Requirements Practices in Software Startups

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Big Picture

- Startups are rapidly emerging
    - 50 million per year

- 80% failure rate
    - No market
    - Lack of funding
    - Bad teamwork and practices

- Requirements practices

Outline

- Background

- The Evolution of Requirements Practices in Software Startups

- Observations from a Software Startup Chief Technology Officer (CTO)

- Conclusion

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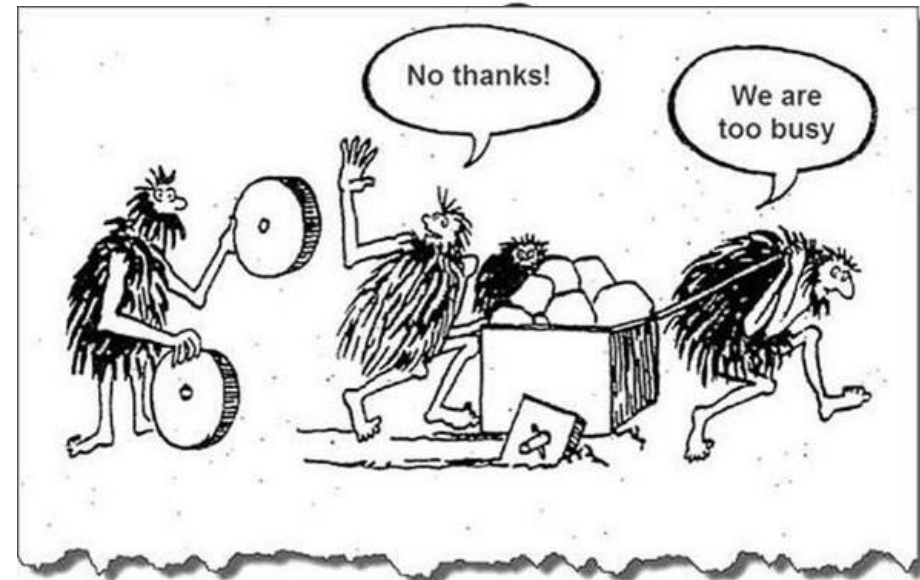
Software Startups

- What is a software startup?
  - Less than 10 years old
  - Less than 60 employees
  - Extreme uncertainty

Software Requirements

- Establish the software product's needs
  - Example: Bank application needs a "View Balance" feature
  - Stakeholders:
    - CEO, CTO, Software developers
    - Clients

