

TRACEABILITY IN AGILE PROJECTS

Group 2

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AGILE PROJECTS

Principles:

- Fast and continuous delivery of valuable software
- Open to changing requirements

Traditional traceability approaches do not match

COSTS OF TRACEABILITY IN AGILE PROJECTS

- Developer time
- Developers do not like documentation in general
- No direct value to customer

BENEFITS OF TRACEABILITY IN AGILE PROJECTS

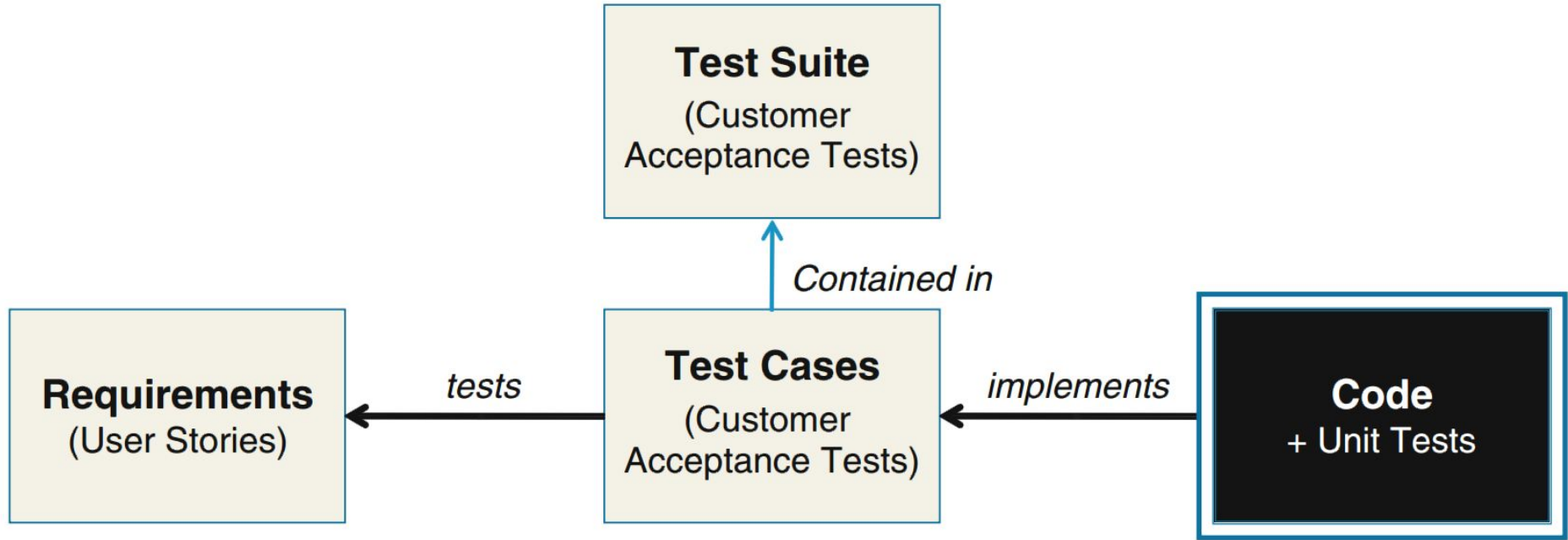
- Change impact analysis
- Product conformance
- Process compliance
- Project accountability
- Baseline reproducibility
- Organizational learning

Can be achieved by trust and communication (in smaller teams)

