Software Center Reporting Workshop

SWC27 (RE for Large-Scale Agile System Development)

Eric Knauss, Jennifer Horkoff, Jan-Philipp Steghöfer,
Rashidah Kasauli, Salome Maro, Rebekka Wohlrab

Dec 5, 2019

Outline

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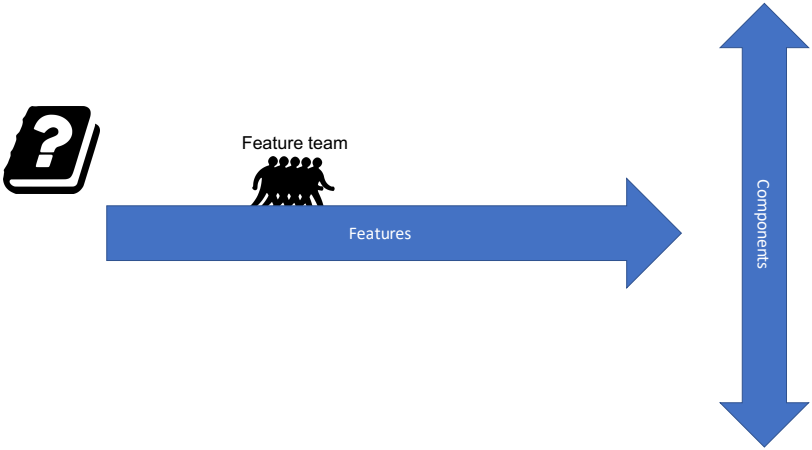
The narrative

An artificial case



[Knauss, 2019]

The narrative

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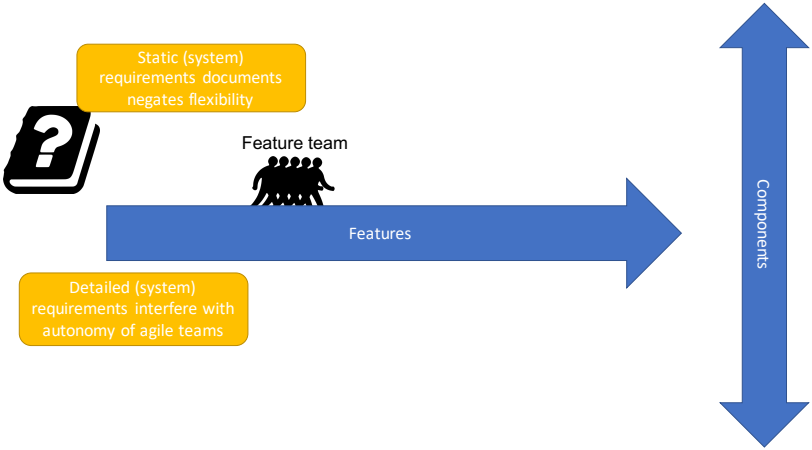