Requirements Practices

- Requirements Artifacts

- Knowledge Management

- Requirements-Related Roles
  - CEO, CTO, Developers, QA

- Planning
  - Estimate difficulty and prioritize
  - Assign to developers
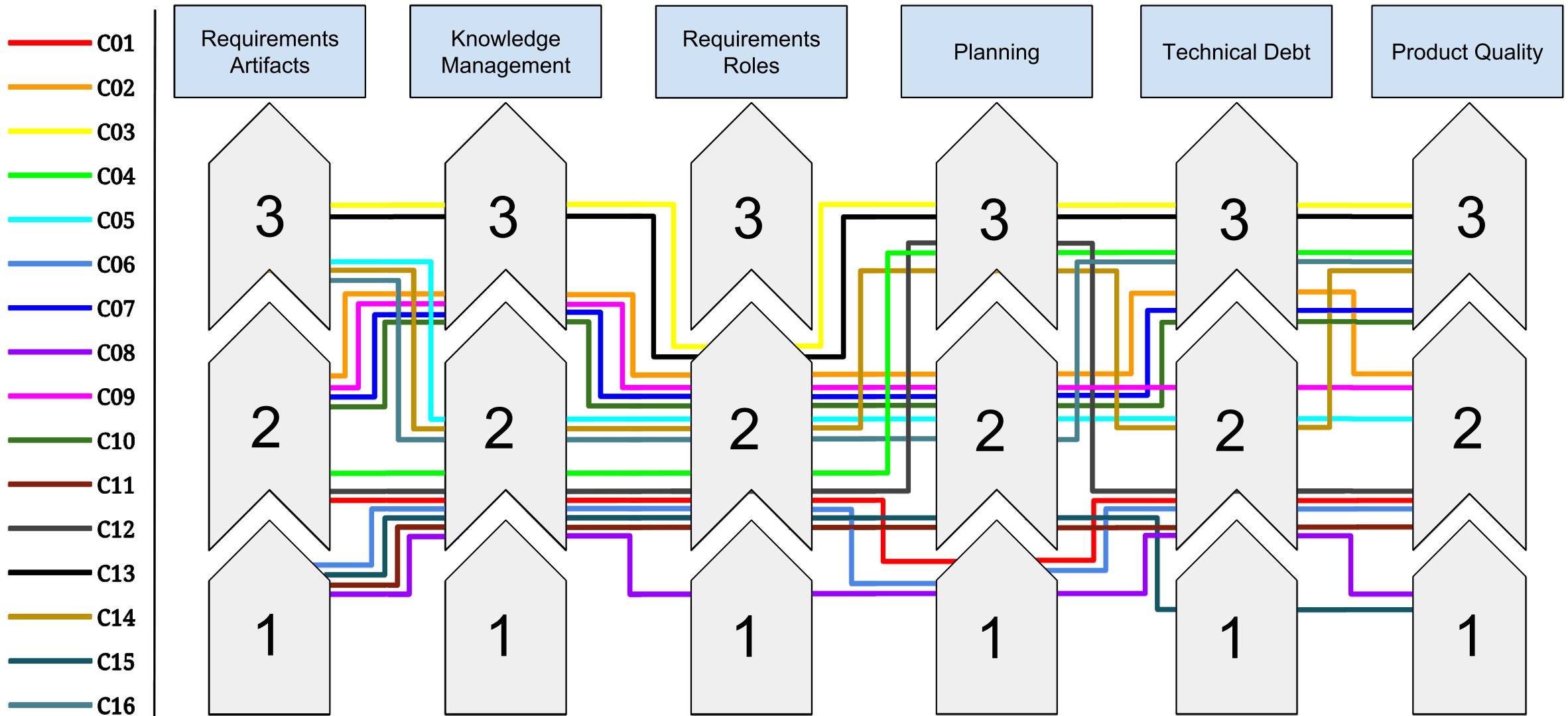
- Technical Debt

- Product Quality

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Research Methods

- Studied 16 startups in Europe
  - Interviews and attending meetings

- Three Phases of Evolution
  1. Informal and unstructured
  2. Semi-formal and semi-structured
  3. Formal and structured

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- **Observations from a Software Startup Chief Technology Officer (CTO)**
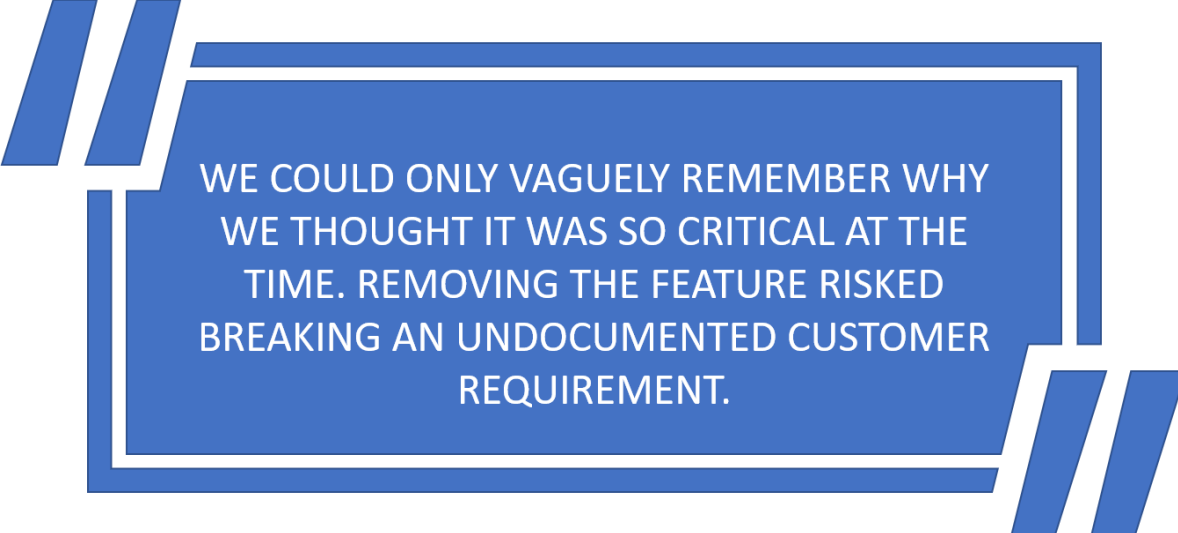
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Company & Research Methods

