Hexawise
Introduction
1. **Brief Hexawise Overview**

2. **Case Studies**
What is Hexawise?

Hexawise is a test design optimization tool that allows users to quickly generate tests from a model of variation ideas of their System Under Test.

The vast majority of commercial Software Testing tools solve problems related to Test Automation and Test Management - leaving these portions of the market saturated while Hexawise leads the Test Design segment of the market.
Proven and Broadly Applicable

Hexawise is a proven software testing solution, widely used in every type of project, including:

- Manual & automated testing
- Agile, DevOps, CI/CD, etc.

More than 100 of the

FORTUNE 500

use Hexawise.
Rapid Test Generation with Model-Based Testing

The process for creating tests in Hexawise is different than what most people are used to.

Test a new feature...
“Economy Plus”

What is Model-Based Testing “Not”?

Verify that when a user selects Economy Plus

What is it then?

What is Model-Based Testing “Not”?

Verify that when a user selects Economy Plus
Typical Hexawise Benefits

Several key benefits delivered by Hexawise are observable and quantifiable. While the size of benefits will vary by project, typical benefits are shown below:

- **50% time savings**
  - (3 days vs. 6 days)
- **Greater thoroughness**
  - (~1/10 as many gaps even using fewer tests)
- **33% time savings**
  - (2 days vs. 3 days)
- **Generate automation code**
  - (for your automation framework)

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**Greater efficiency**

+ **More thorough test sets**

= **2X as many defects found per tester hour and faster speed to market**
Hexawise tests maximize coverage in the fewest possible tests.

Test generation algorithms in Hexawise ensure that every test condition in every test is optimally selected to maximize coverage of system interactions and minimize wasteful redundancies:

Tests selected one-at-a-time by hand…

... become wastefully-repetitive…

Each line represents a test. All the lines going through the default values in the middle represent wasteful repetition.

… and leave coverage gaps.

Tests generated using Hexawise…

... are different. They find more defects

Each line represents a test. Notice that instead of wasteful repetition, there is systematically maximized variation between scenarios.

… by covering all interactions in as few tests as possible.

Green = system interactions tested in 17 tests.
Red = system interactions not tested in 17 tests.

Green = system interactions tested in 17 tests.
Red = N/A (all are tested)
Hexawise Overview Video (Main Features and How it Works)

Hexawise is unlike almost all other testing tools. Seeing the tool in action is invaluable. Please watch this 5-minute overview video to gain a quick understanding of what Hexawise actually does (and does not do):

https://www.youtube.com/watch?v=4kw3Q207Bhs&ab_channel=Hexawise
Accelerating Test Automation Efforts

Hexawise Automate allows test designers to create parameterized, Gherkin, “Given-When-Then” scripts that can quickly be exported into various automation-friendly formats. And, as always with Hexawise-generated tests, the test sets will be extremely thorough and varied.

Non-technical testers are able to write a single script that automatically creates all necessary scenarios when exported in any language of their choosing. By doing so, optimized test design accelerates automation efforts much earlier in the lifecycle.

https://youtu.be/OnOaF_JbdM
Topics

1. Brief Hexawise Overview

2. Case Studies
Large Cost Savings in Gain-Sharing Deals

Hexawise speeds time to market and reduces costs. The team saved $1.5 million in testing costs when using Hexawise to design tests for a 5-country new product rollout.

By automating test selection and test documentation processes by using Hexawise, the team reduced man days required to complete these (previously manual) activities by more than 60%.

By using Hexawise to systematically generate relatively fewer tests, and to systematically eliminate wasteful repetition from test sets, the team required 50,000 fewer tests to be executed.
More Coverage, Fewer Tests

In addition to testing every requirement, Hexawise will also test every single pair of test inputs together in as few tests as possible. By doing so, Hexawise consistently helps find more defects. Coverage charts from a “before and after” study reveal these thoroughness and efficiency benefits:

- **Existing coverage without Hexawise**
  - 53% coverage after 50 tests

- **Test coverage with Hexawise**
  - 97% coverage after first 25 tests

- Twice as many tests contained many (undetected) coverage gaps
- Half as many tests achieved vastly superior coverage (and coverage became precisely understood and communicated)
The bank had more than a million regression tests that were being manually executed. Rather than trying to automate all of them, they used Hexawise to identify the right tests to automate.

On average, teams reduced tests by 30% while increasing coverage. Hexawise tests were data-driven and easier to automate and maintain.