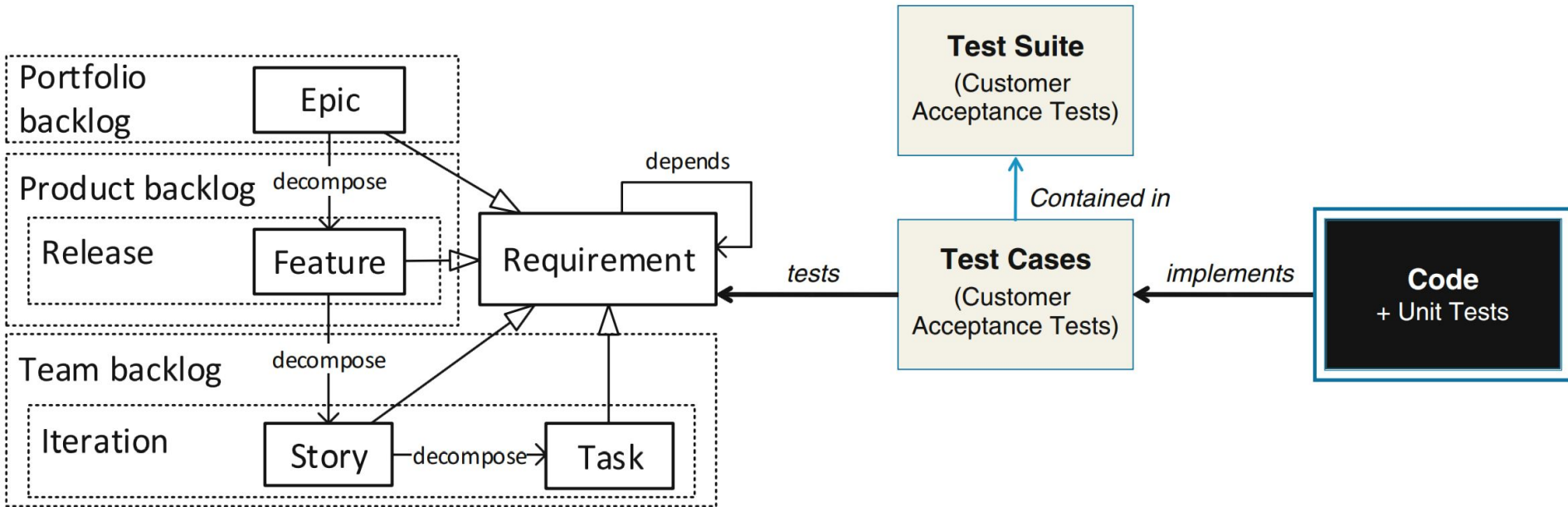
TRACEABILITY ACROSS DIFFERENT TYPES OF AGILE PROJECTS

- Small to medium sized
- Large scale, distributed, long-lived
- Safety critical project

