

IMPLEMENTING AND SCALING AI IN SOFTWARE TESTING AT COCA COLA HBC



The Evolution of QA: From Regular to AI-Driven Excellence



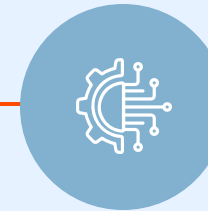
The Traditional QA Era

Java/C# with Selenium



The New Age QA

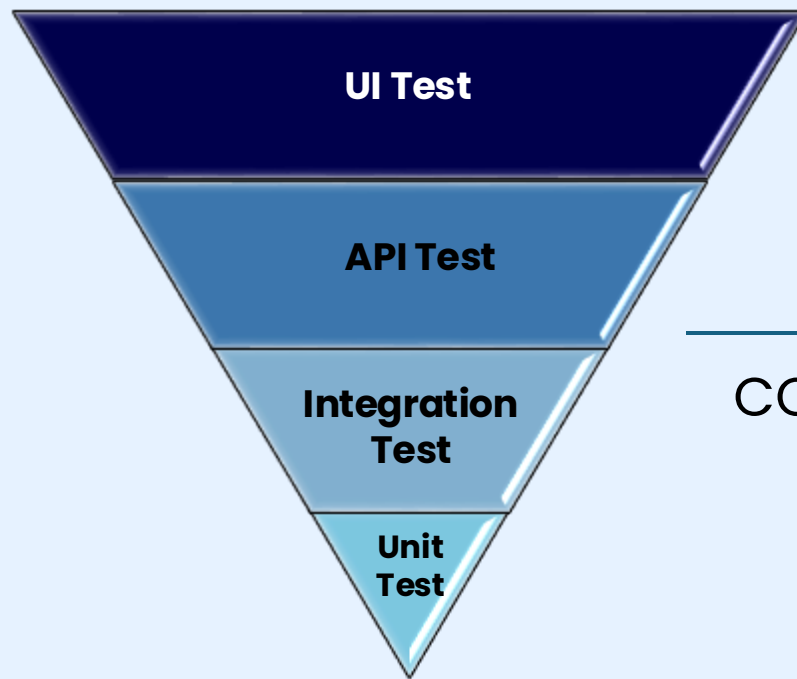
