

## 9<sup>th</sup> International Advanced School of Empirical Software Engineering

September 21, 2011 - Banff, Alberta, Canada

### Evidence-based Decision-Support in Software Engineering



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## Welcome

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### ■ Presenters

- Andreas Jedlitschka, Fraunhofer IESE, Germany
- Dietmar Pfahl, Lund University, Sweden

### ■ Speakers

- Guenther Ruhe, University of Calgary, Canada
  - Product release and version management
- Stefan Wagner, University of Stuttgart, Germany
  - Project management
- Per Runeson, Lund University, Sweden
  - Strategic and operational decision support in quality management



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## Agenda

09:15 - 10:00 Introduction by Andreas Jedlitschka & Dietmar Pfahl

10:00 - 10:30 Coffee break	MB Foyer & Lounge
10:30 - 12:00 Software product management by Guenther Ruhe	
12:00 - 13:30 Lunch	Vista Dining Room
13:30 - 15:00 Software project management by Stefan Wagner	
15:00 - 15:30 Coffee break	MB Foyer & Lounge
15:30 - 17:00 Software quality management by Per Runeson	
17:00 - 17:15 Wrap up	

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## Introduction

- What is the topic?
- What is our motivation?
- What is the relation to ESEIW?
- What should you take home?

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## Decision-Making

Contradicting positions (e.g. Gut feeling <-> systematic approach)

Examples:

- Buying refreshments (quite some influence from outside)
- Buying new technical device (might be following a structured approach)
- Chess (depending on level of experience) (limited influence)
- Limited time, high criticality

Problem: Decision-making is a complex process with several (unknown) influencing factors, which might be important and relevant or not.

→ Empiricism shall provide objective support for decision-making.

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## SE Decisions – Examples /1

From whom to elicit requirements?

How to prioritize requirements?

What requirements to put in next release?

How to describe / specify requirements?

Which tool to use?

How / what to inspect?

...

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## SE Decisions – Examples /2

When to refactor?

What to refactor?

How to refactor?

What coding standards to use?

How (much) to comment? ...

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## SE Decisions – Examples /3

When to write test cases?

When to stop testing?

What tool support for executing unit, integration, regression ... testing?

What tool support for managing test cases / data?

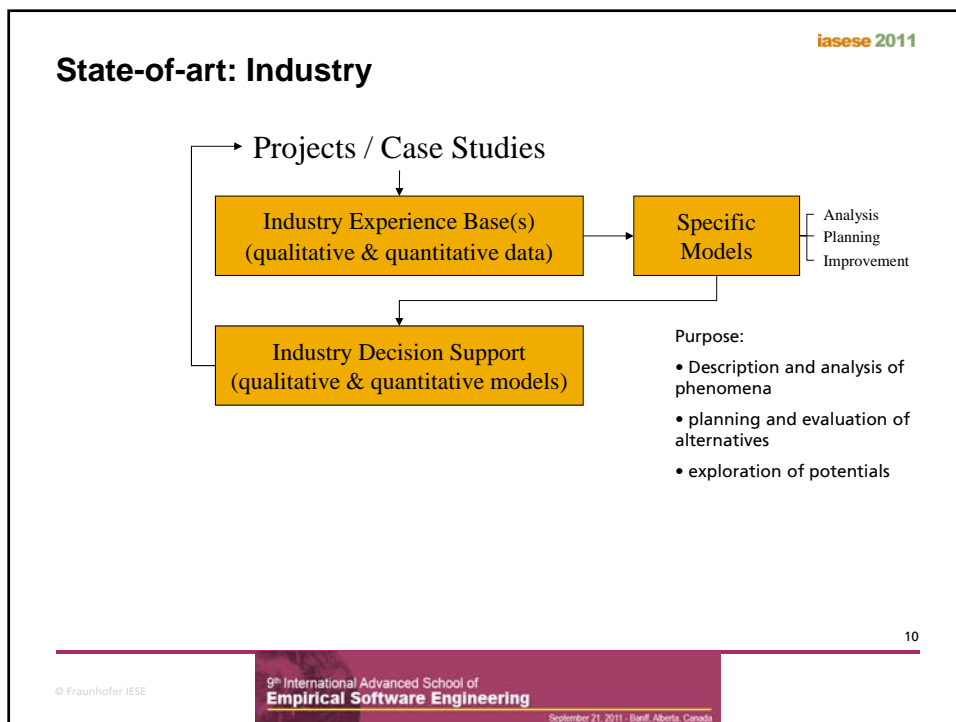
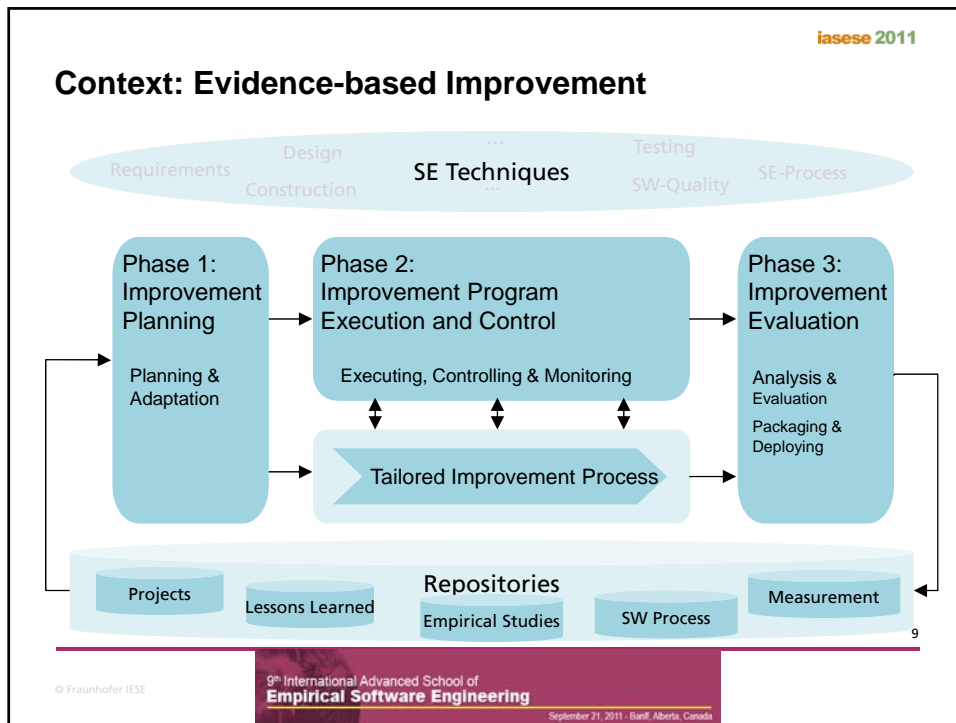
How to inspect test cases?

