

# Workshop #7

## What Does Technical Debt Mean at a System Level?

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Lockheed Martin Corporation  
PSM User's Group Conference  
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# Technical Debt Workshop for Systems Engineering

## Agenda

- Management of Technical Debt- Steve McConnell
- Technical Debt Observations- Jim Highsmith
- Types of Debt- Chris Sterling
- Break
- Workshop Exercise # 1-Identifying Technical Debt
- Management of Architectural Debt- Ipek Ozkapa
- Workshop Exercise # 2- Architecture & Technical Debt
- Workshop Exercise # 3- System Design & Technical Debt
- Workshop Summary/Action Plan

# Technical Debt

“Management of Technical Debt”, Steve McConnell

## Summary of Kinds of Debt

### Non Debt

Features backlog, deferred features, cut features, and so on. Not all incomplete work is debt. These are not debt because they do not require interest payments

### Debt

I. **Unintentional Debt.** Debt incurred unintentionally due to low quality

II. **Intentional Debt.** Debt incurred intentionally

II.A **Short-Term Debt.** Short Term Debt, usually incurred reactively, for tactical reasons

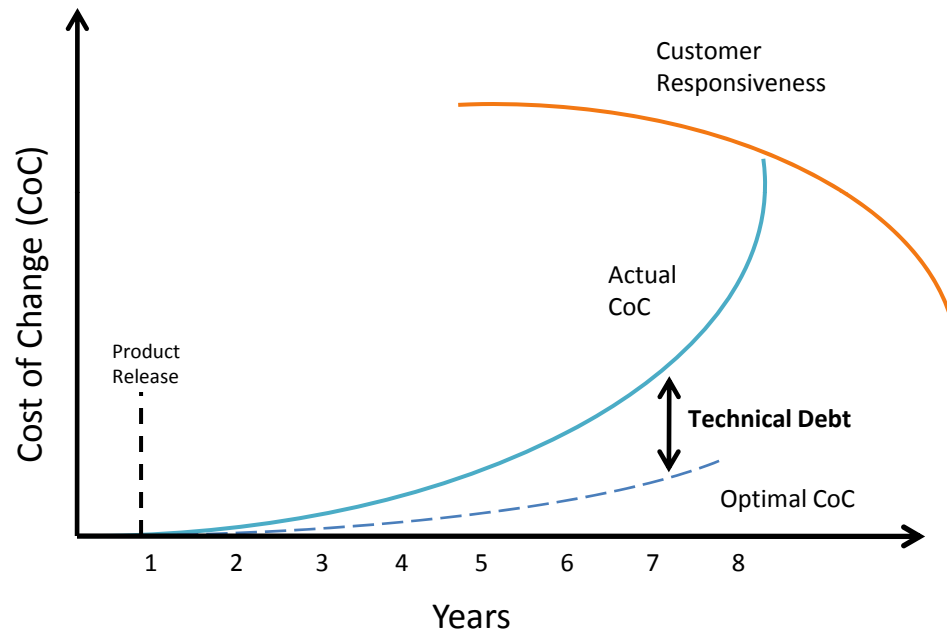
II.A.1 **Focused Short Term Debt.** Individually identifiable shortcuts(like a car loan)

II.A.2 **Unfocused Short-Term Debt.** Numerous tiny shortcuts(like a credit card)

II.B **Long-Term Debt.** Long-term debt, usually incurred proactively, for strategic reasons

# Technical Debt Observations

“Agile Project Management”, Jim Highsmith, second edition



# Types Debt

“Managing Software Debt: Building for Inevitable Change”, Chris Sterling

- **Technical Debt**
  - These are activities that a team or team members choose not to do well now and will impede future development if left undone
- **Quality Debt**
  - There is a diminishing ability to verify the functional and technical quality of software
- **Configuration Management Debt**
  - Integration and release management becomes more risky, complex and error-prone
- **Design Debt**
  - The cost of adding features is increasing toward the point where it is more than the cost of writing from scratch.
- **Platform Debt**
  - The availability of people to work on software changes is becoming limited or cost-prohibitive.

# Technical Debt Workshop

## Action Plan

- ❖ White paper on Technical Debt applicability to Systems
  - Outline
  - Describe Technical Debt in Systems Engineering Vernacular
  - Identify sources and methods of measurement of Technical Debt within the Systems Engineering Life Cycle
    - Systems Analysis
    - Systems Architecture
    - Systems Design
    - Systems Build
    - Systems Integration & Test
  - Identify of implication of System Level Technical Debt to Software and Hardware Elements