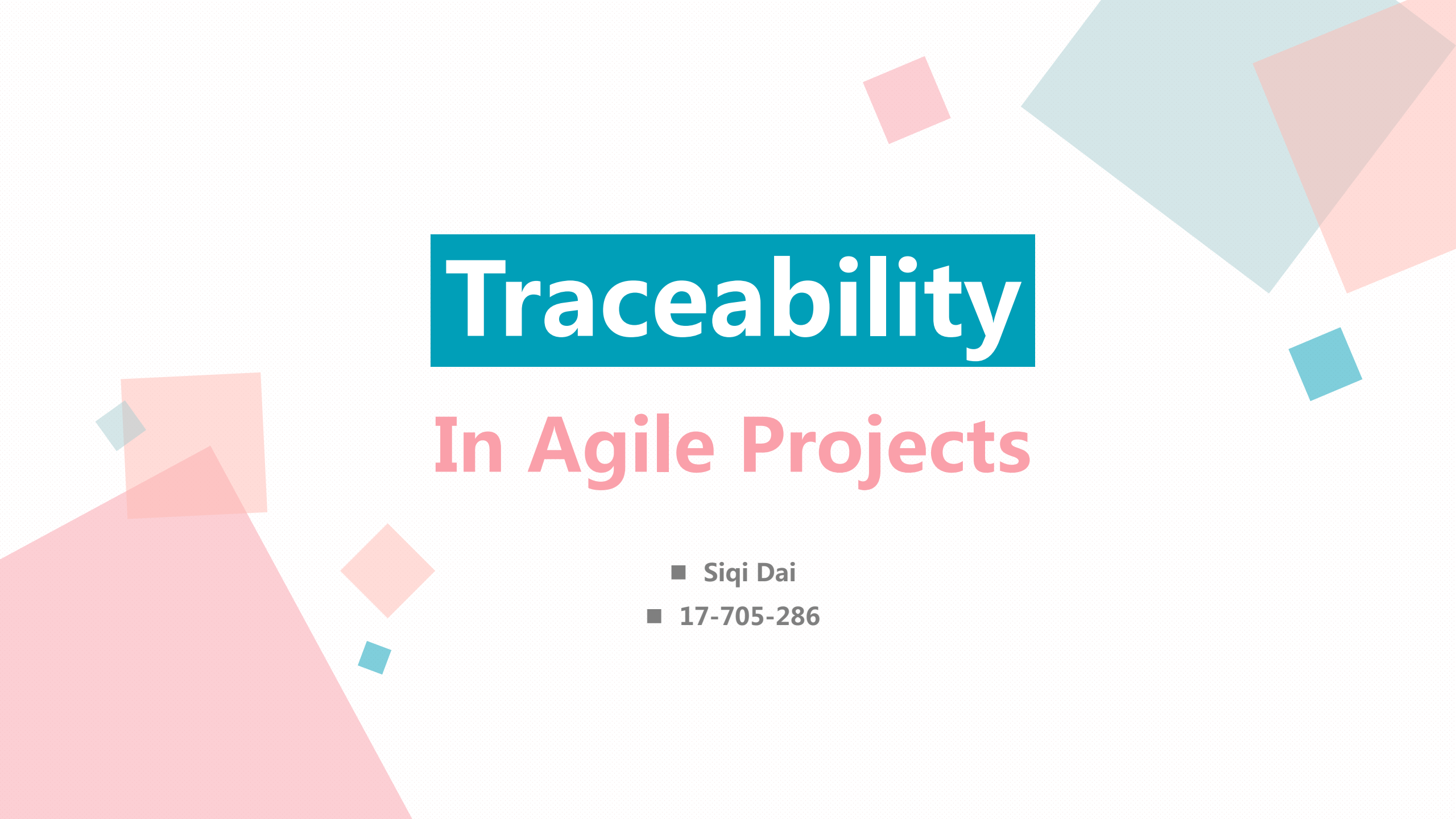


The background features several overlapping geometric shapes, including squares and triangles, in shades of teal, pink, and light blue. The shapes are scattered across the slide, with some being larger and more prominent than others.

Traceability

In Agile Projects

■ Siqi Dai

■ 17-705-286



Topic relationship



Benefits



Matching



Questions

Topic relationship

[Jarke 1998]

- ✓ Basic abstract **concepts** and **classifications** of requirements traceability.

