

Reducing Risk When Changing Legacy Code

There are lots of options besides “do more testing”

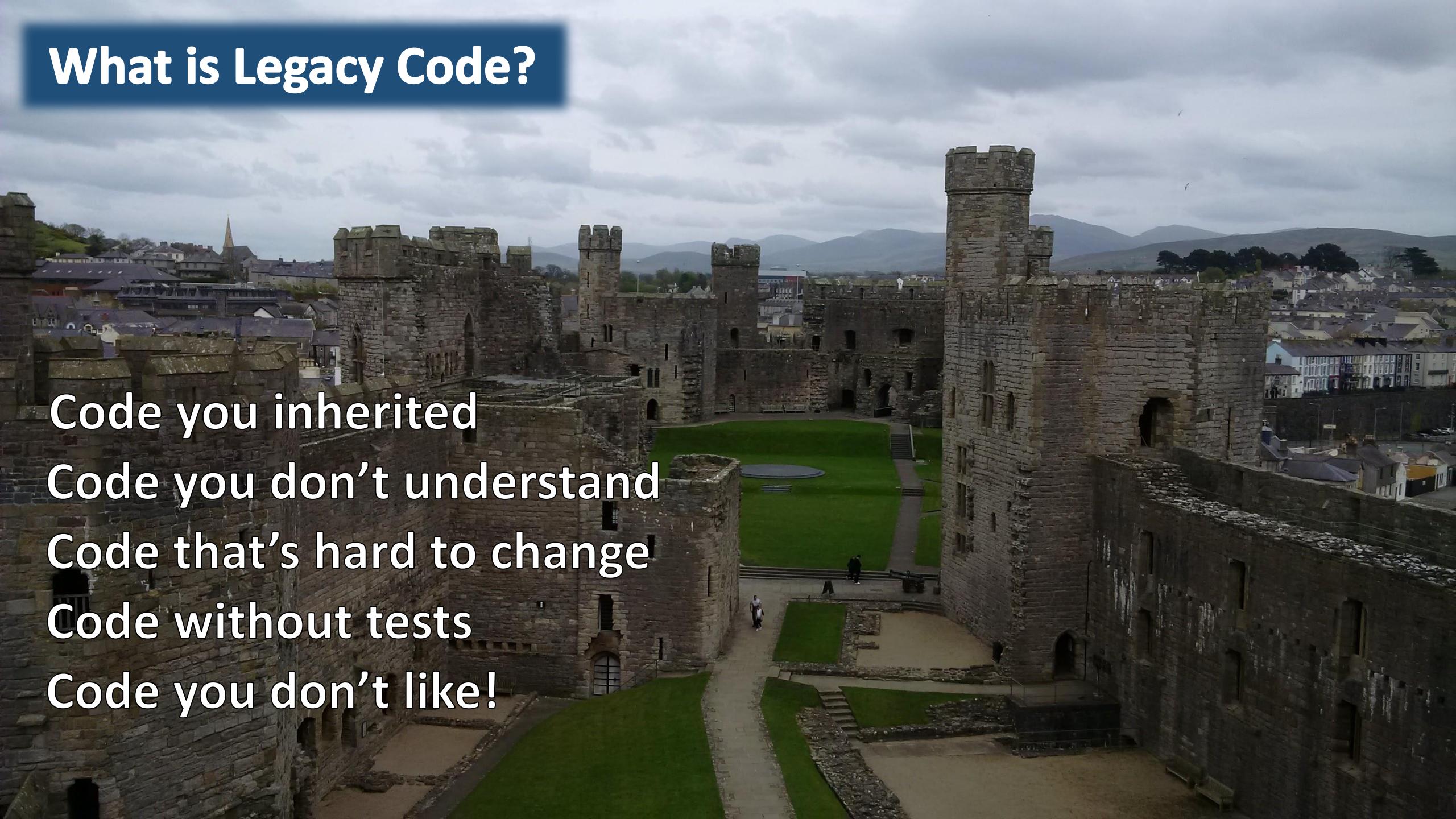


Hi, I'm Tina!
I'm a Test Strategist.