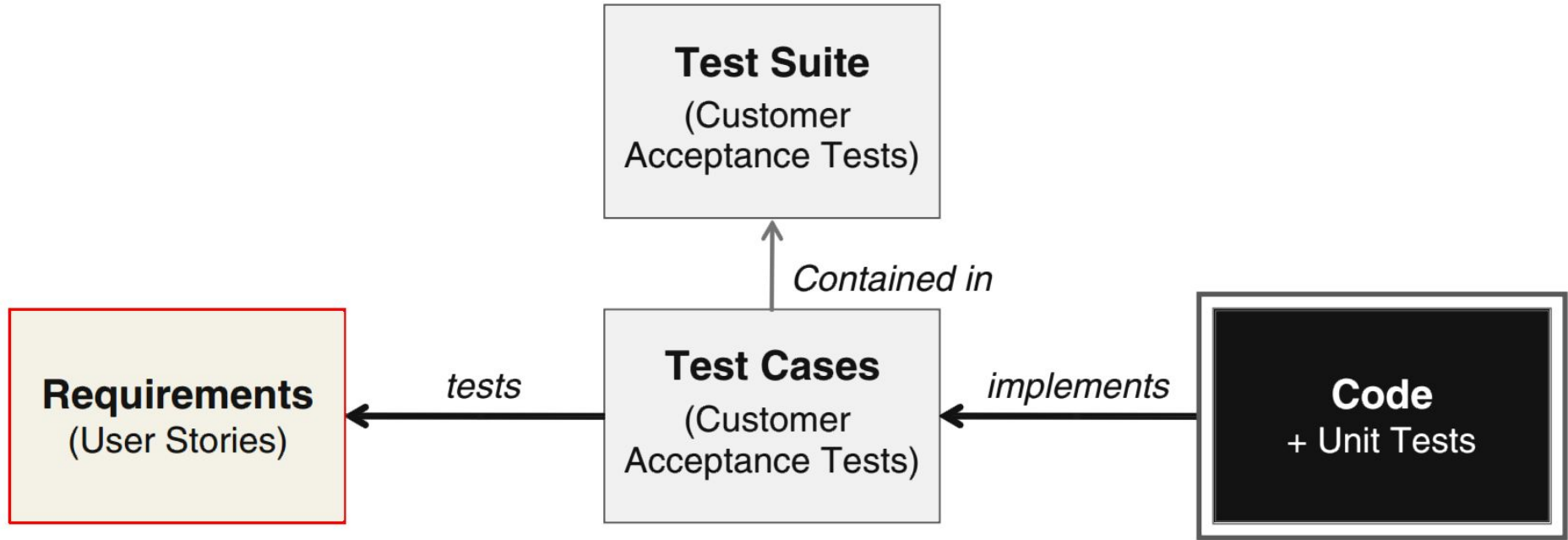
TRACEABILITY MODEL IN AGILE PROJECTS



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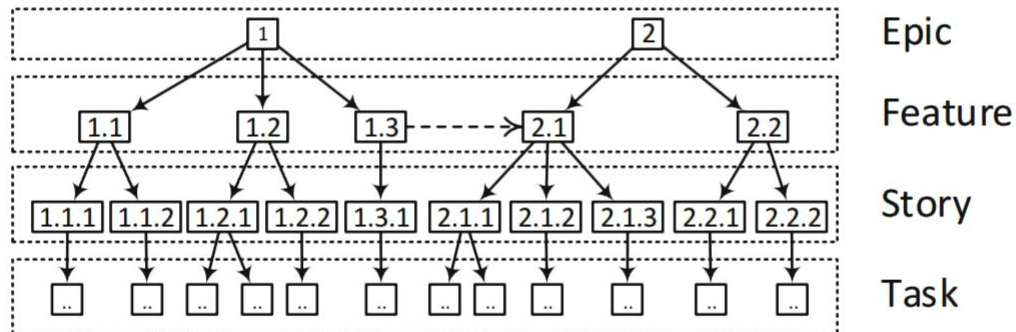
REQUIREMENTS IMPLEMENTATION RISK

Requirements value & implementation costs -> prioritization

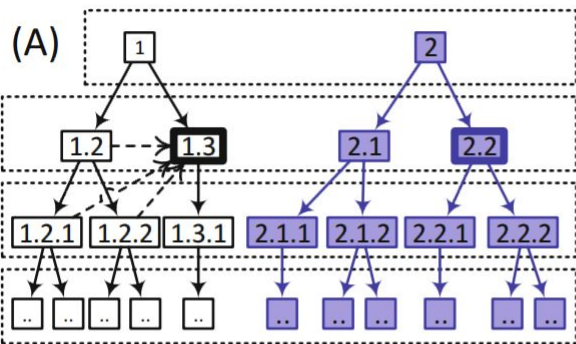
Maintenance costs - implementation 30%, maintenance 70%

