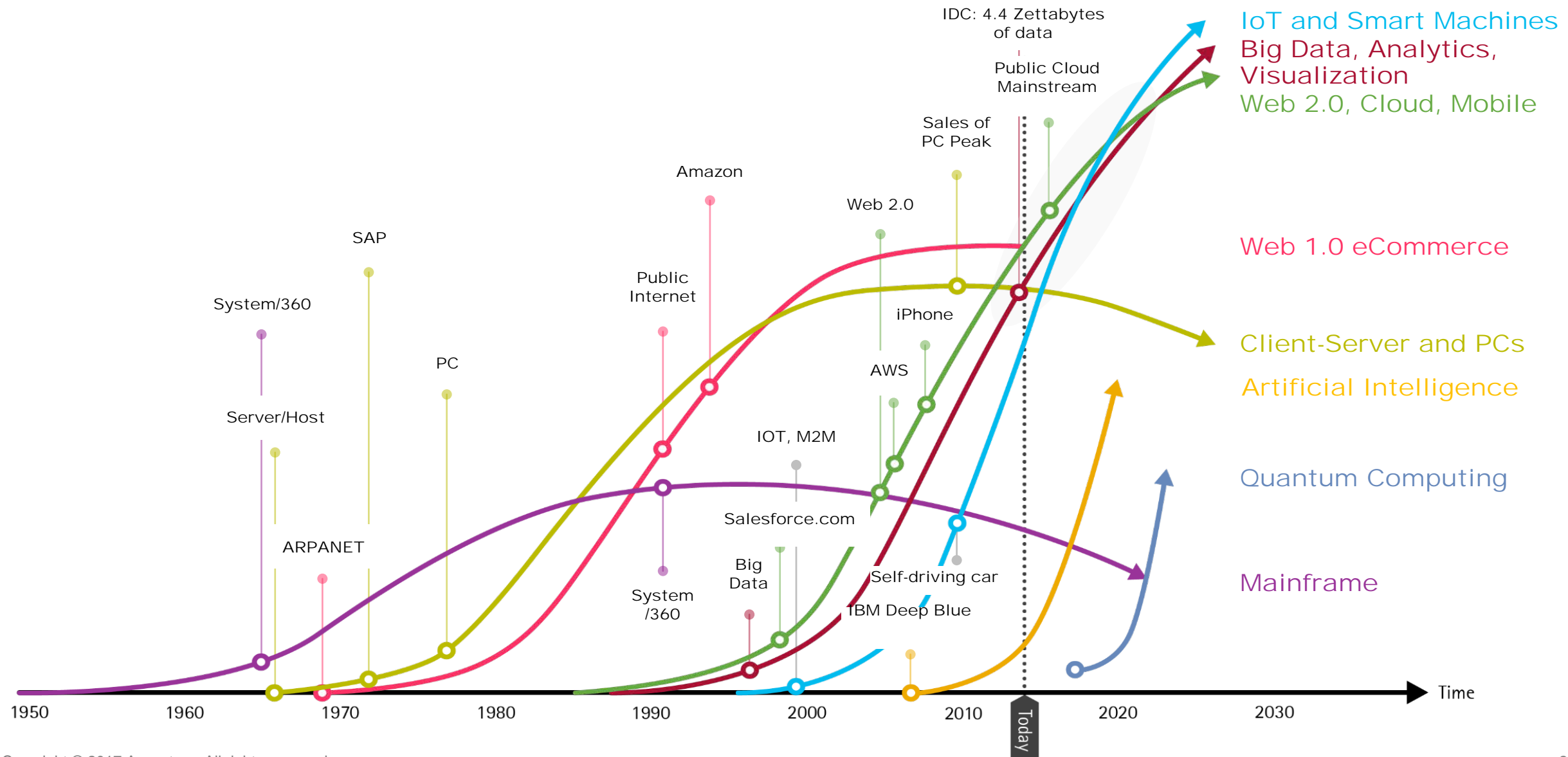
LET'S ASK

CAN WE USE AI FOR TESTING?

PRECISION TESTING IS ONE OF THE SOLUTIONS THAT ADDRESSES THE DEMANDS FOR 'EFFICIENCY' OF NEW AGE APPLICATIONS

Precision Testing is a suite of modern **Machine Learning, Artificial Intelligence and Statistical Modelling** algorithms that aims to bring **'efficiency'** into Testing. It offers innovative solutions over different phases of the testing life-cycle, from planning to design and execution.