Reducing Risk: Why I Care

What is Legacy Code?



Code you inherited
Code you don't understand
Code that's hard to change
Code without tests
Code you don't like!



Why is Legacy Code Risky?

A photograph of a man and a woman standing in front of a massive, multi-tiered display case filled with numerous bottles of whisky. The display case is well-lit from within, creating a warm glow. The man, on the right, is wearing a red zip-up hoodie and has a beard; he is holding a small glass. The woman, on the left, is wearing a dark red coat and is also holding a small glass. They are both smiling at the camera.

Step 1: Do More Testing

USFS

AMC

BOOTT SPUR LINK

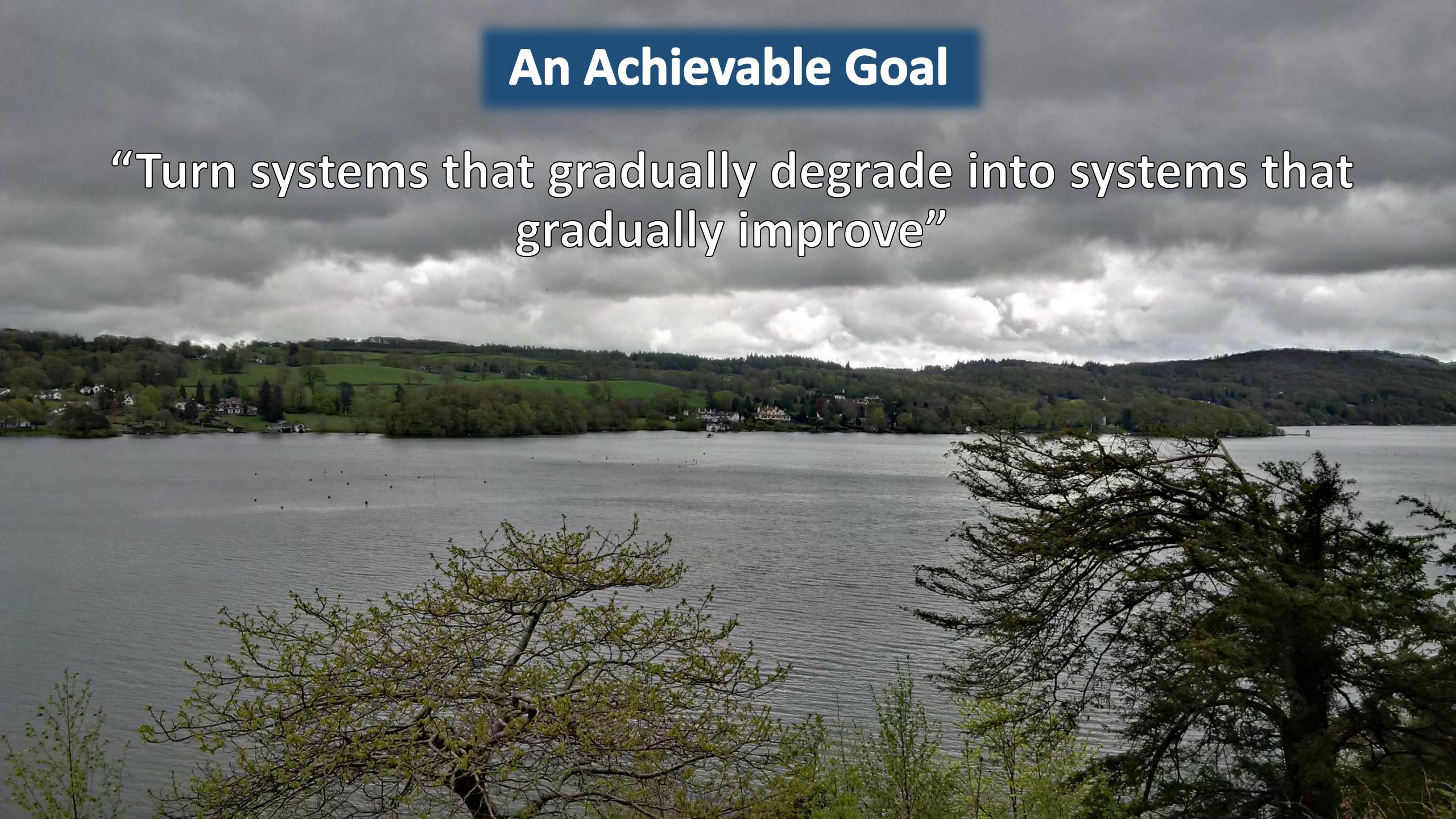
← TUCKERMAN RAVINE TRAIL 0.6

← HERMIT LAKE SHELTERS 0.6

Step 2: Consider Other Options

An Achievable Goal

“Turn systems that gradually degrade into systems that gradually improve”



Code Stewardship
Knowledge Management
Test Coverage Analysis
Team Shadowing
Culture Change

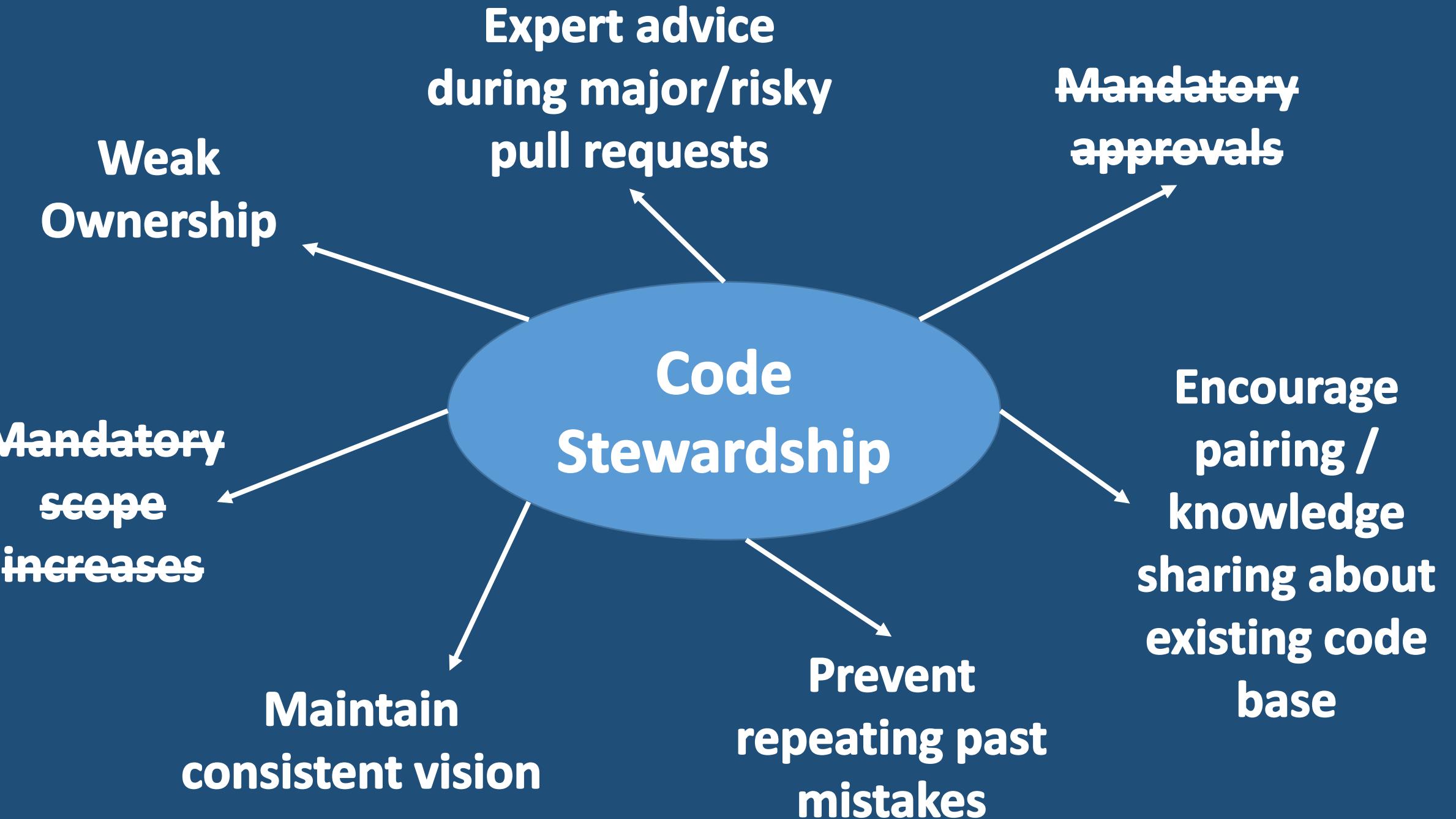
Reducing Risk When Changing Legacy Code: 5 Ideas