Cypress & Playwright with
TypeScript



The AI-Powered QA Revolution

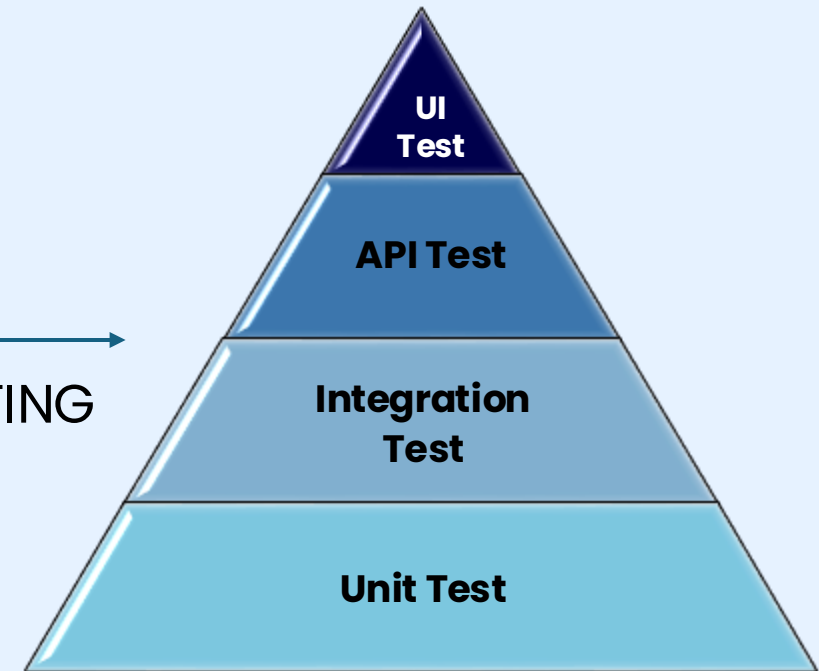
True Shift-Left Testing

AI-Powered QA Revolution



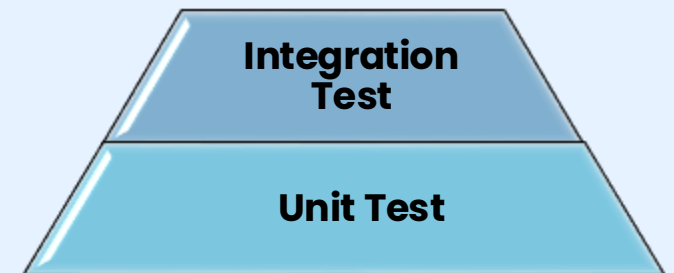
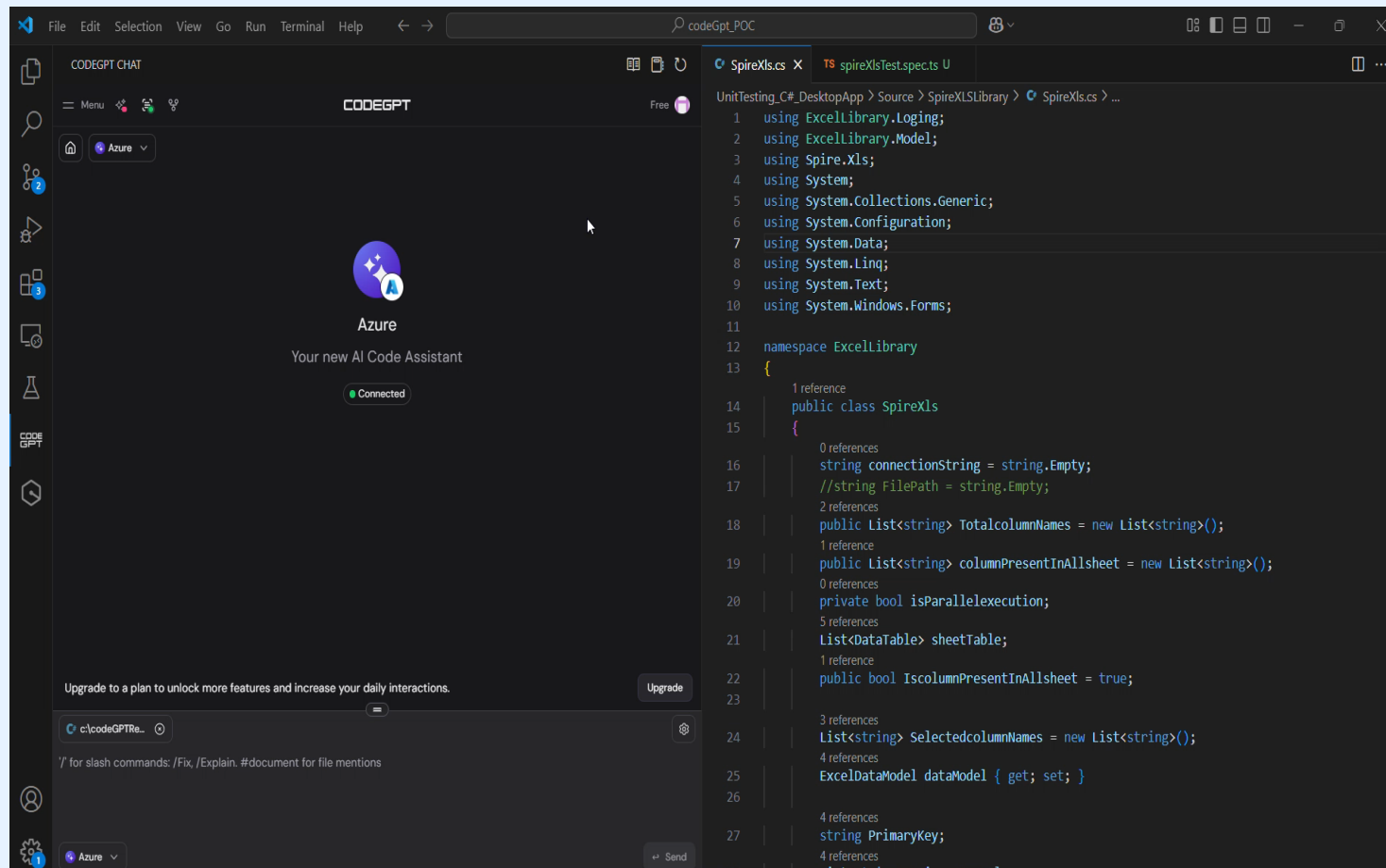
Traditional Testing