SELF-ADAPTING

Learnings from past project experiences are modeled and used to train machine learning algorithms

AUGMENTED

Augment delivery using a virtual assistant. An intelligent advisor has the ability to seamlessly orchestrate giving the tester a single interface to communicate with.

INTELLIGENT

PRECISION TESTING

DESIGN

Source: Accenture Proprietary

PRESCRIPTIVE

By leveraging the trained models, predictions on the future state of the system is made and actions to be taken can be prescribed

AUTOMATE

Bringing in novel methods to automate the execution of test scripts, which is easy to create and easy to maintain

PREDICTIVE ANALYTICS USING BAYESIAN STATISTICS
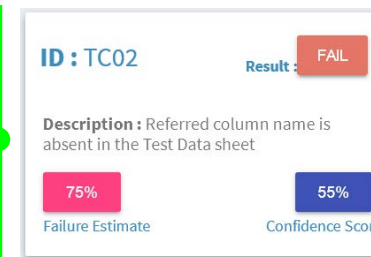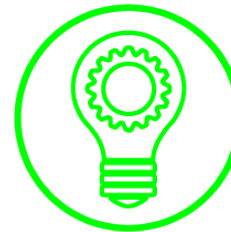
Predictive analytics learns from past test results to predict future outcomes & help prioritize the testing effort.

- Where should I prioritize my testing effort?

- Can I predict whether a test script is going to pass or fail?

- How effective has been my testing?

Source: Accenture Proprietary
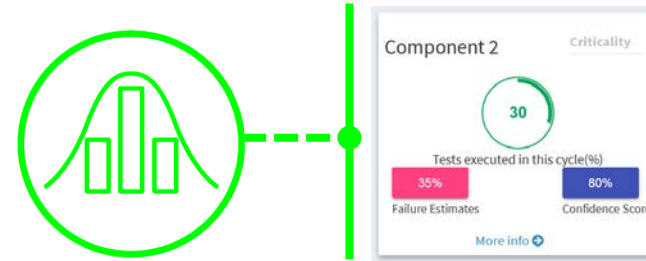
Learn from past data using Bayesian Statistics

Predict test failures using Machine Learning


Visualise testing efficiency over

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TEST MANAGEMENT THROUGH SIMILARITY ANALYTICS

Eliminates redundancies, brings deeper insights, and makes intelligent recommendations for effective test management with reduced costs and efforts.

- Are our test suites bloated?

- Are we raising similar defects again?

- Are our defect fix assignments getting redirected again?

- Are we designing regression test-suites with assessment of underlying risks?

- Are our tests yielding deeper insights?

Source: Accenture Proprietary
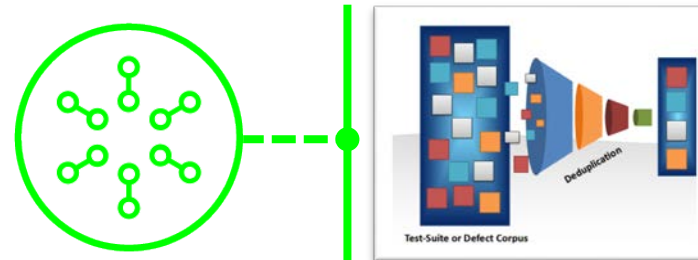
Learn from past defect logs and test suites

Identify duplicates and semantically related tests and defects using similarity analytics
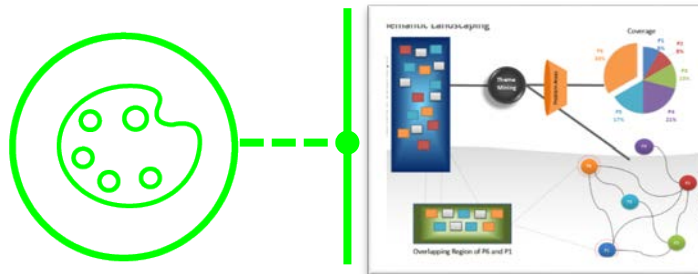
**Visualize** central problem areas, their coverage and interrelatedness

THE INTELLIGENT VIRTUAL AGENT FOR TESTING: AKA TESTING ADVISOR

The testing advisor assists the tester through the entire project lifecycle by providing project specific knowledge, as well as ai based decision and diagnostic support.