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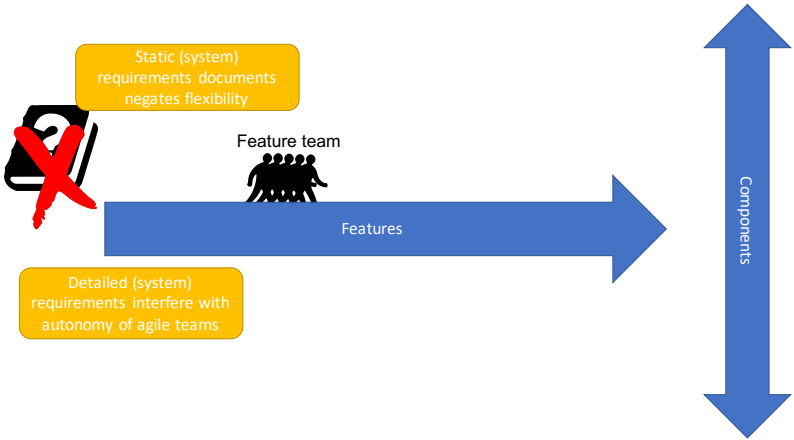
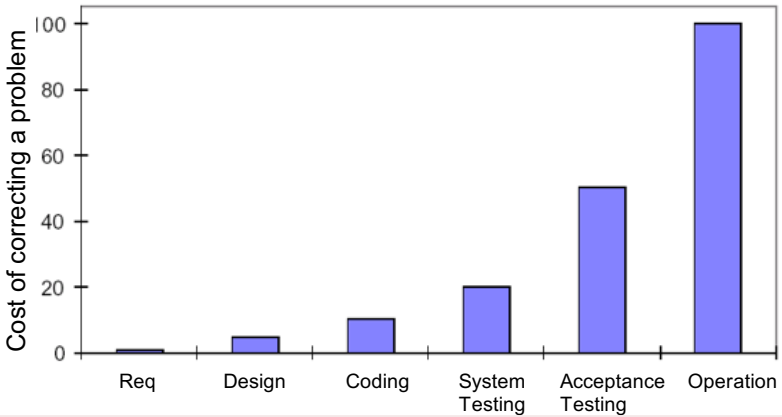


[Knauss, 2019]

Do we still need RE?

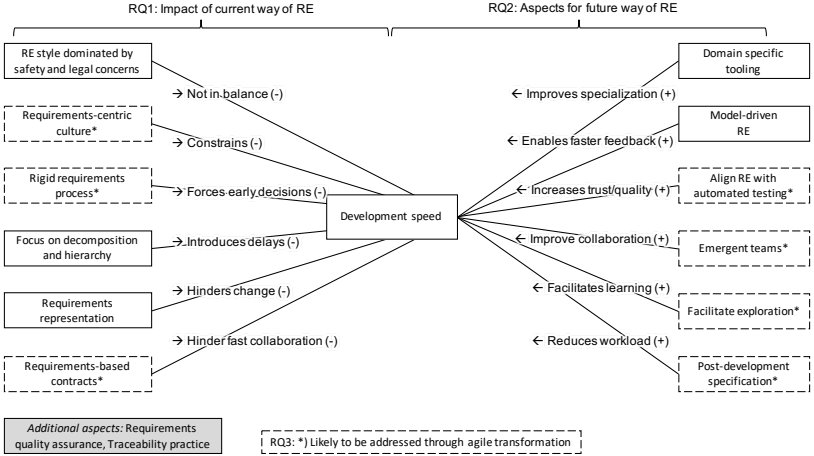
Established RE literature



Less and less convincing to agile teams.

Do we still need RE?

Managers of automotive manufacturers



[Ågren et al., 2019]

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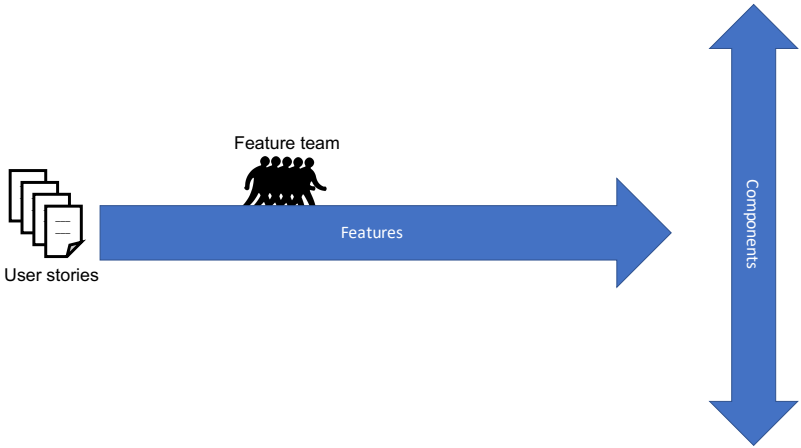

