

# *Thinking Craftsman*

## *Daily Habits of Highly Agile Developers*



Pune Agile UnConference

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<http://thinkingcraftsman.in>

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# Disclaimer

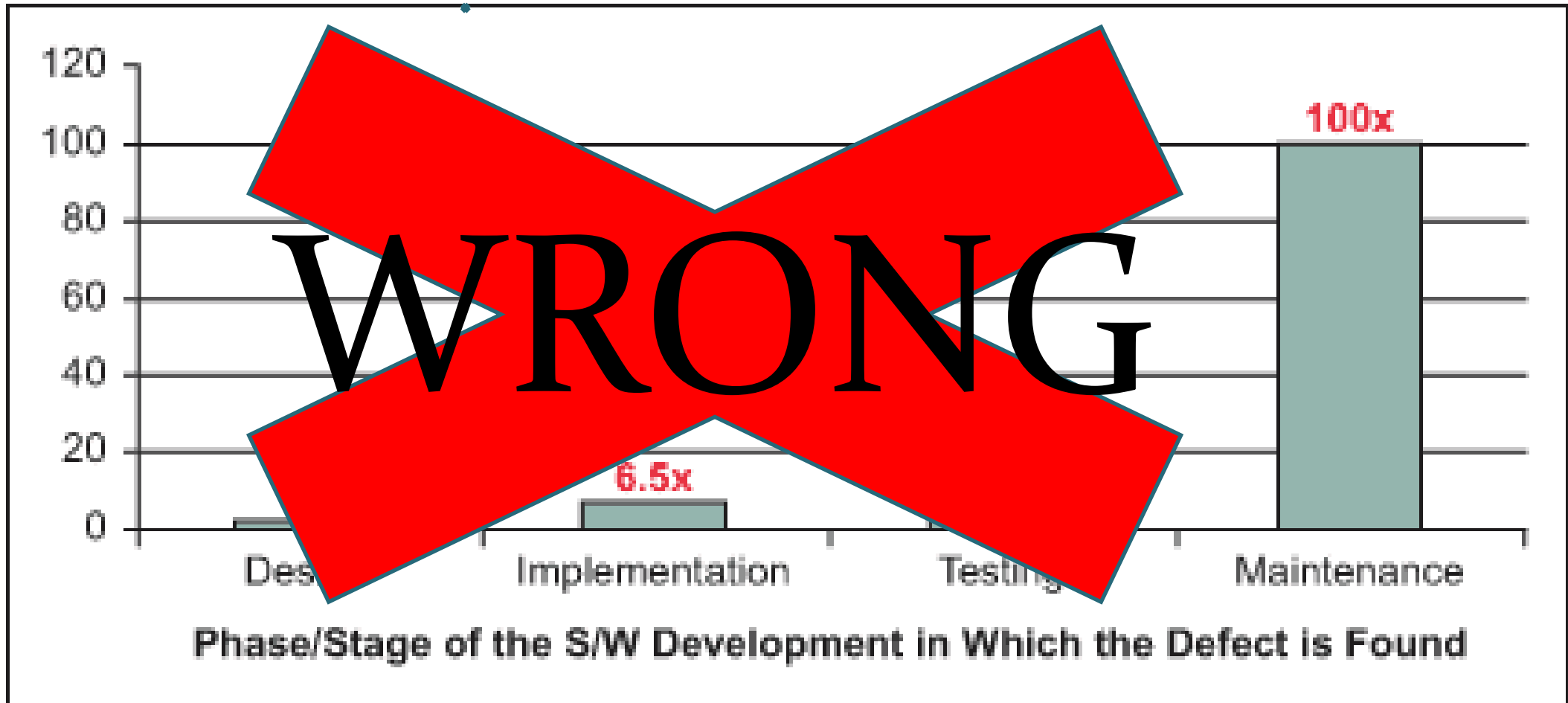
- All the habits/suggestions are backed up theory, anecdotal evidence and research.
- I practice what I preach. I have followed these practices in my coding everyday for last 25 years.
- These are NOT myths, urban legends and common practices followed without thought.
- No animals were harmed in developing these ideas (I am not sure about Developers)