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Reducing Risk When Changing Legacy Code: **Idea #1**

“Module owners are expected to take responsibility for the modules they own and keep an eye on changes made by other people.”

Martin Fowler



Edit Pull Request

Destination

v master ▾

Update the destination branch for the pull request

Title *

Calexander/MultiGetSupport

Description

This also broke some stuff in LE. Companion PR:
<https://git.dev.d2l/projects/CORE/repos/le/pull-requests/4655/overview>



Preview

Reviewers

Suggestions: Dave Lockhart, Daryl McMillan

Save

Ca



...



47

Open source plugin for Bitbucket

Native solution for Github

≡ Bitbucket Projects Repositories ▾

Core LMS / le

Source

v master ▾

...

le / competencies / OWNERS

Source view

Diff to previous

History ▾

1 | daryl.mcmillan@d2l.com

Makes finding experts easier and safer

Actively recruit stewards

Use data to identify candidates

Core LMS / lp

Source

master ⚡ 1 commit

lp / framework / tools / D2L.LP.Tools.UnitTesting / Profile / ProfileCardManagement / Domain /

...

Owners	Proposing Justin as owner for Profile Card Management unit tests
ProfileCardManagementSettingsManagerTest.cs	DE25504: Remove local const

Low vs high quality owners

Limit scope, focus on risk areas

I Want To Try Code Stewardship!

- ✓ Find a way to suggest stewards as reviewers
- ✓ Prioritize by identifying risk areas
- ✓ Some owners are better than none

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Reducing Risk When Changing Legacy Code: Idea #2

“In nearly every legacy system, what the system does is more important than what it is supposed to do.”

Michael C. Feathers

**Make it
available to
others**

**Write down
important info**

**Prevent re-learning
same lessons**

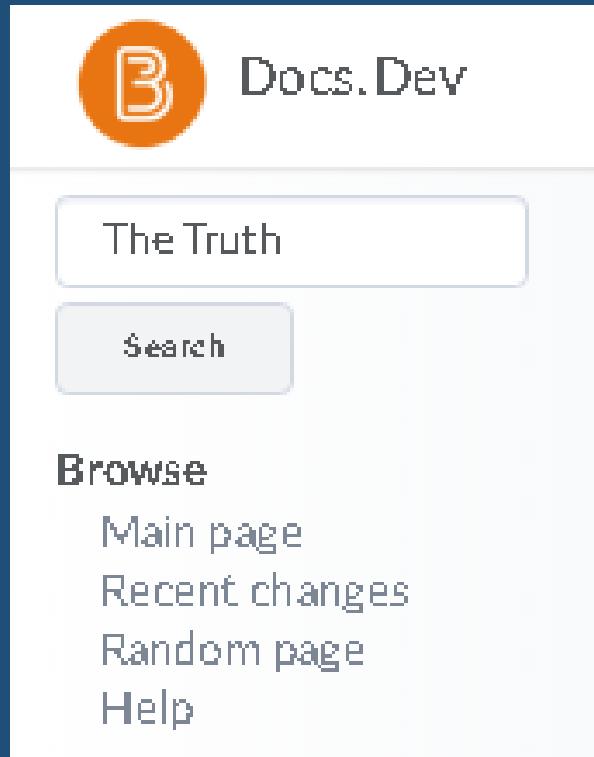
Knowledge Management

**Prevent forgetting
things**

**Avoid wasted
time and
increased risk**

**Explain
illogical things**

Don't expect perfection



Do lots of things

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Consider discoverability, searchability, and maintainability

I Want To Try Knowledge Management!