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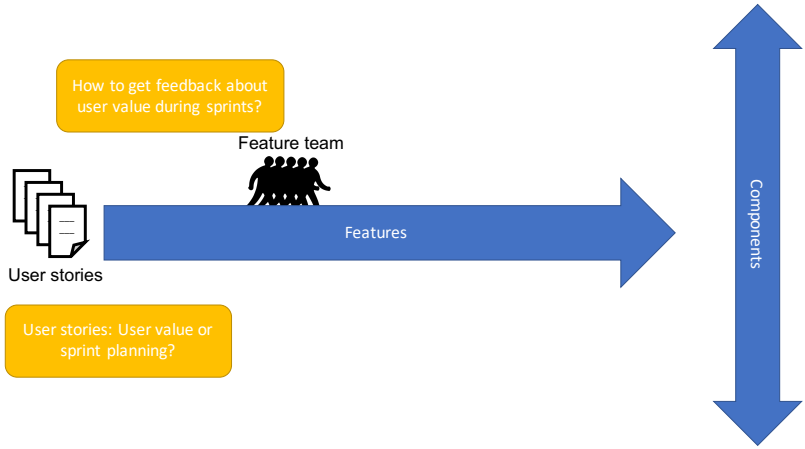

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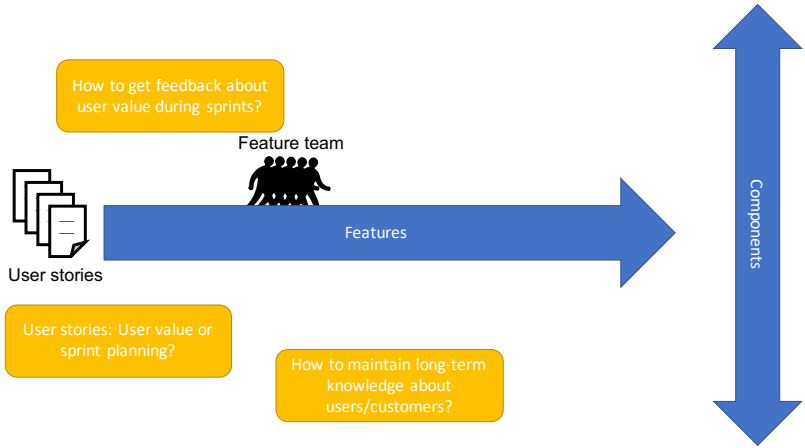

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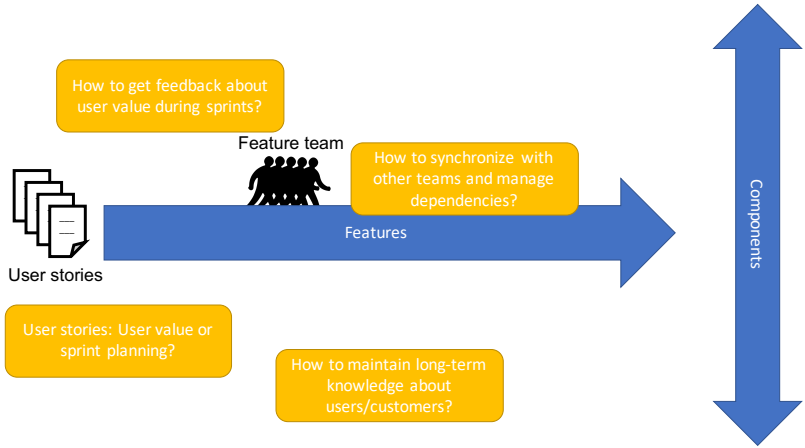