- Andrew J. Ko

- Documented everyday happenings

- Study startup evolution and developer behavior without bias
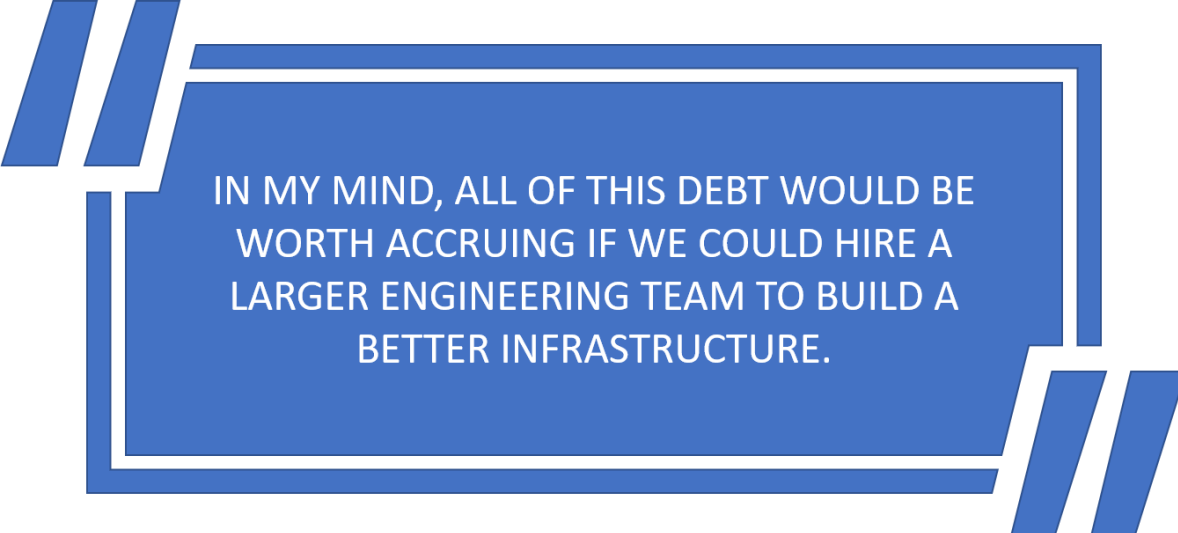
Evolution of Requirements Practices

- **Requirements Artifacts**
  1. None
  2. Based on client feedback

- **Knowledge Management**
  1. None
  2. Informal and semi-structured

- **Requirements-Related Roles**
  1. Everyone does everything
  2. Somewhat specific

> WE COULD ONLY VAGUELY REMEMBER WHY WE THOUGHT IT WAS SO CRITICAL AT THE TIME. REMOVING THE FEATURE RISKED BREAKING AN UNDOCUMENTED CUSTOMER REQUIREMENT.

Evolution of Requirements Practices

- Planning
  1. None
  2. Based on feedback

- Technical Debt
  1. Known and accepted
  2. Tracked and addressed

- Product Quality
  1. Not a concern
  2. Somewhat important

> IN MY MIND, ALL OF THIS DEBT WOULD BE WORTH ACCRUING IF WE COULD HIRE A LARGER ENGINEERING TEAM TO BUILD A BETTER INFRASTRUCTURE.

Wrap-up

- Second phase of evolution for every practice
  - Never entered third phase

- 3 years old, 12 employees
  - Stable

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Conclusion

- Evolution of practices is not necessary for success

- Evolution of practices lead to company improvements
    - Better product
    - Better work environment

Questions

References

- Catarina Gralha, Daniela Damian, Anthony I. (Tony) Wasserman, Miguel Goulão, and João Araújo. 2018. The evolution of requirements practices in software startups. In Proceedings of the 40th International Conference on Software Engineering (ICSE '18). ACM, New York, NY, USA, 823-833.

- Andrew J. Ko. 2017. A three-year participant observation of software startup software evolution. In Proceedings of the 39th International Conference on Software Engineering: Software Engineering in Practice Track (ICSE-SEIP '17). IEEE Press, Piscataway, NJ, USA, 3-12.