-> estimating implementation risk

REQUIREMENTS IMPLEMENTATION RISK

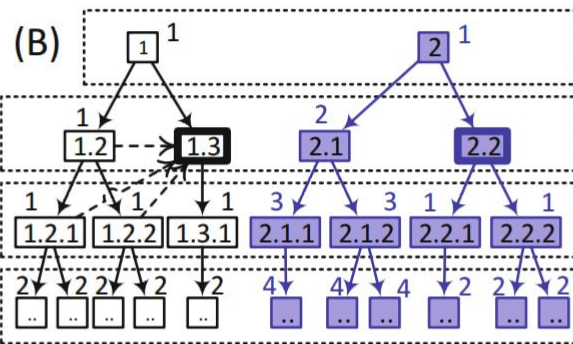


REQUIREMENTS IMPLEMENTATION RISK



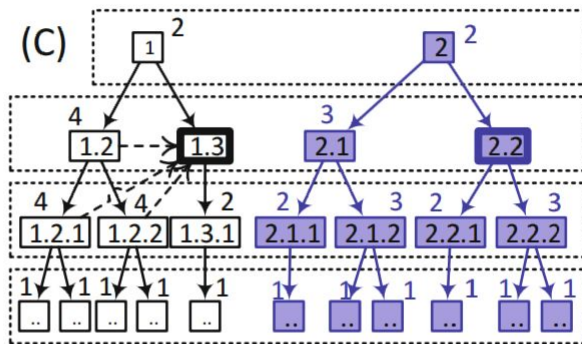
$$NRR_{1.3}=10$$

$$NRR_{2.2}=12$$



$$ADRR_{1.3}=15/10$$

$$ADRR_{2.2}=29/12$$



$$RIF_{1.3}=21/10$$

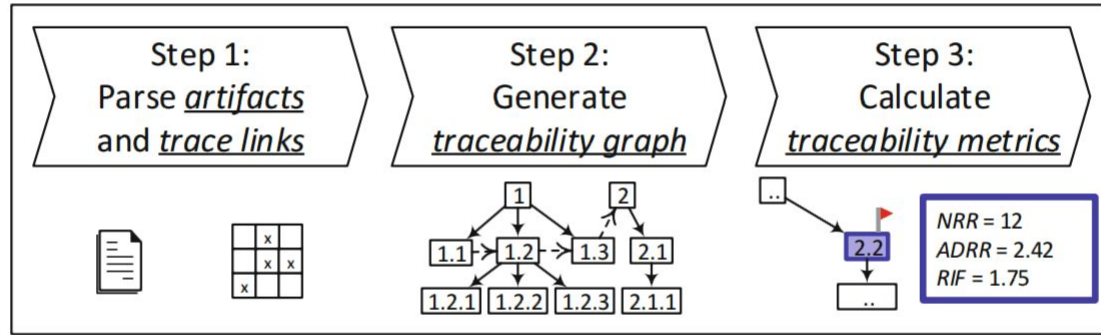
$$RIF_{2.2}=21/12$$

REQUIREMENTS IMPLEMENTATION RISK

	Project	Requirements					Trace links		
		Epic	Feature	Impr. ¹	Task	Σ	Dec. ²	Dep. ³	Σ
A	CONNECT ^A	10	245	290	2,810	3,355	3,114	2,538	5,652
B	Infinispan ^B	–	850	522	666	2,038	372	1,716	2,088
C	jBPM ^C	–	1,146	112	1,007	2,265	472	1,168	1,640
D	Weld ^D	–	242	48	303	593	140	620	760
E	WildFly ^E	–	682	226	679	1,587	798	1,516	2,314

^Awww.connectopensource.org, ^Bwww.infinispan.org, ^Cwww.jbpm.org,
^Dweld.cdi-spec.org, ^Ewww.wildfly.org, ¹Improvement, ²Decomposition, ³Dependency