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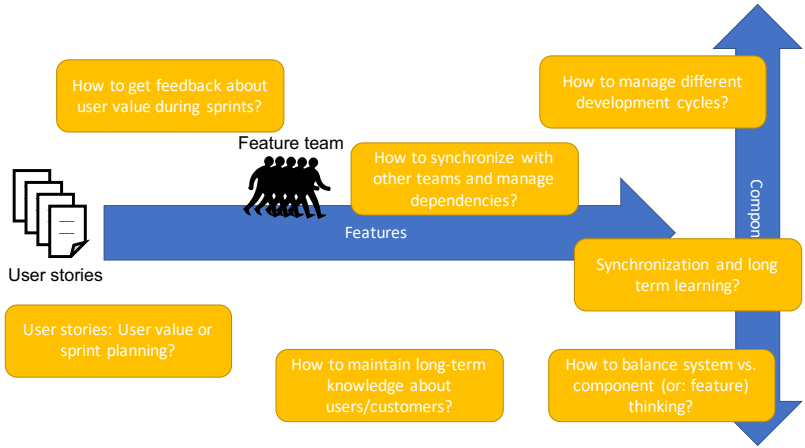
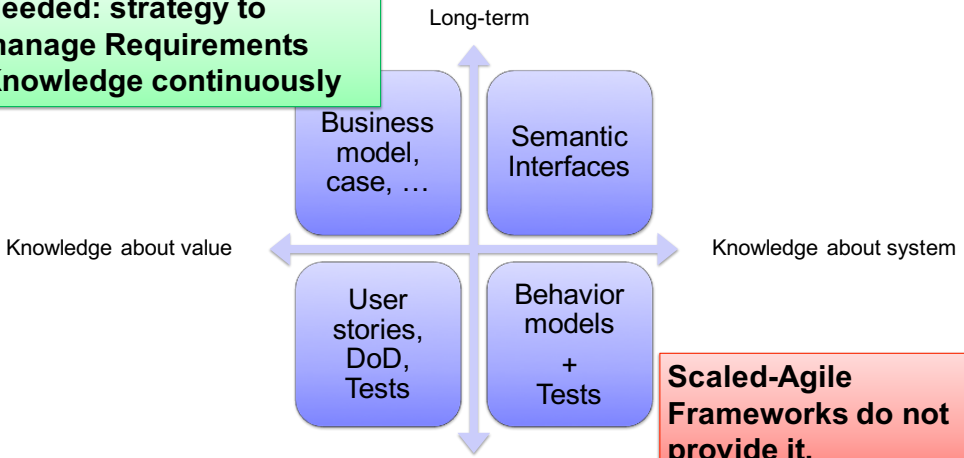


[Knauss, 2019]

The narrative

Relation to Scaled Agile / RE

Needed: strategy to manage Requirements Knowledge continuously



Scaled-Agile Frameworks do not provide it.

[Knauss et al., 2017]

- Customer value
  - Change of the product
  - promised features, functionality, quality, configuration, or documentation
  - Provides business value to customer
  - Give customer ability to influence
  - Can differ between customers
- Product value
  - Something the customer cannot see
- Market value: Generalize from individual customer

"If we add something that the customer wants, but it shall be a change in the product."
– System tester

"[...] also building a relationship and getting them involved. When we start we give them a demo. Then we break down things into small user stories. Then we discuss the release plan, priorities and the user stories. So they can influence and participate in the discussion."
– Product owner

"Different customers, they value different things."
– Function tester

"Product value can improve development environment and indirectly improve customer value."
– System tester