[Gotel 2012]

- Define essential traceability **terminology**;
- A traceability **process model** and **activities** involved in the life cycle of a trace;
- Basic types of traceability

- ✓ Traceability matrix, Traceability process model, **Traceability information model (TIM)**

[Ingram and Riddle 2012]

- Controlling cost and trace quality;
- Estimate traceability costs;

What are the benefits of tracing in Agile projects?

- **Change impact analysis**

- ➡ Accommodate communication & team coordination & effort estimation

- **Product conformance**

- ➡ Meet customers' needs (**Requirements validation**)

- **Process compliance**

- ➡ Ensure procedural process

- **Project accountability**

- ➡ No gold-plating & change matching

- **Baseline reproducibility**

- ➡ Baseline configuration & different versions

- **Organizational learning**

- ➡

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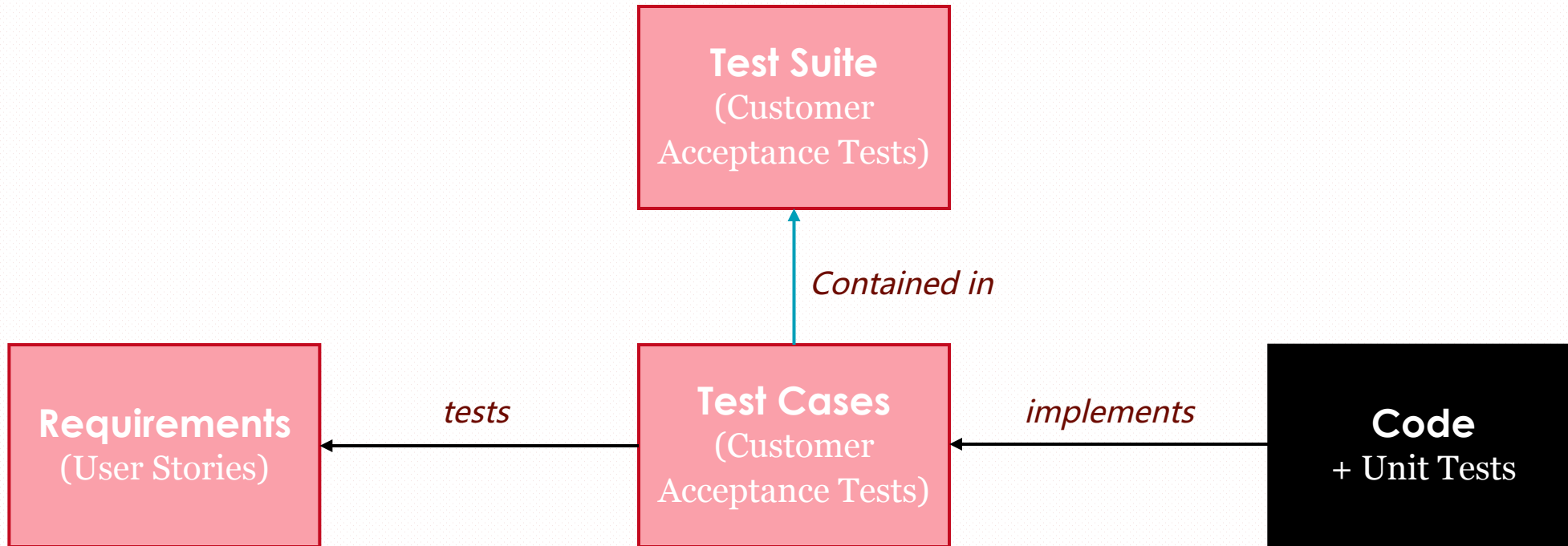
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Benefits of traceability outweigh costs