SHIFT LEFT
CONTINUOUS TESTING



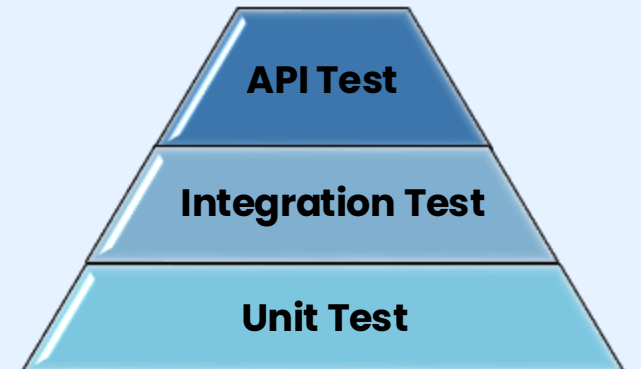
Modern Testing

AI-powered Test Case Generation - Unit Tests

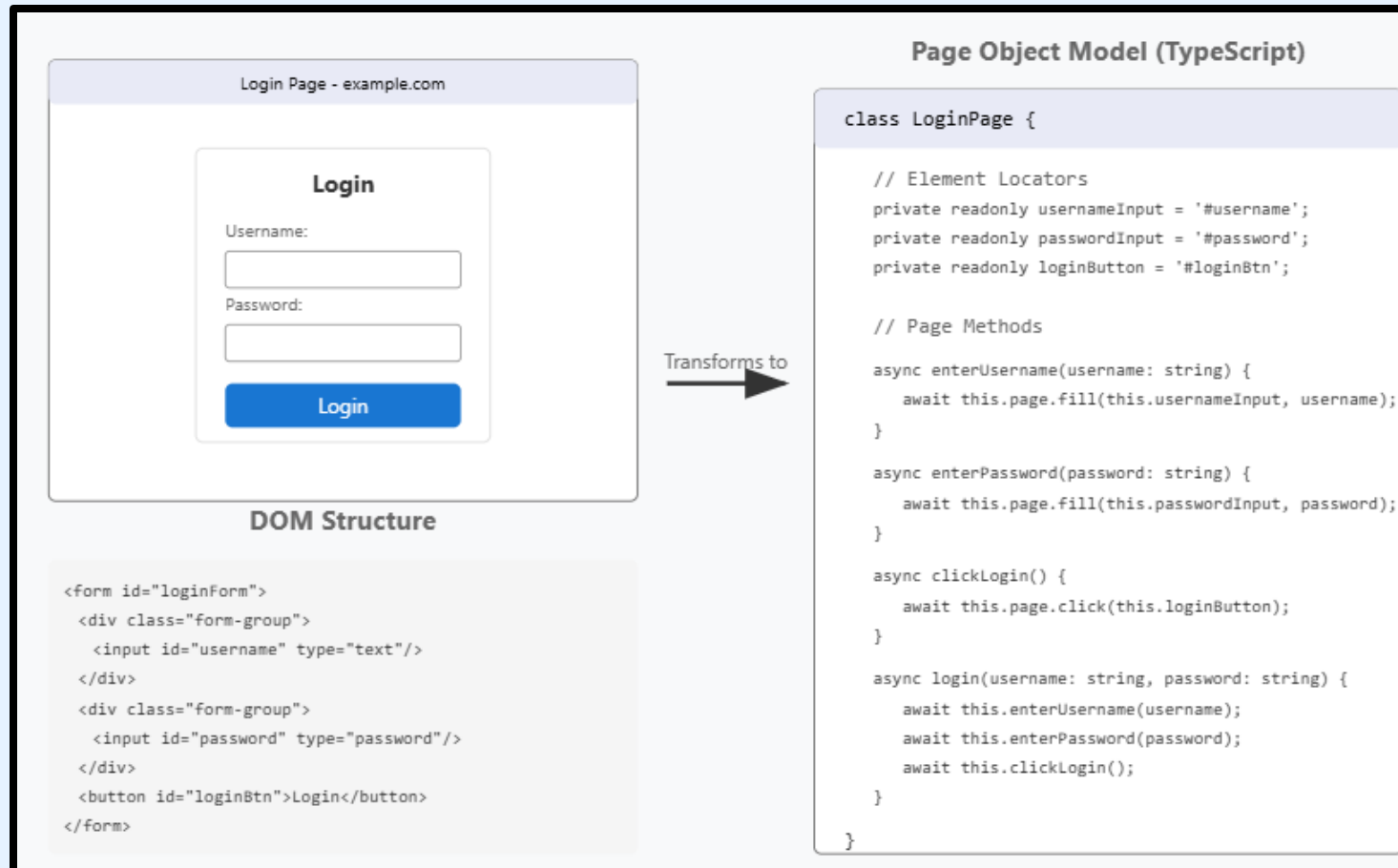


AI-powered Test Case Generation - API Tests

**Generating API
Tests**

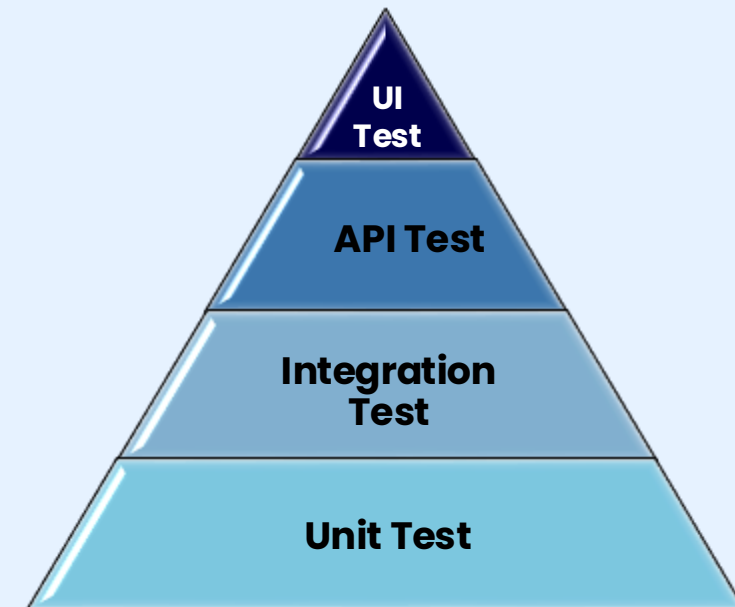
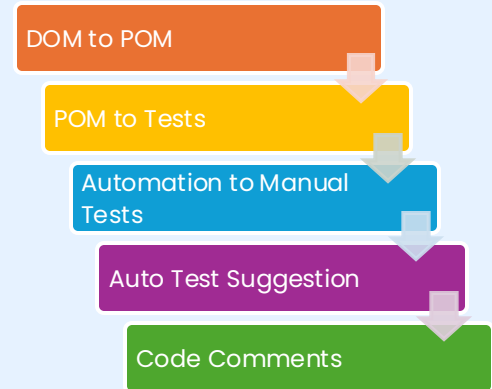


DOM to POM Transformation



AI-powered Test Case Generation

DOM to POM



Challenges in our experience

- **Lack of Awareness** – Employees and leadership may not fully understand AI.
- **Organizational Change** – AI impacts people, processes and technology.
- **AI's Future Impact** – Uncertainty about how AI will shape the company.





Key Outcomes from Our Projects



Execution time
30% – 50% reduction



Scenarios Tested
~70% increase



Test Maintenance
40% – 60% reduced



Time to Market
~40% faster



Flaky Tests
~80% reduced



Manual Test Cost
~50% reduced



Defect Identification
30% – 40% increase



Feedback Cycles
~30% faster

AI Adoption Framework – Setup vision & strategy

Phase 1: Awareness & Readiness in Testing

Focus points



AI training focused on real-world testing use cases



Key Bottlenecks
[flaky tests, slow regression cycles]



Barrier

Skepticism from teams



Solution

Showed quick wins
(AI for log analysis, flaky test detection)

Phase 2: Defining AI Strategy for Testing & Quality

Focus points



Identifying high value AI use cases engaging key test teams



Prioritized predictive defect analysis, self-healing automation, and test case generation



