MARK GREVILLE - 2020-06-19

Is Technical Debt Technical

A practitioners research journey

Research Background

- A September journey to Cork
- Practitioner Research
- Drawing Circles

Finding a topic is like picking a hat

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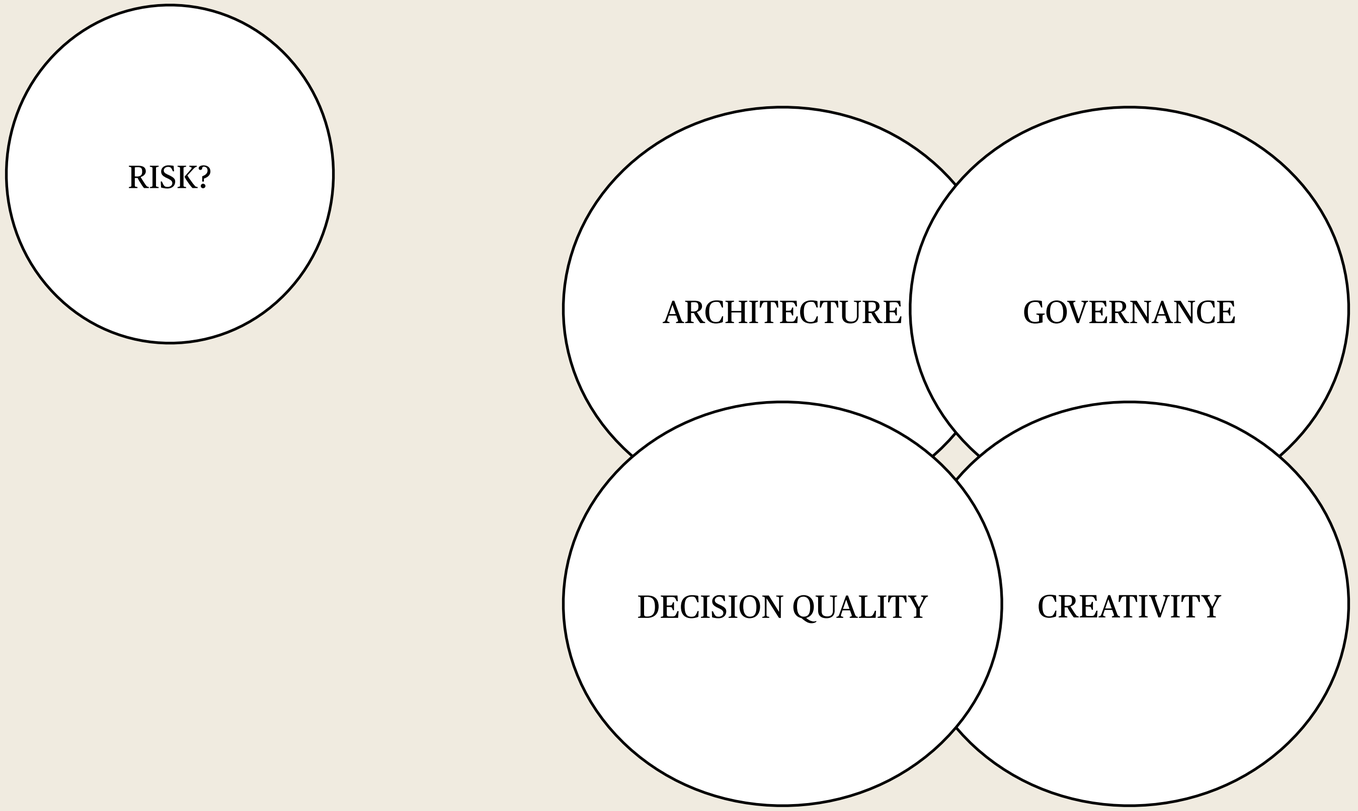
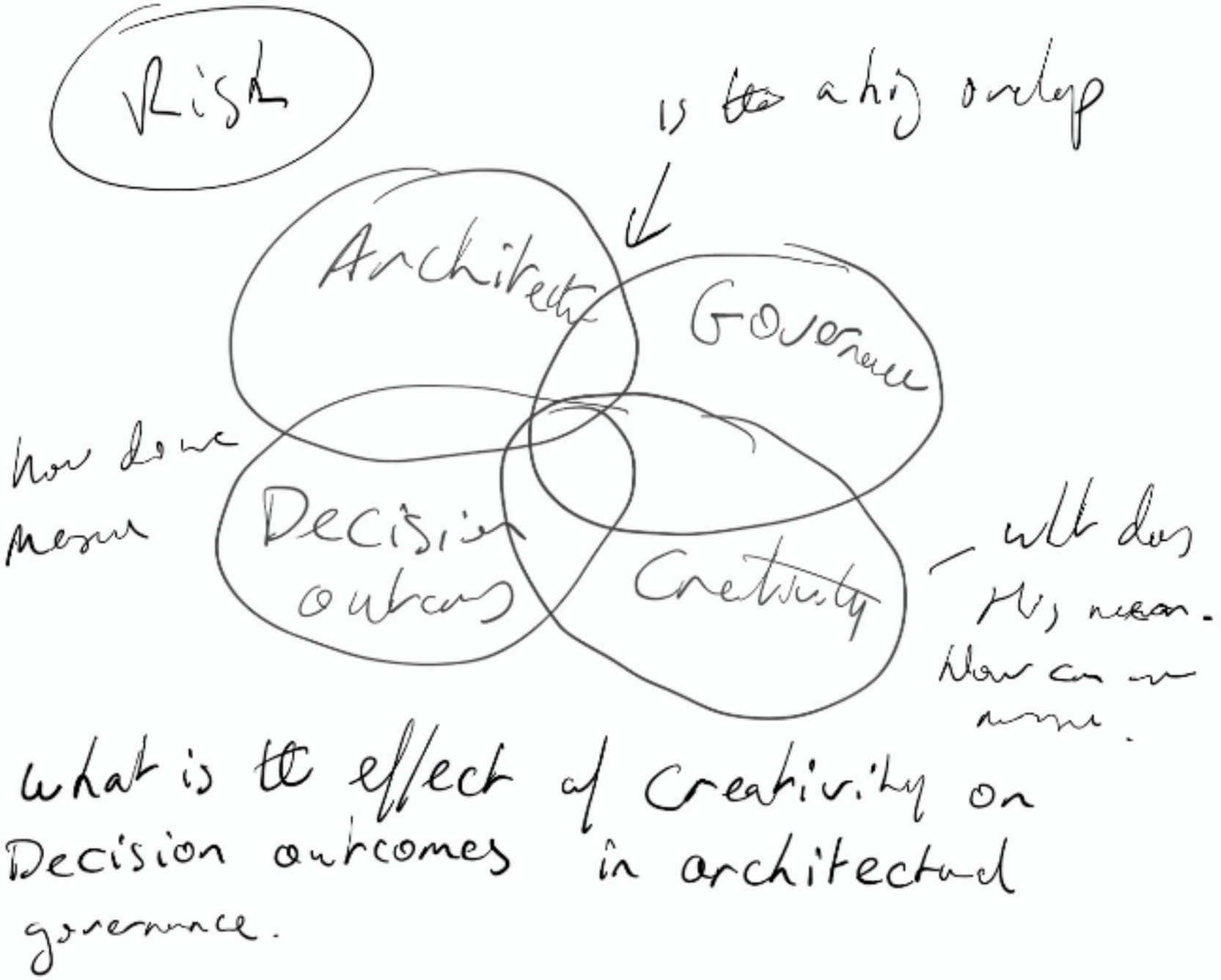
Research Interest