Recognizes voice

Creates a reply

Understands language

Speaks to you

Maintains a dialog
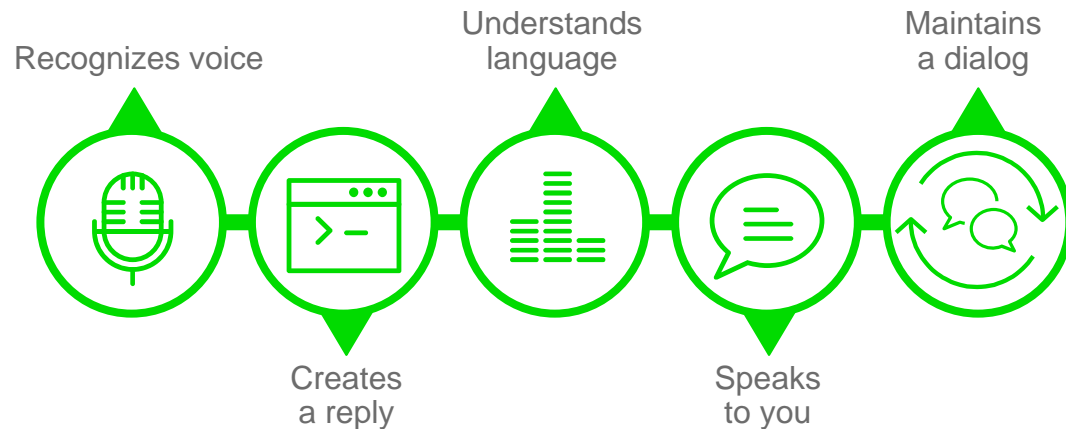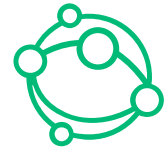
Knowledge Advisor that bootstraps new testers

Decision advisor through Predictive and similarity analytics

Diagnostic Advisor through similarity analytics

Conversational Interface as a Decision Advisor

Testing advisor: Hi John. What can I do for you today.

John: please suggest the next set of test cases to execute

Testing advisor: There are 3 modules: Excel Reader, Grammar, and Scope Resolution which have high business criticality and high fault prediction. I suggest that you start testing these modules.

John: show me the test cases of the ExcelReader.

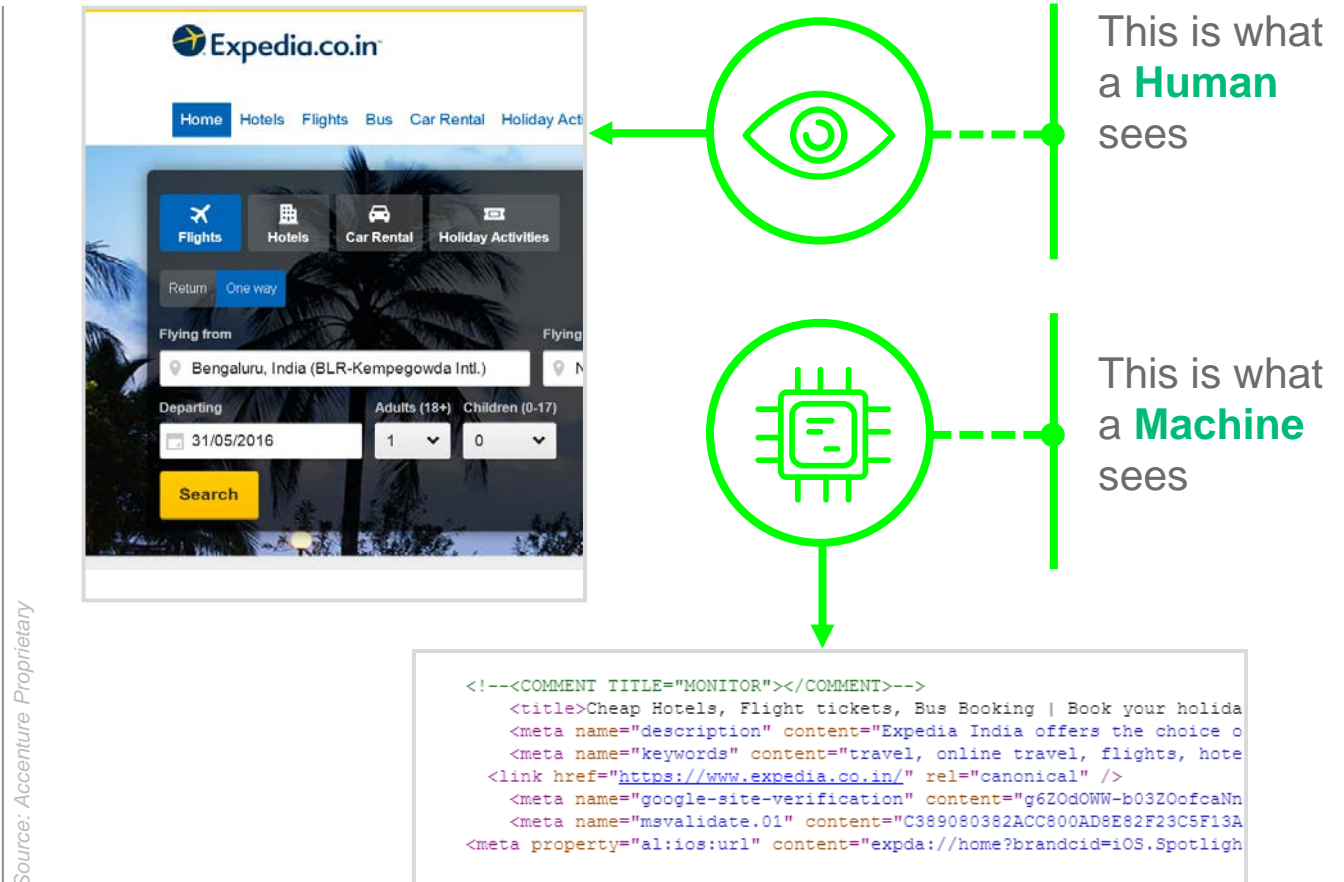Testing advisor: The ExcelReader module has 25 test cases. Displaying the details.