Conducted PoCs on real test environments



Barrier

Initial AI PoCs lacked tangible ROI for testing teams



Solution

Selected narrow, high-impact use cases instead of trying AI everywhere

AI Adoption Framework – Setup vision & strategy

Phase 3: Implementation & Experimentation in AI-Driven Testing

Focus points



Built an AI-in-Testing team with QA experts + AI engineers



AI-powered risk-based test selection and self healing



Ran real-world pilots in production-like environments



Barrier

AI-generated tests were unreliable & lacked domain understanding



Solution

Created a hybrid AI + human validation process

Phase 4: Scaling AI in Testing

Focus points



Expanded AI testing use cases across multiple projects



Set up a Center of Excellence (CoE) for AI in Testing



Standardized AI-driven testing strategies and best practices



Barrier

Scaling AI-driven testing was expensive & slow



Solution

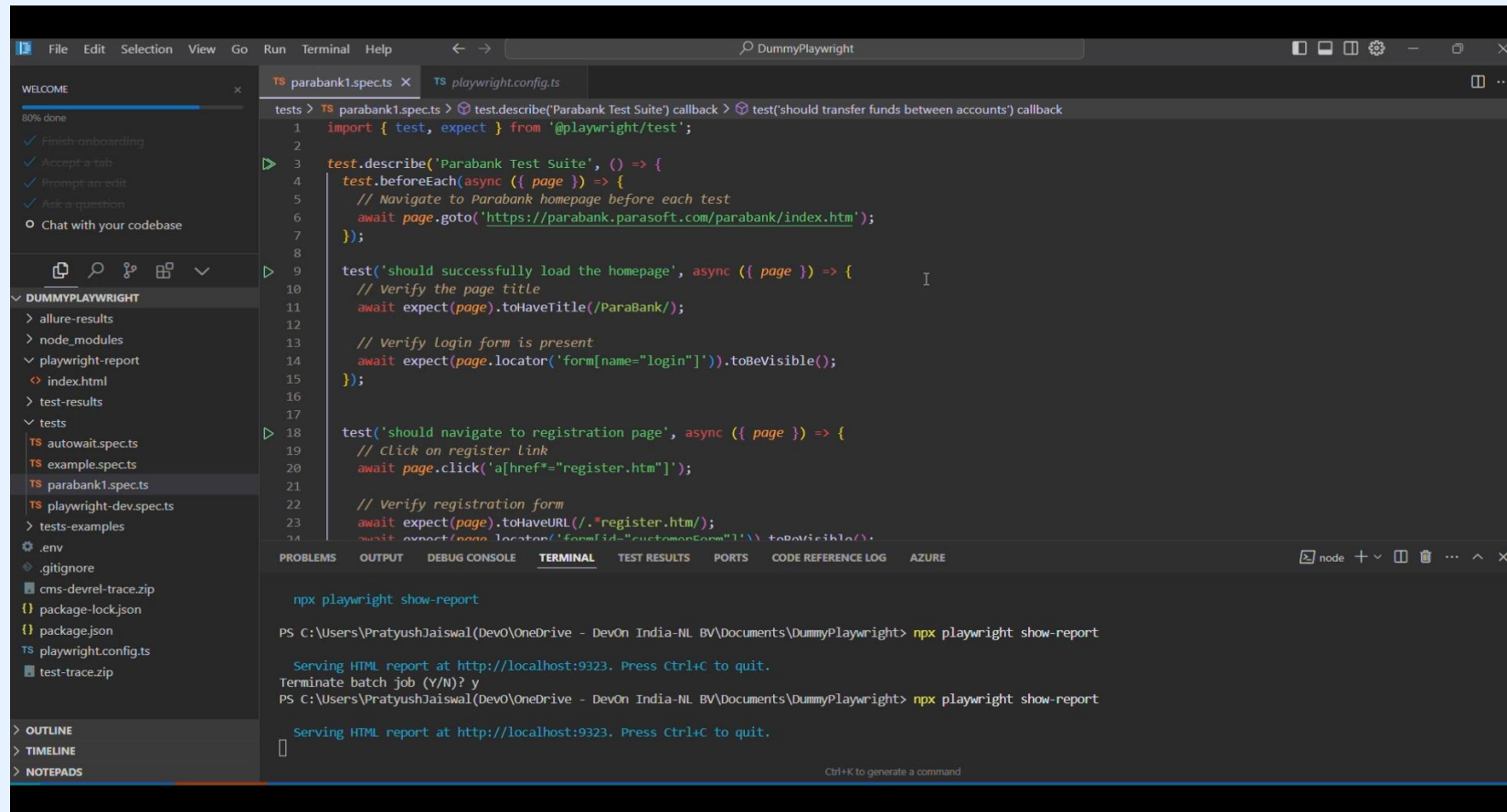
Started with critical test suites and gradually expanded AI use cases