Research Interest - In Reality



Technical Debt

Why?

- Technical Decisions - huge business impact.
- Technical Debt results
- Analysis is primarily Low level code based
- Information Systems - perfectly positioned to shed light on the phenomena

“Shipping first time code is like going into debt. A little debt speeds development so long as it is paid back promptly with a rewrite… The danger occurs when the debt is not repaid. Every minute spent on not-quite-right code counts as interest on that debt. Entire engineering organizations can be brought to a stand-still under the debt load of an unconsolidated implementation, object-oriented or otherwise.”

Ward Cunningham 1992

Gap in Literature

Google Scholar	“Technical Debt”	“Design Debt”	Combined DD + TD		Papers reviewed	Papers discarded	Final paper selection
Top 10 Basket of 8	12	5	17		15	13	2
Top 10 all time	6487	88	6575		89	79	10
Total	6499	93	6592		104	92	12

	“Technical Debt”	“Design Debt”
Google Search	1,120,000	389,000

The technical debt metaphor conceptualizes this tradeoff between short-term and long-term value: taking shortcuts to optimize the delivery of features in the short term incurs debt -

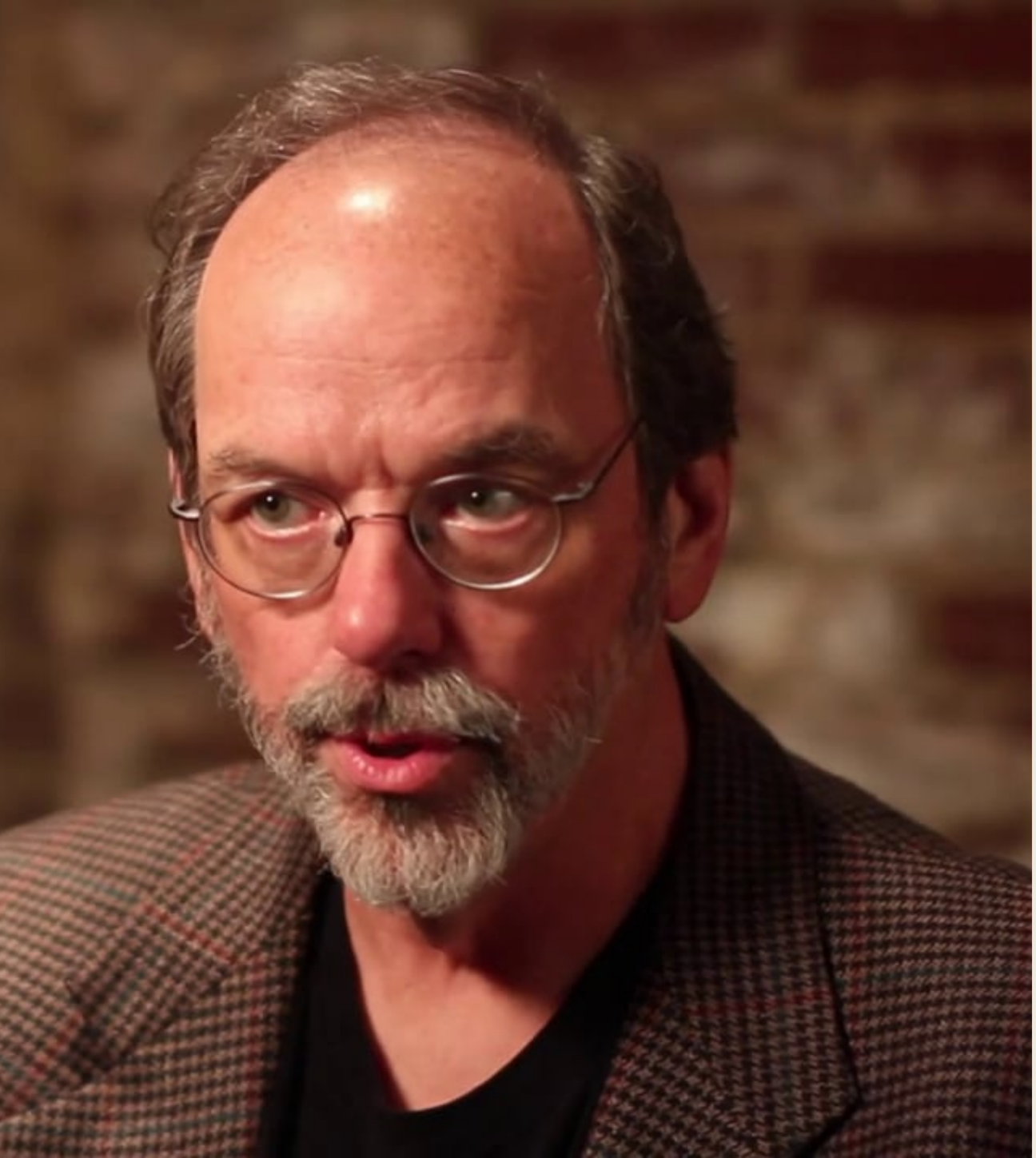
Nord et al. (2012). In search of a metric for managing architectural technical debt. WICSA/ECSA 2012

The idea is that developers sometimes accept compromises in a system in one dimension (e.g., modularity) to meet an urgent demand in some other dimension (e.g., a deadline),

- Brown et al. (2010). Managing technical debt in software-reliant systems. *FoSER 2010*.

Practitioners currently use the term technical debt to mean, broadly, a "shortcut for expediency" and, more specifically, bad code or inadequate refactoring

Ernst et al. (2015). Measure it? Manage it? Ignore it? Software practitioners and technical debt. ESEC/FSE 2015



“That is not it at all,
That is not what I meant, at all.”

T.S. Eliot. 1920 - Prufrock and Other Observations

Is Technical Debt Technical?