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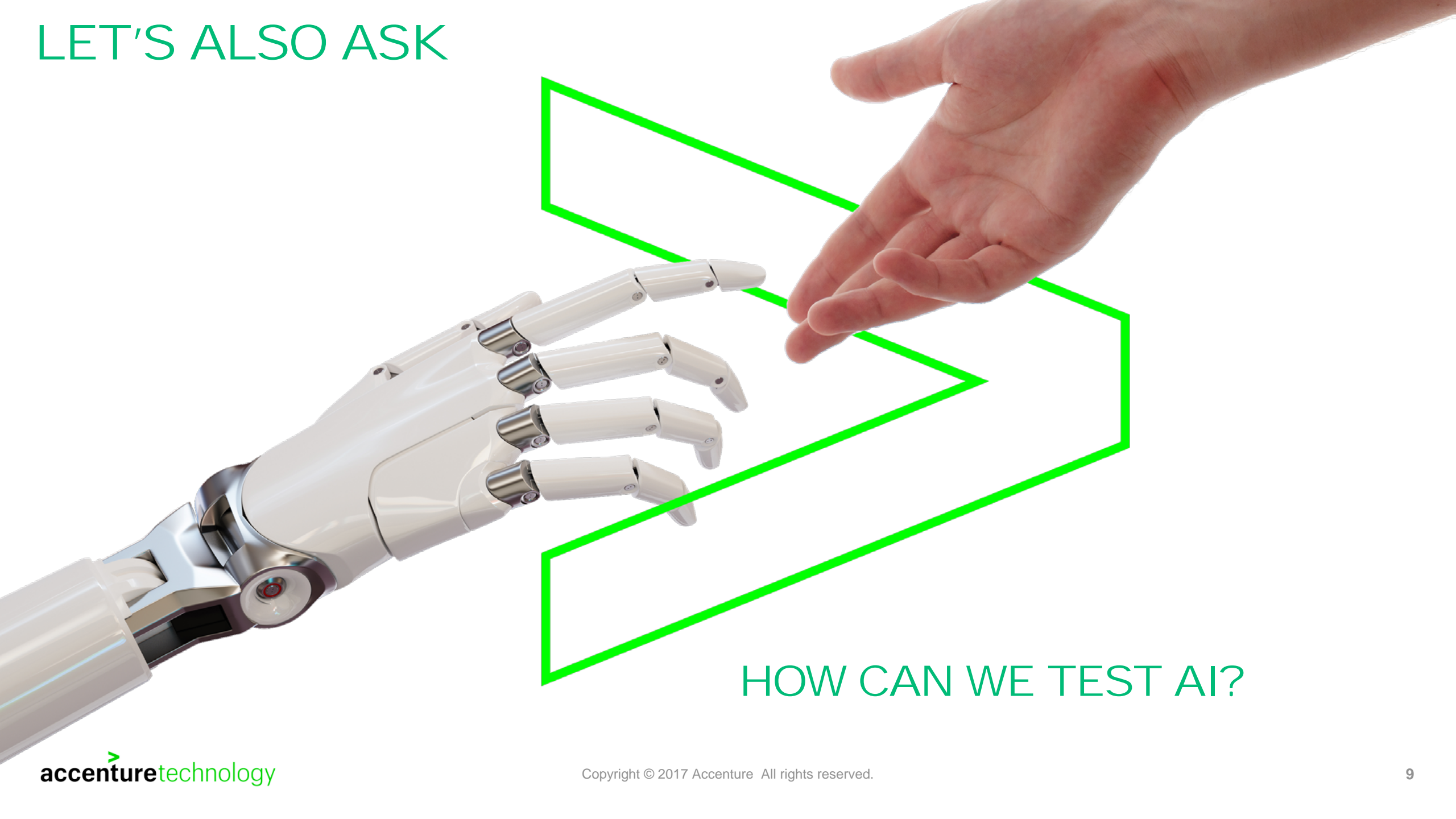
TEST AUTOMATION THROUGH COMPUTER VISION