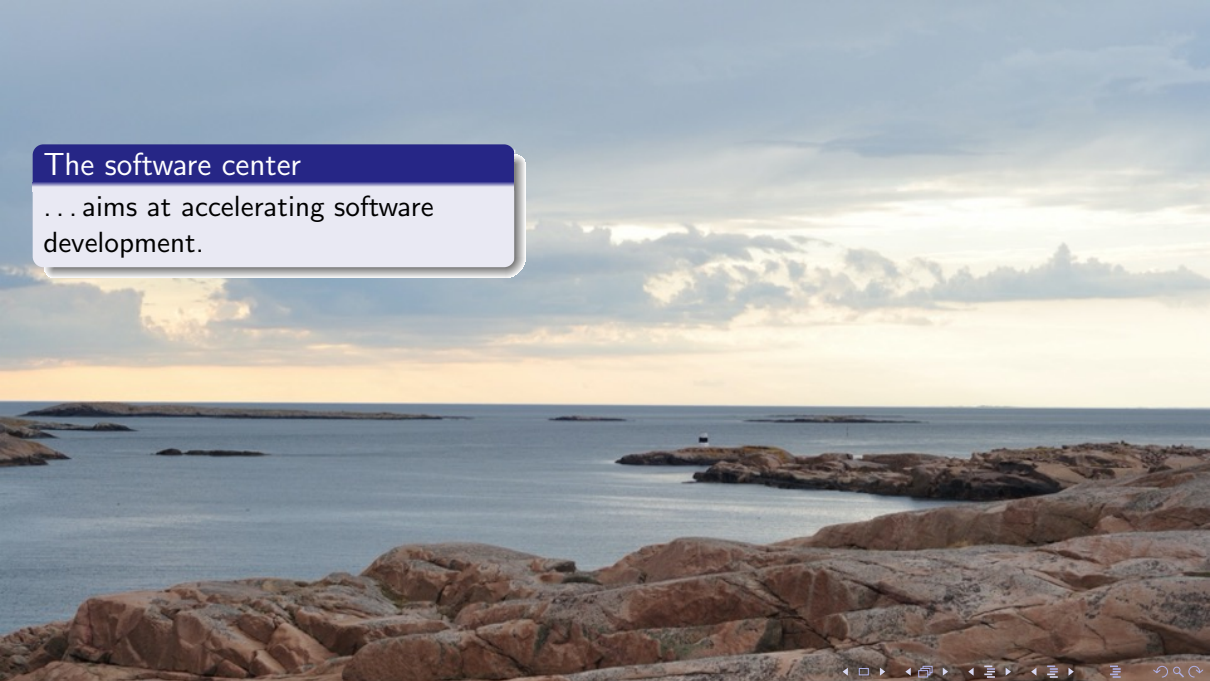
"We have a lot of discussions on having customer specific solutions. For the product, it is not always adding value, but instead introduces complexity. So we spend a lot of time to abstract and prioritize so we do not blindly do what one customer says."
– Function tester

[Kasauli et al., 2017a]

Summary with respect to Challenges

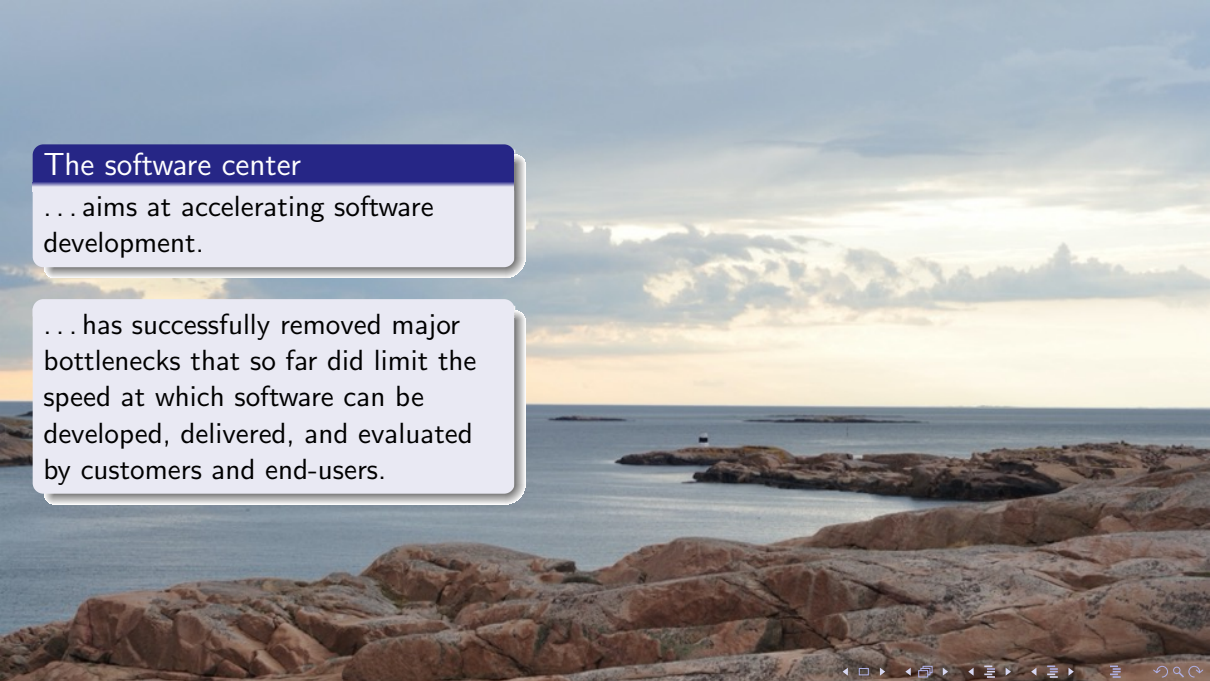
- Challenges of RE for large-scale agile system development relate to communication and knowledge management.
- Challenges relate to two areas of requirements knowledge: User Value and System Understanding.
- Challenges relate to the interplay of stakeholders from three domains: customer, development, and integration & testing.
- In order to yield their full benefits, agile practices and a holistic system requirements model must be better aligned.