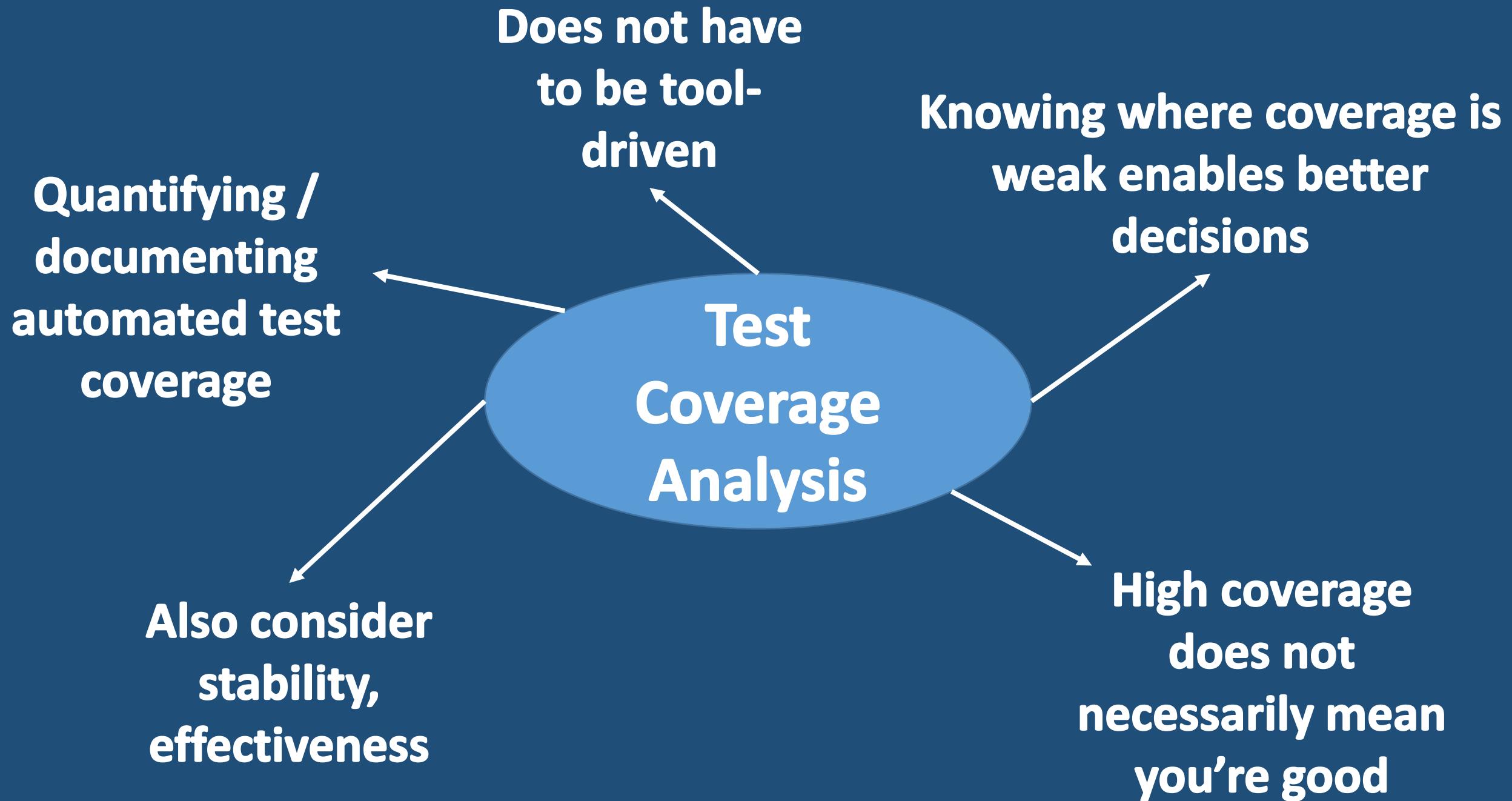
- ✓ Document important information
- ✓ Share knowledge in lots of ways
- ✓ Supplement with human interaction