A manual tester interacts with the application through what he perceives visually. However, all automation tools need implementation details.

Can we bridge this gap by creating machines that test software like humans?

- Create automation scripts through descriptive language

- Automate without needing details of implementation

- Automate Web & Non-Web applications

Source: Accenture Proprietary

This is what a **Human** sees

This is what a **Machine** sees

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LET'S ALSO ASK

HOW CAN WE TEST AI?

BLACK BOX TESTING: AI CAN BE EXPONENTIALLY MORE DIFFICULT

Human: I got delayed leaving from home!

AI: Oh, I am sorry to hear that. Let me check if we can re-schedule the flight ..

&..

the following playlist.

by 4 P.M.

P.M. today

Humane AI
(tone, fair, ethical, culture)

Criminal AI
(Security, vulnerability, legal, privacy)

Learning AI
(learning & updating)

Logical AI
(common sense , domain, tasks)

Functional AI
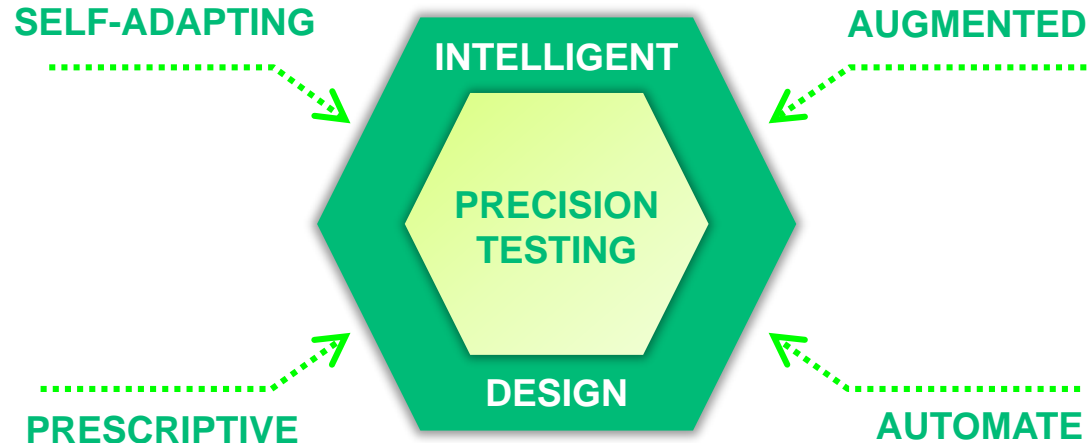(business process coverage, technical coverage, channel coverage)
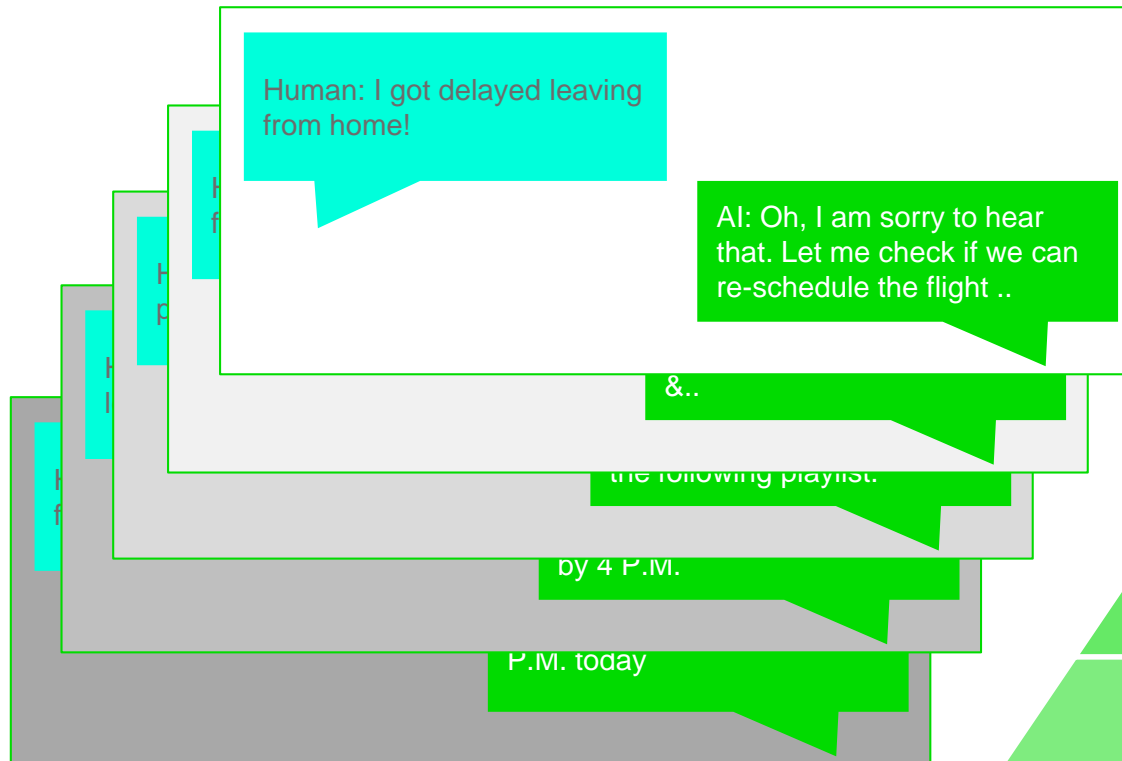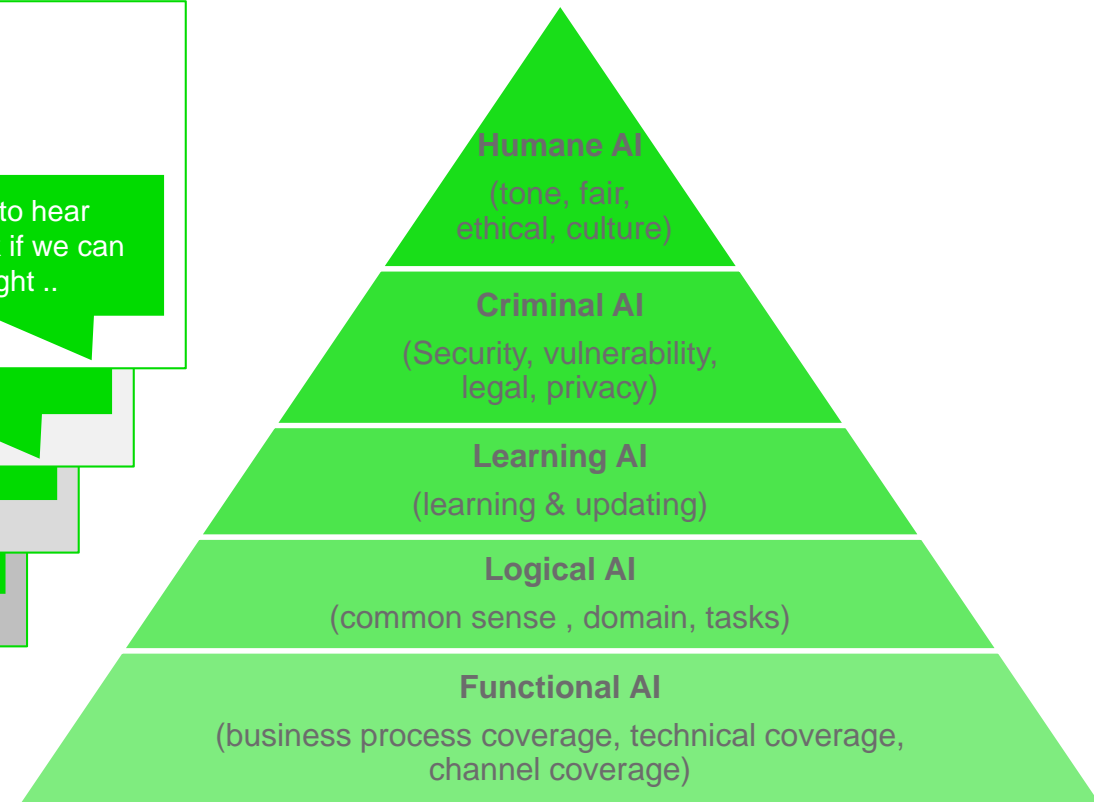
WE ARE PIONEERING ARTIFICIAL INTELLIGENCE TO DELIVER SMARTER AND MORE EFFICIENT TESTING SERVICES