[Kasauli et al., 2017b]



The software center

. . . aims at accelerating software development.



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SWC #27: RE for Large-Scale Agile System Development

We have identified the ability to manage requirements and related knowledge in continuous software engineering as a limiting factor.

Outline

Towards solutions

- Textual requirements in git:
  Empower Feature teams to manage system requirements [Knauss et al., 2018]
- Safety critical systems as a case:
  What is the maximum on requirements documentation we may need?
  [Kasauli et al., 2018, Steghöfer et al., 2019]
- Boundary objects:
  What is the minimum on requirements documentation we may need?
  [Wohlrab et al., 2019b]
- Collaborative traceability:
  How to manage traceability collaboratively in large-scale agile? [Wohlrab et al., 2019a]

Boundary Objects

- Boundary objects have different meanings in different social worlds.
- But their structure is common enough to more than one world (recognizable, translation).
- Creation and management of boundary objects is key for coherence across intersecting social worlds (Star1989).

Key properties

– Interpretive flexibility;
– Identity preservation;
– Abstraction/concreteness;
– Stability;
– Modularity;
– Visualization.

[Wohlrab et al., 2019b]

Outline

We aim for a kickoff workshop in Week 4 or 5 in Sprint 18. Contact: eric.knauss@cse.gu.se

Mid-term

- Guidelines to identify minimal set of mission critical boundary objects
- Guidelines for establishing collaborative traceability
- Guidelines for defining traceability information models for large-scale agile system development

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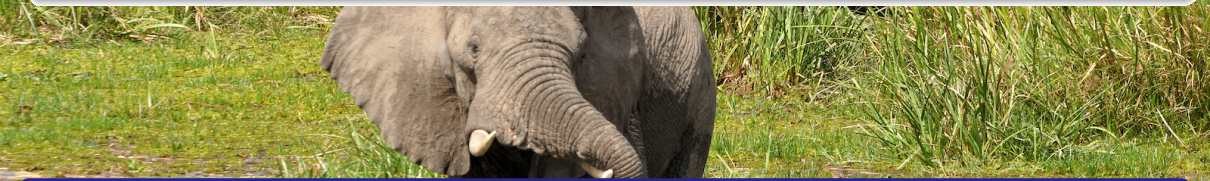

Later on

- Guidelines for large-scale agile development of safety-critical systems
- Guidelines for RE for AI-intense systems
- Better bridge to product management and customer value

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Tool Demo.

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