- Hexawise was used on a global project involving every major business unit at the bank.
- By generating optimized test sets in Hexawise, the bank reduced hundreds of regression suites by an average of 30%.
- All Hexawise test sets are data-driven, which enables rapid automation and maintenance.
- Some teams exported into Gherkin feature files. Others exported into skeletal automated tests in one of Hexawise’s 20+ supported languages.
Hexawise systematically increases testing thoroughness.

Before using Hexawise, teams encountered serious defects in production related to their “Know Your Customer” rules.

Designing thorough sets of tests in Hexawise immediately fixed this high-profile problem. There have been zero “Know Your Customer” defects in production since teams started using Hexawise in 2017.

Possible Scenarios:
> 10,000,000

Hexawise-Generated Test Scenarios:
1,800

Defects in Production:
None in 2+ Years

Experience Report (10 min video)

https://youtu.be/KL7IGmwzSzY?t=50

100%
ELIMINATION OF ALL DEFECTS FOR 4+ YEARS (AND COUNTING)
Hexawise both cuts costs and improves defect containment.

The company faced repeated quality challenges with every release of their portfolio reporting tool (which had been heavily customized for them).

When the team switched to designing their tests in Hexawise, they witnessed an immediate jump in quality and also reduced testing project costs by 90%. The number of defects found during User Acceptance Testing plummeted from 33% to just 1.5%.

Experience Report (10 min video)

https://youtu.be/eeQmBplRanY
Dramatic Time Savings in Test Planning

Teams used Hexawise to develop an optimized set of test cases for a Defensive Driver Discount application that was experiencing too many defects in production.

By using Hexawise to ultimately generate an optimized set of test cases within seconds, the team saw dramatic improvements in time and effort needed to select and document the right test cases for execution.

65% TIME SAVINGS IN TEST PLANNING

Test Planning Components

- Regression updates
- Test data creation
- Review
- Documentation
- Design
- Analysis

Without Hexawise: Total Time = 20 hours
With Hexawise: Total Time = 57 hours

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Large Insurance Firm
Teams carefully measured efficiency and thoroughness benefits of Hexawise across 15 projects. They found twice as many defects even while using only one quarter as many of Hexawise’s algorithmically-generated tests.

As compared to their existing 1,818 manually-selected tests, the 448 optimized Hexawise tests they generated identified twice as many defects.
Achieving In-Sprint Test Automation with Hexawise Automate

Hexawise is used heavily by testers, business analysts, and developers throughout the pipeline in order to ultimately achieve thorough, efficient in-sprint automation of Hexawise scenarios.

Business analysts and testers collaborate upfront to establish a consistent, strong set of Hexawise Inputs, using the Mind Map feature to easily view the critical aspects of the system under test. Once test cases are generated, testers and developers create Gherkin-style automated scripts inside Hexawise Automate that are easily maintained throughout sprints.

Non-coders generate powerful BDD test scenarios, and export skeletal automated tests.
Rapid Identification of Mistakenly Paid Claims

In their very first small pilot project, a single Hexawise user at the client identified defects in claim handling logic responsible for $1.6 million in erroneously paid claims.

- Test coverage achieved became much better understood.
- Existing claims processing tests left thousands of coverage gaps involving combinations of Procedure Codes, Benefits Accumulators, Benefits Deductibles, etc.
- Closing those coverage gaps with Hexawise’s optimized tests quickly revealed defects responsible for $1.6 in mistakenly paid claims.
Teams also used Hexawise to identify projects that had been dramatically under-testing.

- Hexawise made it immediately clear which projects were under-testing.
- Coverage gaps became instantly apparent and were quickly closed.

Teams confidently determined "how much testing is enough?"

**GUESSWORK**

<table>
<thead>
<tr>
<th>85 Existing Tests</th>
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<tbody>
<tr>
<td><strong>Option A</strong></td>
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<tr>
<td><strong>Option B</strong></td>
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<td><strong>Option C</strong></td>
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Teams used Hexawise to more than triple defects found per tester hour. This was the average impact measured in a nine-project benefits measurement study.

- On average, teams spent 30-50% less time selecting and documenting tests.
- One team found Hexawise to be 4X faster.

By systematically covering dramatically more interactions in fewer tests, teams consistently found more defects in less time.

**Original test sets**
- Poor coverage
- Larger test sets

**Hexawise test sets**
- Excellent coverage
- ~ Half as many tests