Lets start with a Fundamental Question

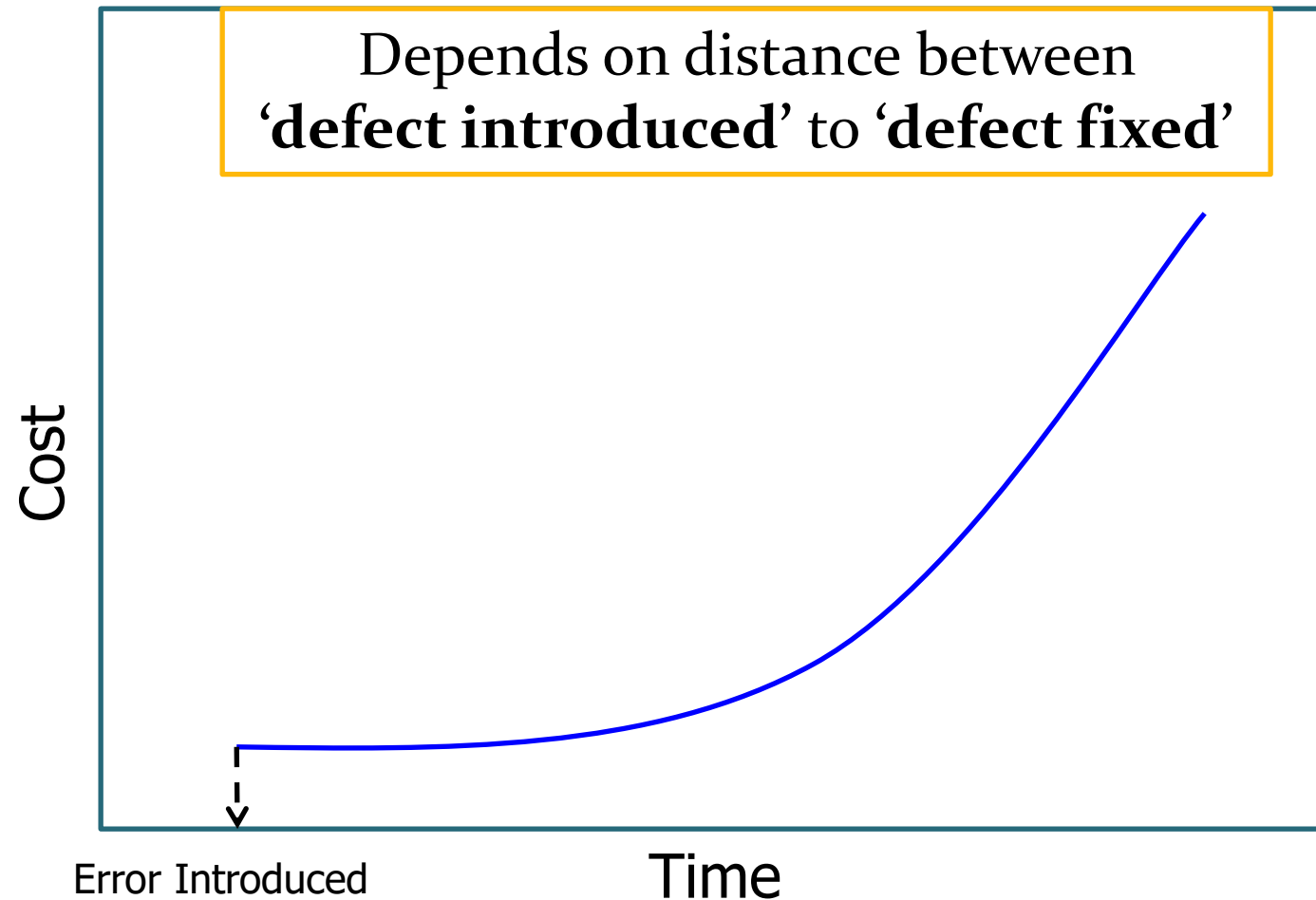


# WHY AGILE WORKS ?

# Relative Cost of Fixing Defects

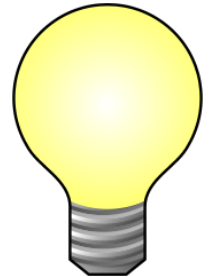


# Cost of Fixing a Defect



Do not fall for the illusion that by preventing errors, you won't have errors to fix. **The truth is, the cost of preventing errors is often far greater than the cost of fixing them.**

