Investigating Technical Debt Folklore

Shedding Some Light on Technical Debt Opinion

Rodrigo O. Spínola
Nico Zazworka
Antonio Vetro’
Carolyn Seaman
Forrest Shull
Abstract

Our rationale is that if any folklore is either widely agreed to or widely disagreed with by a large group of knowledgeable people, then those propositions are more likely to be good candidates for future research.

Folklore can sometimes hide valuable information originating from people’s experience that, if evaluated, could contribute positively to the study of the area.
Research Goal and Questions

• **Goal:** identify and understand what folklore, at this moment, seems to make sense and constitute good candidates for more detailed investigation

• **Research Questions:**
  – Tendency: With which folklore statements did participants agree or disagree?
  – Consensus: How strong is the consensus on each of the folklore statements?
Study Procedure

• Two phases
  – **1:** Identifying TD Folklore Statements
    • search was performed on online websites, blogs, and published papers
    • looked for any statement that might be subject to opinion, or that might be a good candidate for further investigation
    • 14 potential TD folklore statements were selected
Study Procedure

• Two phases
  – 2: Evaluating TD Folklore Statements
    • Online Survey + Paper Survey
    • Participants were invited to indicate their level of agreement for each of TD folklore statements
      
      
      
      1: strongly disagree”                                      “5: strongly agree
      (paper survey – 6: I don’t know)

• 37 subjects answered the survey
• Compared the results
Results and Discussion

• High disagreement with the statement that “All Technical Debt is intentional” – This strongly supports the ongoing line of research into tools that analyze source code for “hidden” and unknown debt.

• Statements #2, #4, #8, #12 and #13 received general agreement and high to medium consensus – which suggests that these are good candidates for further scientific studies

• #2 - Technical debt usually comes from short-term optimizations of time without regard to the long-term effects of the change.
• #4 - Working off debt” can be motivational and good for team morale.
• #8 - If technical debt is not managed effectively, maintenance costs will increase at a rate that will eventually outrun the value it delivers to customers.
• #12 - Technical debt should not be avoided, but managed.
• #13 - Not all technical debt is bad.
Results and Discussion

• Mixed answers (no agreement or disagreement)

- #1 - Accruing technical debt is unavoidable on any non-trivial software project
- #3 - It is very difficult for software developers to see the true effect of the technical debt they are incurring.
- #5 - The root cause of most technical debt is pressure from the customer.
- #6 - Unintentional debt is much more problematic than intentional debt.
- #7 - The individuals choosing to incur technical debt are usually different from those responsible for servicing the debt.
- #9 - No matter what, the cost of fixing technical debt increases the longer it remains in the system.
- #10 - Paying off technical debt doesn’t result in anything the customers or users will see.
- #11 - The biggest problem with technical debt is not its impact on value or earnings, but its impact on predictability.

• This indicate that the statement is not commonly believed, depends on many factors, or that the statement itself is not yet formulated as precisely as needed.
Summary

- A study investigating TD “folklore”
- The authors compiled a list of 14 folklore statements
- We tested the consensus by surveying software practitioners on their agreement with each folklore statement
Conclusion

• The results provide some evidence and motivation for exploring the following issues in TD research:
  – Methods and tools for finding unintentional, and therefore likely hidden, TD in source code and other artifacts
  – Methods and techniques for managing and tracking TD
  – Investigation of the “sweet spot” between an acceptable and healthy level of debt, and a level that is approaching dangerous
  – The relationship between TD and team morale and motivation
  – Exploring the differences, in both cause and effect, between intentional and unintentional TD
THANK YOU!

Questions?