Code Stewardship
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Reducing Risk When Changing Legacy Code: Idea #3

**“Test coverage is a useful tool for finding untested parts of a codebase.
Test coverage is of little use as a numeric statement of how good your tests are.”**

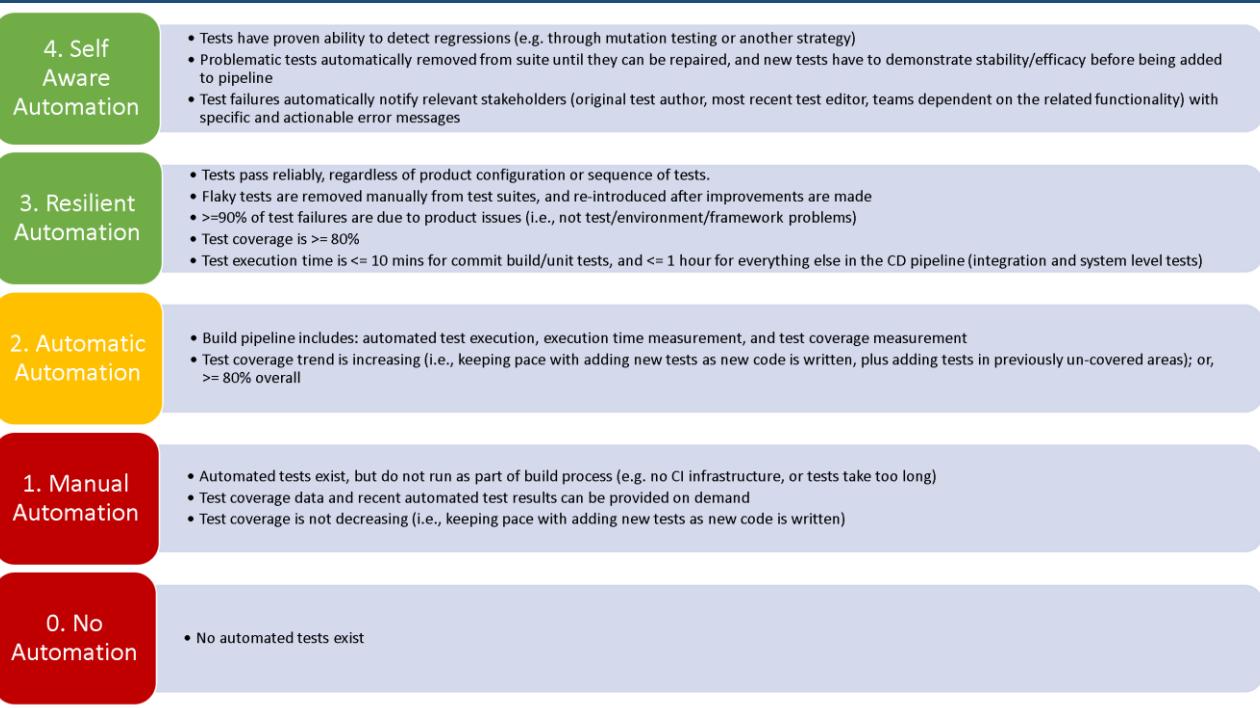
Martin Fowler



SYSTEM LEVEL AUTOMATED TESTS

What Do We Actually Want?

D2L.com



Conversation
starter, not to-
do list

Automation
maturity is a lot
more than a
number

I Want To Try Test Coverage Analysis!

- ✓ Decide what you want out of it
- ✓ Start with something cheap
- ✓ Focus on knowledge rather than change

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Culture Change

Reducing Risk When Changing Legacy Code: **Idea #4**

“I'm surprised every single time by what I learn, and can then bring back to my ‘home’ team - even if all I'm doing is attending another team's stand-up.”