3 take aways

- AI is not a magic wand but a mission wand
- AI works strong on Agile-DevOps foundation
- AI is a rapid prototyping; Tools alone don't deliver results—*skilled and experienced people* make the difference

AI-powered Test Case Generation – Parallel runs



The screenshot displays the Visual Studio Code editor with a Playwright test suite. The left sidebar shows the Explorer view with a project structure including files like `index.html`, `test-results`, and `tests`. The main editor shows the `parabank1.spec.ts` file with the following code:

```
1 import { test, expect } from '@playwright/test';
2
3 test.describe('Parabank Test Suite', () => {
4   test.beforeEach(async ({ page }) => {
5     // Navigate to Parabank homepage before each test
6     await page.goto('https://parabank.parasoft.com/parabank/index.htm');
7   });
8
9   test('should successfully load the homepage', async ({ page }) => {
10    // Verify the page title
11    await expect(page).toHaveTitle(/ParaBank/);
12
13    // Verify login form is present
14    await expect(page.locator('form[name="login"]').toBeVisible();
15  });
16
17   test('should navigate to registration page', async ({ page }) => {
18    // Click on register link
19    await page.click('a[href="register.htm"]');
20
21    // Verify registration form
22    await expect(page).toHaveURL(/.*register.htm/);
23    await expect(page.locator('formid="customerForm"')).toBeVisible();
24  });
25 });
```

The bottom panel shows the TERMINAL view with the following output:

```
npx playwright show-report
PS C:\Users\PratyushJaiswal\Dev\OneDrive - Devon India-NL BV\Documents\DummyPlaywright> npx playwright show-report
Serving HTML report at http://localhost:9323. Press Ctrl+C to quit.
Terminate batch job (Y/N)? y
PS C:\Users\PratyushJaiswal\Dev\OneDrive - Devon India-NL BV\Documents\DummyPlaywright> npx playwright show-report
Serving HTML report at http://localhost:9323. Press Ctrl+C to quit.
```

Limitations with traditional frameworks and AI-powered resolutions

The Testing Pyramid

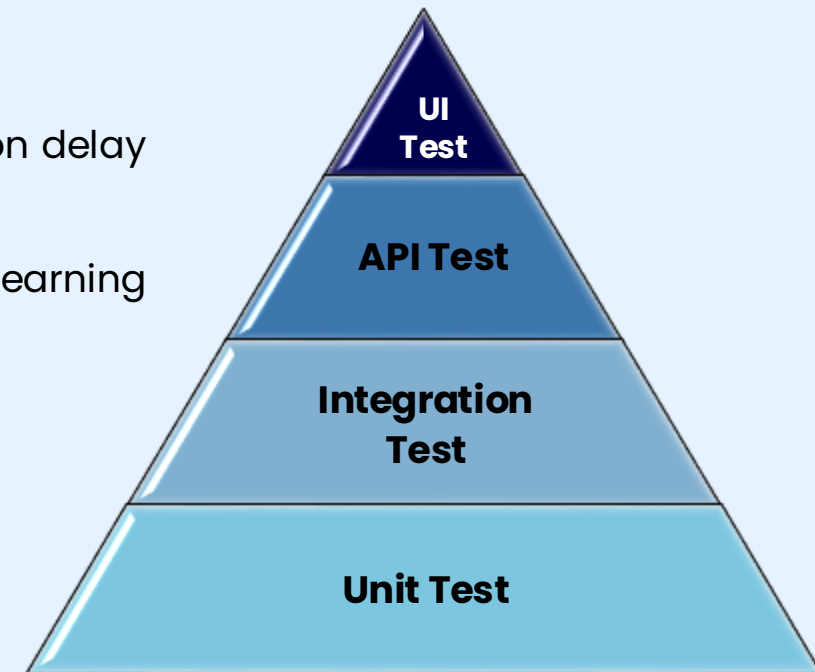
Slow execution, high maintenance costs, flaky tests and inefficient test selection delay releases and hinders scalability

AI optimizes execution, auto-heals flaky tests and enables predictive, self-learning automation for faster, scalable and reliable testing.