Photo by Annie Spratt on Unsplash

Hidden Technical Debt

Technical Debt is born technical, but it grows up in every corner of a business

Typology of TD

Organisational

- Existential
- Reputational
- Security Risk
- Operational Risk

Market

- Slow growth
- Loss of sales
- Customer dissatisfaction
- Becoming a laggard

Financial

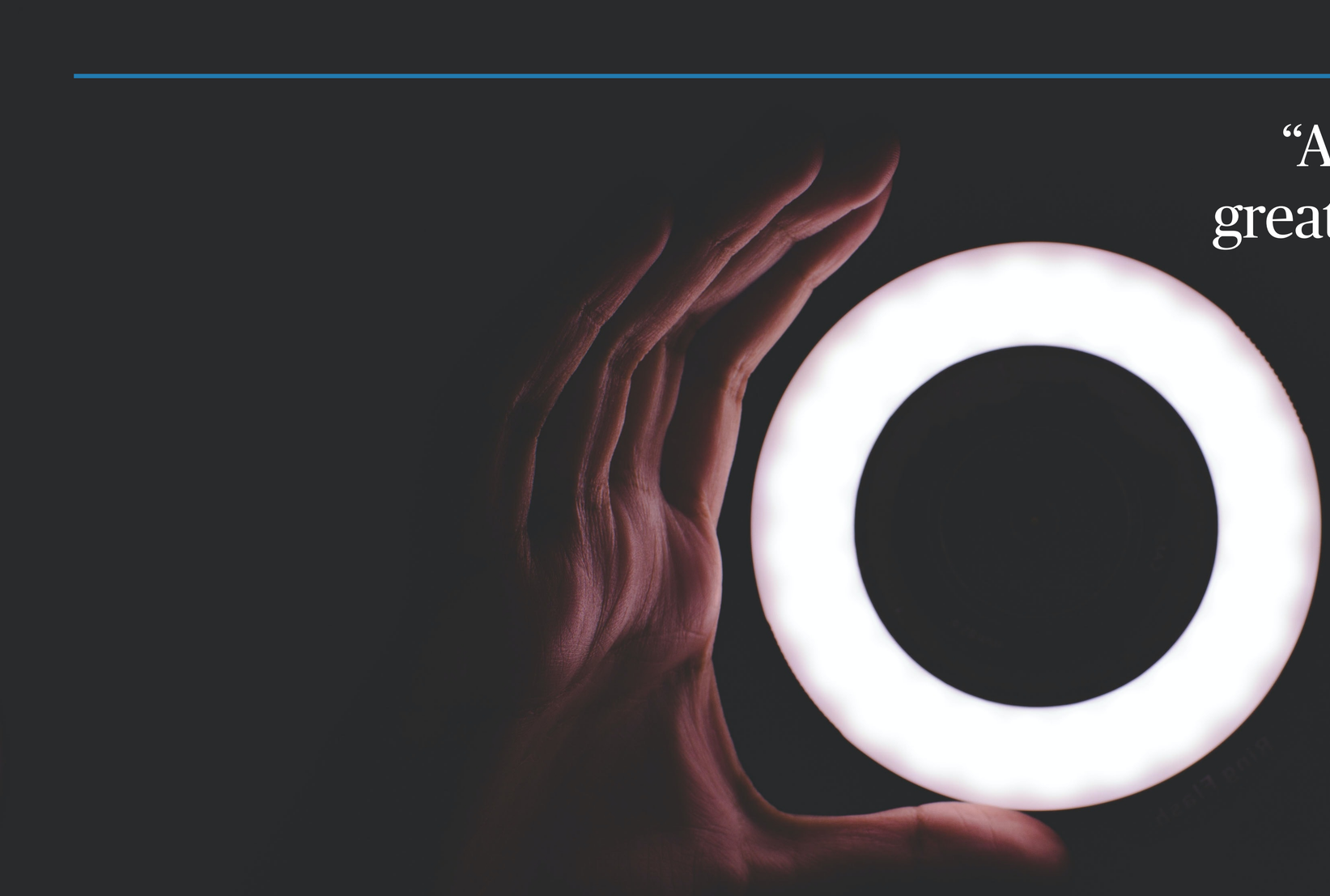
- Exponential growth in cost of change
- Non implementation of tools
- Duplication of effort
- Project abandonment

Staff

- Turnover
- Decreased Productivity

Societal

- Environmental
- Ethical



“Architectural issues are the greatest source of technical debt”

Ernst et al. - 2015 - ESEC/FSE’15 Association for Computing Machinery

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Limitations/Next steps

- Complete the research paper
- Suggest further avenues for research

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