- *Ed Catmull, Creativity, Inc.*



# Minimizing Cost of Defects

- Focus on reducing the distance between defect introduced to defect fixed
- Use Techniques to detect defect as quickly as possible (FAIL IMMEDIATELY AND VISIBLY)
- Once the defect detected/reported, FIX IT IMMEDIATELY



# HOW TO FAIL FAST DAILY ?



# How to fail fast daily ?

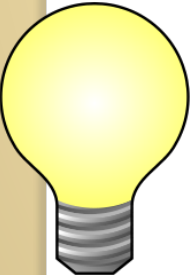
- What are the ways by which you can “reduce the distance” between “coding defect introduced to coding defect detected” especially in newly written code?
  - Of course once the defect is detected you have to fix it immediately to get real benefits
- What are the ways by which you can make it easy to ‘detect newly introduced defect’

# CODE WITH ZERO WARNING AND ZERO STATIC ANALYSIS ERRORS

# Compiler Warnings and Static Analysis Errors

- What is warning level in your module ?
- How many warnings are there in your code today ?
- Do you fix warnings immediately ?
- Warnings in a newly written code has *'extremely low distance of defect introduced to defected detected'* and hence *extremely low cost of fixing the defect.*

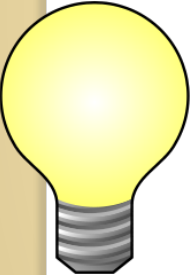
# Compiler Warnings

- Every generation of compiler improves on potential problems detection.
- A Piece of Code with Zero Warnings usually has extremely low incidences of coding bugs.
-  Compiler Warnings and Static Analysis Errors **MUST BE FIXED WITHIN A DAY**



# COMMIT EARLY AND COMMIT OFTEN

# Commit Your Code Changes Frequently

- Commit your code changes ‘frequently’
  - At least twice a day
  - 10 times a day or more is perfectly fine
-  Key Purpose of Version Control is allow you quickly recover from mistakes.
- DO NOT INSIST MANUALLY REVIEWING EVERY CODE COMMIT

# MANUAL CODE REVIEWS ARE OVERRATED

# Minimize Manual Code Reviews

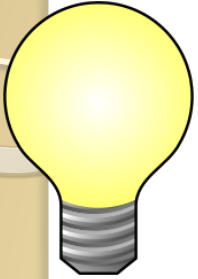
- Code Review checklists DON'T work
- Typical Manual Code Review process results in 'FAIL LATER'.





# SMALL FUNCTIONS

# Small Functions



- Entire function should be visible without any Page UP/Down
  - Approx. 25 lines (max)
- Because entire function is visible it is much more easier to understand impact of newly added code.
  - Automatically reduces code complexity
  - Reduces number of returns in a function (makes easier to write error handling)
  - Reduces code duplication
  - Properly Naming function results in easier 'debugging' as logic is automatically documented in sequence of function names

# Small Function

- In 1950, G. A. Miller's experimental results suggested that humans are generally able to hold ***only seven plus or minus two units of information*** in short-term memory.
- These limits impact the debugging capacity/skills of developers.
  - For developer it is difficult to analyse the impact a change if code complexity is greater than 7.
  - Small functions automatically limit the complexity

- Great Code is like a Beautiful Zen Garden. You have to do small things (like weeding and watering) everyday to get beautiful garden.
- You have to do these small things ‘unconsciously’. It should become habit.
- **Try it for 1 month and then for 3 month. And see the difference in your own code.**

# Contact

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