Shift-Left Testing Approach

Late defect detection, reliance on UI tests, and limited early-stage automation slow development and increase defect leakage

AI-driven testing empowers with intelligent test generation, enhanced automation efficiency and accelerates feedback loops to ensure quality at every layer



Testing Modernization with True shift left Roadmap

- AI-powered Test Case Generation
- Autonomous Debugging and Self Healing
- Migration to modern frameworks
- AI Testing Agents for enhanced efficiency
- Scaling for multiple teams: People and practices

AI Migration to modern frameworks

**Migration of Page
objects**

Migration of Page
objects

Migration of Test
cases

Autonomous Debugging and Self Healing

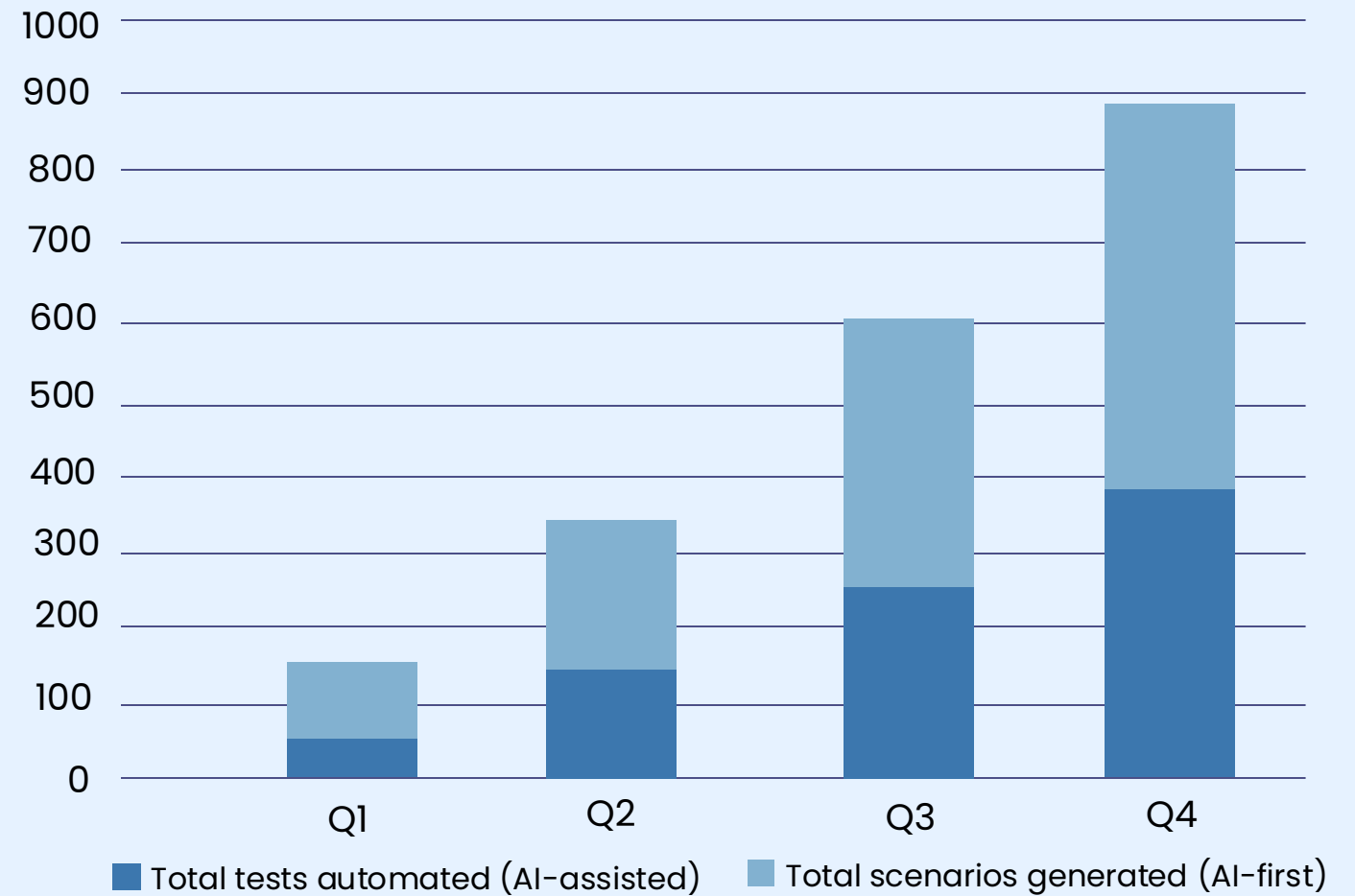
Debug and Self healing

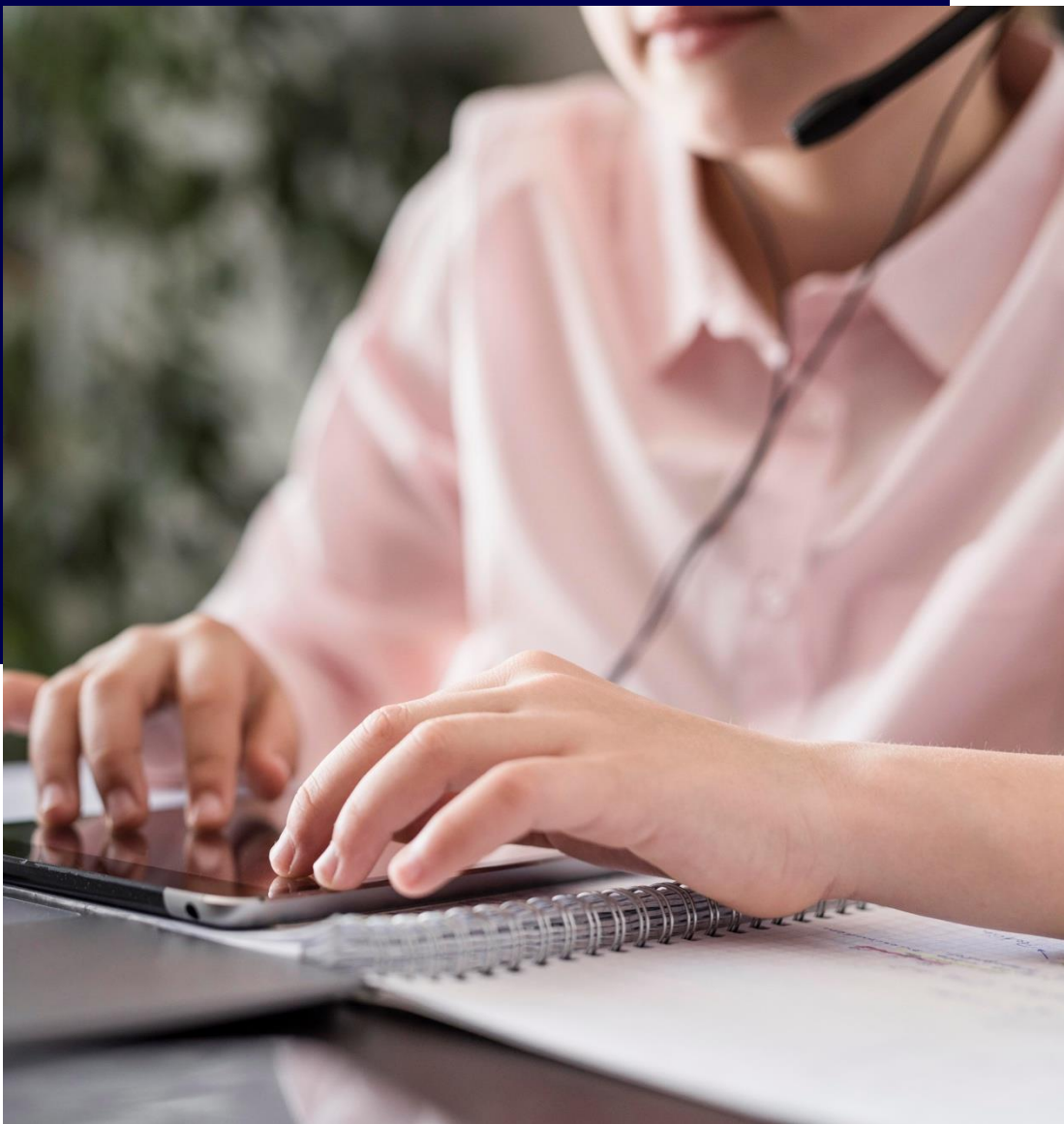
AI Testing Agents for enhanced efficiency

**Workflow Agentic
AI Testing**



Test Coverage increase over time with AI





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To know us more:
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