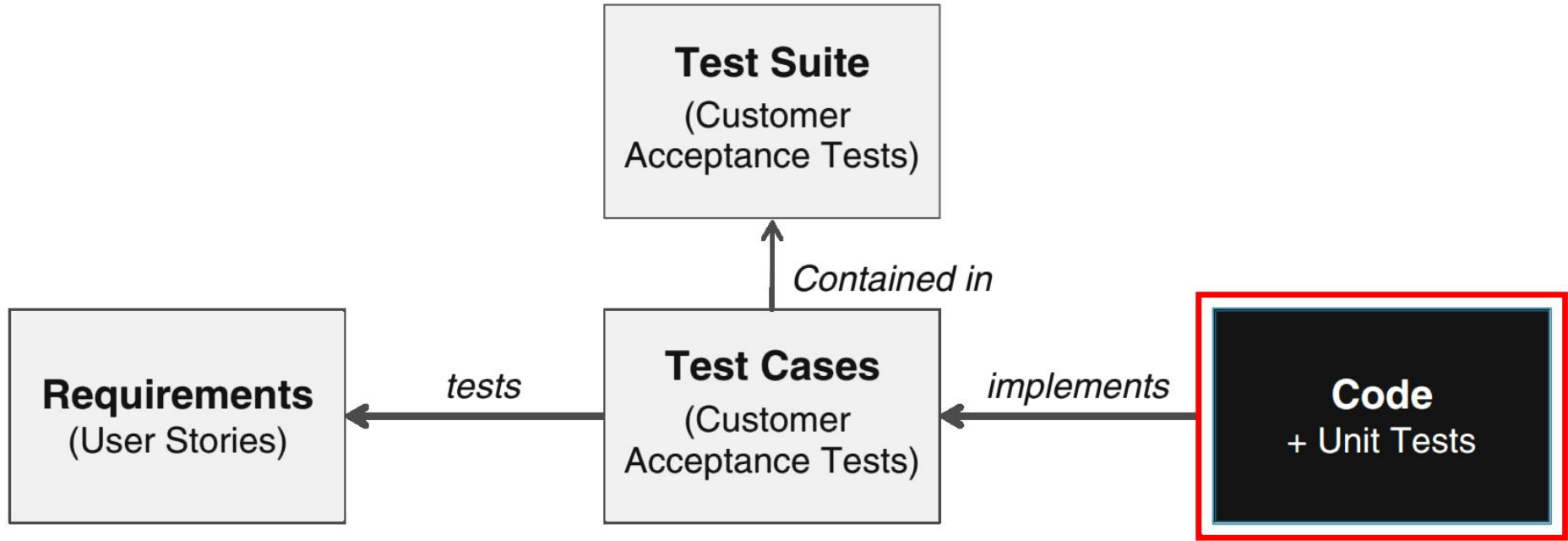
REQUIREMENTS IMPLEMENTATION RISK



REQUIREMENTS IMPLEMENTATION RISK

	A	B	C	D	E
Correctly predicted risk categories	79.85 %	73.72 %	97.82 %	87.92 %	94.79 %

TRACEABILITY MODEL IN AGILE PROJECTS



TRACE RETRIEVAL FROM CODE

Just-in-time Traceability

JITT

Poirot : *TraceMaker*

Project Query Artifacts Options Help

iTrustExperiment > Standard Query > Report

Query : *Free Text*
"*Display drug-related interactions for each patient at the time a new order is being placed.*"

<<>> iTrust Source Code

CANDIDATE LINKS UNLIKELY LINKS ID : Find Save

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Document ID:	Document Description:	Confidence Level	Accept
JAVA_14	DrugInteractionAction.java		☐
JAVA_80	DrugInteractionBeanLoader.java		☐
JAVA_164	iTrustException.java		☐
JAVA_129	DrugInteractionDAO.java		☐
JAVA_64	DrugInteractionBean.java		☐
JAVA_197	DrugInteractionValidator.java		☐
JAVA_66	FamilyMemberBean.java		☐
JAVA_71	HCPLinkBean.java		☐
JAVA_60	AdverseEventBean.java		☐
JAVA_163	FormValidationException.java		☐

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Export Data Visualize Line Visualize Column Report Save

WRAP UP

Project dependent, not one size fits it all

Some traceability inherent

Can be extended

THE END

... they traced happily ever after