Me

**Spend time with
other teams (all
kinds!)**

**Any size and
length of time**

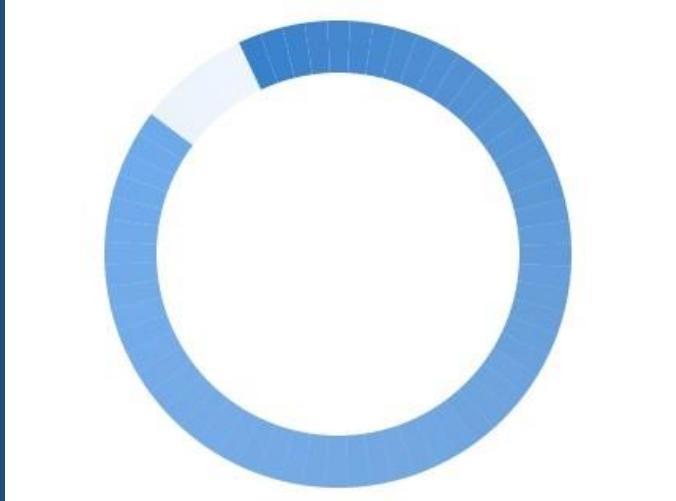
Team Shadowing

**Learn from them
too**

**Lots of options for
activities**

**Give your
perspective**

Prevents re-inventing the wheel



Prevents pulling in incompatible directions



Promotes awareness of other potential stakeholders

I Want To Try Team Shadowing!

- ✓ Identify teams you don't know well
- ✓ Ask if you can listen in on some meetings
- ✓ Invite others to shadow your team

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Reducing Risk When Changing Legacy Code: Idea #5

“How do we start consistently acting like we value quality above deadlines instead of just saying that we do?”

James Spere

**Crowd-source your
“done” criteria and
risk assessment**

**Similar to code
reviews, but for
more aspects of work**

**Unbiased opinions from
other teams about risks
and priorities**

**You know more
about what
others care about**

**Others know more
about what you’re
doing**

**Act on every piece
of feedback**

**Greater variety
of potential risks
and issues**

Culture Change



**Get feedback from
many sources**

**Highlight most
controversial bits**

**Make it easy to
give feedback**

Show that input is
taken seriously

Celebrate valuing
quality over deadlines



I Want To Try Culture Change!

- ✓ Make a list of stakeholders
- ✓ Prefer informal / voluntary over mandated
- ✓ Find ways to celebrate

Code Stewardship
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Reducing Risk When Changing Legacy Code: 5 Ideas

A wide-angle photograph of a mountainous landscape. In the foreground, there are several trees with yellow and orange autumn leaves. The middle ground shows a vast expanse of forest with a mix of evergreen and deciduous trees, some with autumn colors. The background consists of misty, hazy mountains that fade into the distance.

Changing Legacy Code is Risky

Use Many Strategies to Reduce Risk





Start Somewhere, Start Small



Measure and Adjust

Set an Achievable Goal



Are We There Yet?

Constructive
debates

Projects actually
finish

Specific risks
understood

Engaged team



Thank You



@fletchertinam

References

- **Martin Fowler - Code Ownership**
 - <https://martinfowler.com/bliki/CodeOwnership.html>
- **Martin Fowler - Test Coverage**
 - <https://martinfowler.com/bliki/TestCoverage.html>
- **James Spere - Valuing Learning**
 - <https://www.linkedin.com/pulse/valuing-learning-james-spere>
- **Chromium - Code Stewardship**
 - https://chromium.googlesource.com/chromium/src/+/master/docs/code_reviews.md
- **Agile @ Lego - Alignment Day**
 - <https://crisp.se/wp-content/uploads/2016/12/Agile@Lego.pdf>
- **Working Effectively With Legacy Code (Michael C. Feathers)**
- **How to Measure Anything: Finding the Value of “Intangibles” in Business, Third Ed. (Douglas W. Hubbard)**