Traceability Across Different Types of Projects

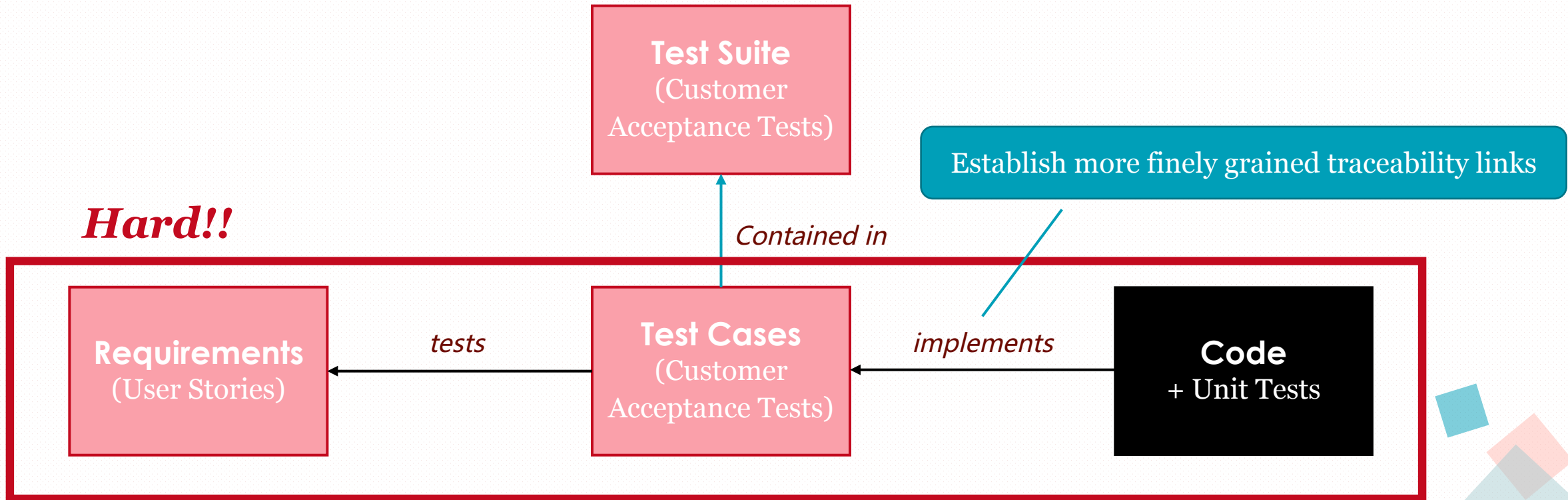
A Basic Traceability – TIM (Traceability Information Model)



Traceability Across Different Types of Projects

B *Small to Medium Sized Agile Projects*

- Volatility of requirements



Traceability across different types of projects

© *Large Scaled, Distributed, Long-Lived Agile Projects*

- *Multi-year development duration;*
- Large and potentially distributed teams;
- Size and complexity of code-base

Customized mix:

1

Basic traces (user stories → test cases → black-box code)

2

JITT (Just-in-time Traceability)

3

More fine-grained (user stories → code)

Traceability across different types of projects

Just-in-time Traceability

- **Information retrieval:** automatically create candidate traceability links

Higher similarity

Lower similarity

The screenshot shows the Poirot : TraceMaker application interface. The main window displays a table of candidate classes. The table has columns for Document ID, Document Description, Confidence Level, and Accept. The Confidence Level column contains a bar chart for each row. The table is titled "iTrust Source Code" and "CANDIDATE LINKS". The "UNLIKELY LINKS" tab is selected. The "ID" field is empty, and the "Find" and "Save" buttons are visible. The table lists 10 rows of candidate classes, with the first row highlighted in red. The text "Candidate classes" is overlaid on the table. The text "Likelihood" is overlaid on the Confidence Level column. The text "Higher similarity" is overlaid on the top of the table, and "Lower similarity" is overlaid on the bottom of the table, with a blue arrow pointing downwards.

Document ID:	Document Description:	Confidence Level	Accept
JAVA_15	DrugInteractionAction.java		☐
JAVA_89	DrugInteractionBeanLoader.java		☐
JAVA_104	iTrustException.java		☐
JAVA_109	DrugInteractionDAO.java		☐
JAVA_65	DrugInteractionBean.java		☐
JAVA_107	DrugInteractionValidator.java		☐
JAVA_65	FamilyMemberBean.java		☐
JAVA_75	HCPLinkBean.java		☐
JAVA_60	AdverseEventBean.java		☐
JAVA_103	FormValidationException.java		☐

Traceability across different types of projects

B *Safety Critical Agile Projects*



+ *Rigorous traceability process*

Full life cycle traceability

+ *Traditional traceability matrix*

Questions?

- What's the relationship and difference between traceability and code review?
- Does anyone truly use traceability matrix in an agile project? How?
- How to decide the granularity of a trace artifact in practice?

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