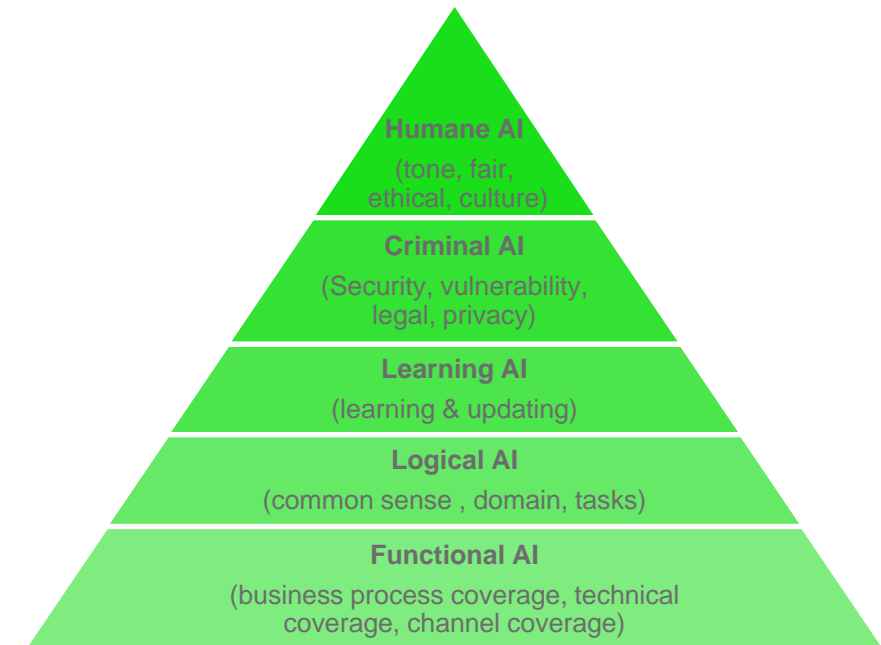
PRECISION TESTING
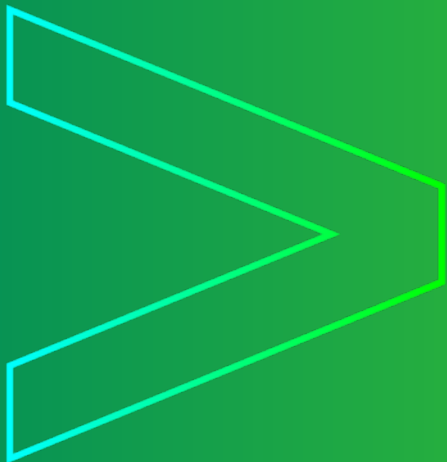
AI for Testing
Applying AI in Software Testing

SELF-ADAPTING

INTELLIGENT

AUGMENTED

PRECISION TESTING

DESIGN

PRESCRIPTIVE

AUTOMATE

QUANTUM TESTING

Testing for AI
How to test AI based Virtual Agents?

Humane AI
(tone, fair, ethical, culture)

Criminal AI
(Security, vulnerability, legal, privacy)

Learning AI
(learning & updating)

Logical AI
(common sense , domain, tasks)

Functional AI
(business process coverage, technical coverage, channel coverage)

THANK YOU

shalini.chaudhari@accenture.com