

# Addressing Technical Debt Through Collaboration

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*TechDebt 2025 – co-located with ICSE 2025*

# Who are we?

Steven Fraser  
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- Research center director
- Software best practices
- Open innovation
- Strategic tech transfer
- University-company partnerships
- Engineering learning programs

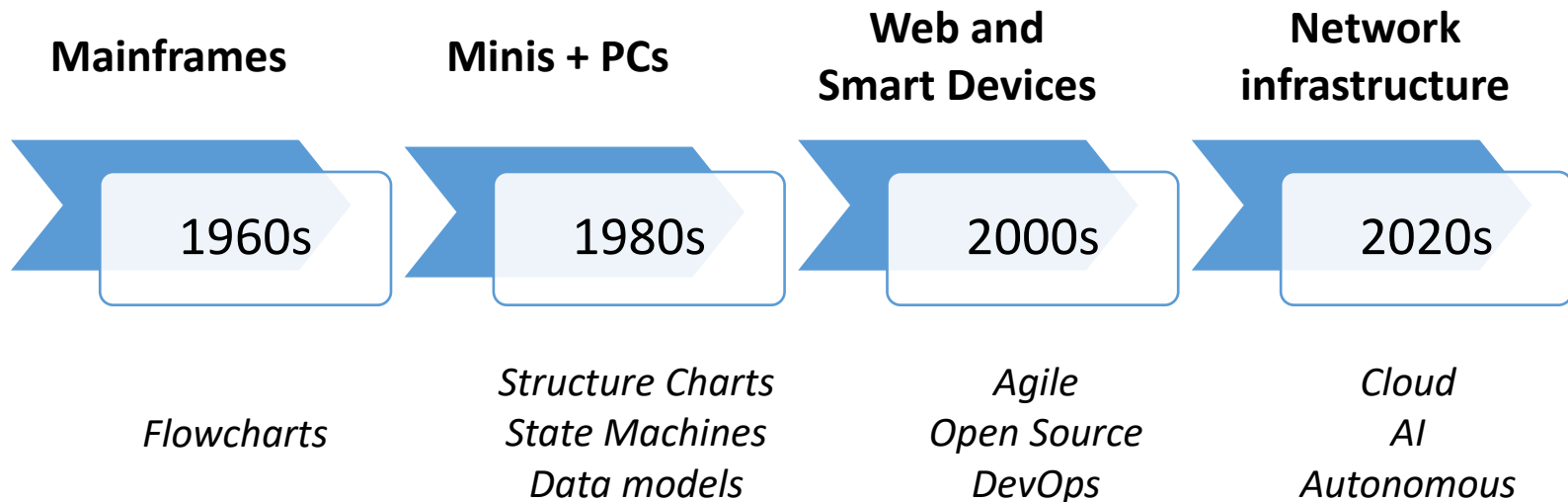
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- Tech transfer specialist
- Agile software advocate
- Requirements modeling
- Design patterns
- Software quality
- Legacy software techniques

# Evolution of Software Products

- Hardware platforms change
- Software “lives” platform-to-platform



# No Silver Bullet

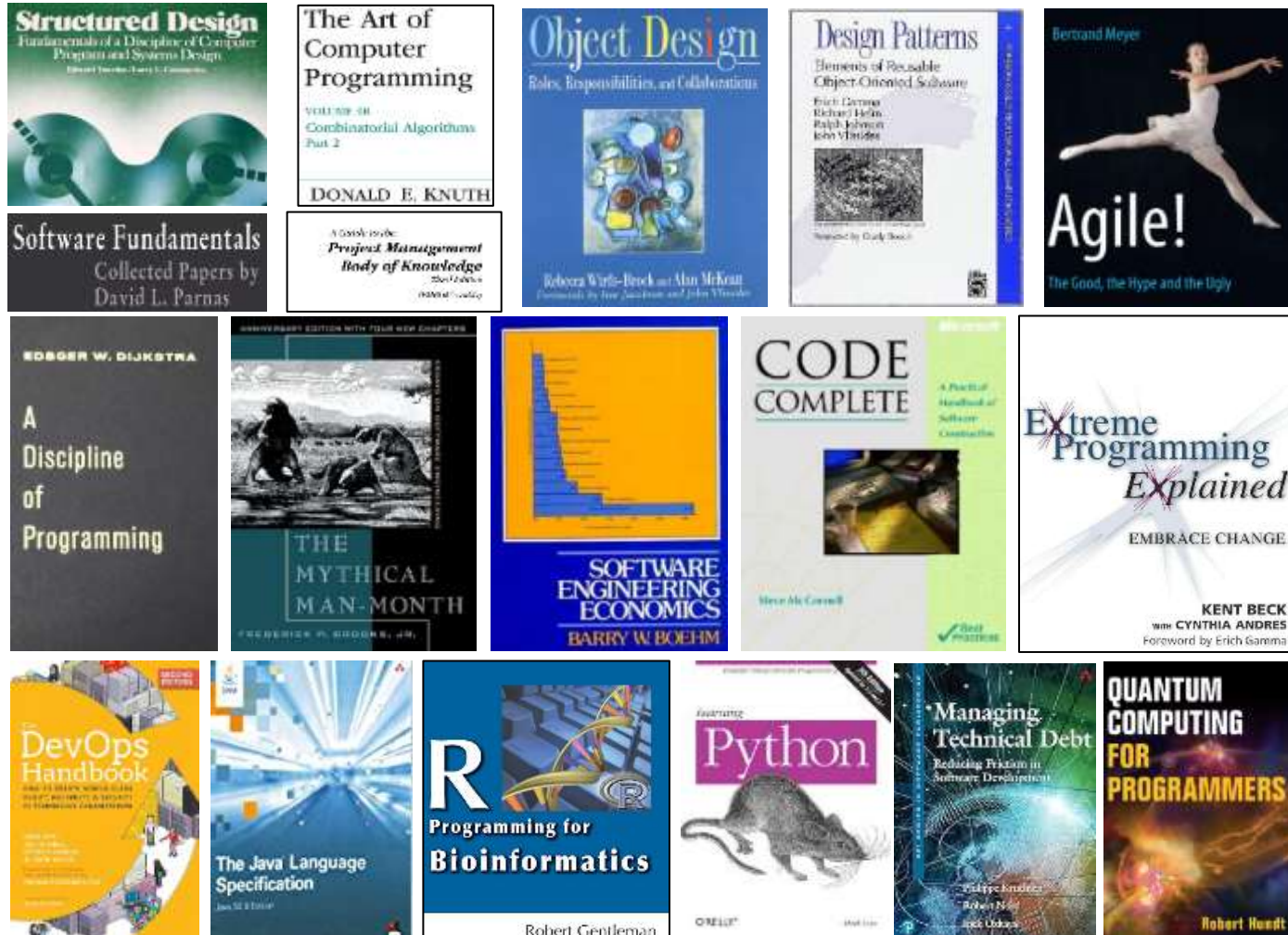
Fred Brooks's seminal paper:

- Debates accidental versus essential complexity
- Observes no easy answers and the challenge and invisibility of complexity
- Proposes “promising approaches”
- Brooks (2007): “There is no other field [software] where people do less study of other people’s work”



*Computer 20, 4 (April 1987), pp. 10-19*

# Many Ideas Compete for Our Interest



# Technical Debt?

- Technical Debt stems from technical and non-technical issues
- Debt can increase due to:
  - Changing system requirements
  - Defect repair (“bug fixes”) may introduce new defects
  - Staff turnover degrades system “knowledge”
  - Focus on revenue growth may impact system stability



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# Collaborative or Competitive?

## Collaboration

- Working together
- Shared resources
- “Open” network



## Competition

- Working apart
- Limited resources
- “Closed” network



*Are you a Collaborative Leader? Herminia Ibarra and Morten Hansen, HBR, Jul - Aug 2011.*

# Investing in Collaboration to Reduce Tech Debt



## Why?

- Share expertise
- Incubate resources
- Catalyze community
- Inspire innovation



## How?

- Inspire curiosity
- Coordinate communication
- Support community learning





# Community and Team Focused Connections

## Internal Coaching Networks

- Develop skills beyond training



## Internal Design Workshops

- Learn by designing together



# Design Forums



Share best practices



Learn from failure



Make connections



# Collaboration Catalysts for Connections & Learning

**New Ideas**



**Thinking**



**Communication**



**Best Practices**



**Exploration**



# Research on virtual and hybrid collaboration

Preference = in-person communications

In a global context

- Virtual and hybrid are essential
- Developers benefit from “increased access”

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For conferences, it is the same...

- Preference for “in-person”
- but hybrid and virtual are essential for increased access



<https://cacm.acm.org/opinion/virtual-and-the-future-of-conferences/>

<https://manclswx.com/survey2024.html>

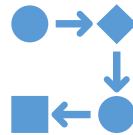
2022 survey	36% prefer in-person, 54% hybrid, 9% virtual
2024 survey	52% prefer in-person, 33% hybrid, 9% virtual

# Summary



## Engage

Connect



## Influence

Collaborate  
Communicate  
Coordinate



## Learn

Skills  
Go Beyond Code