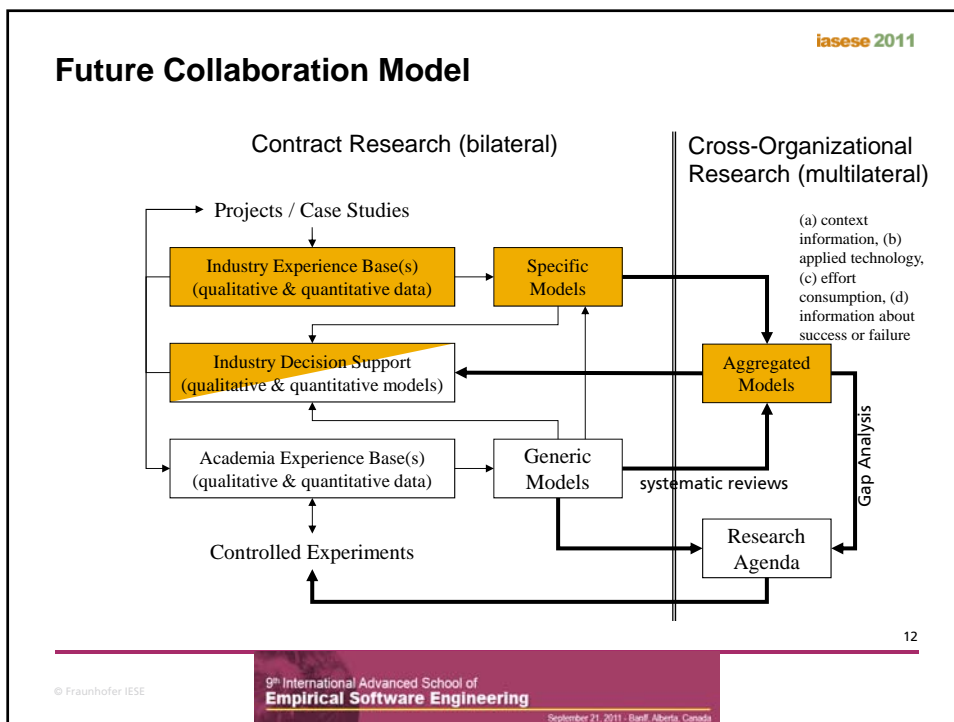
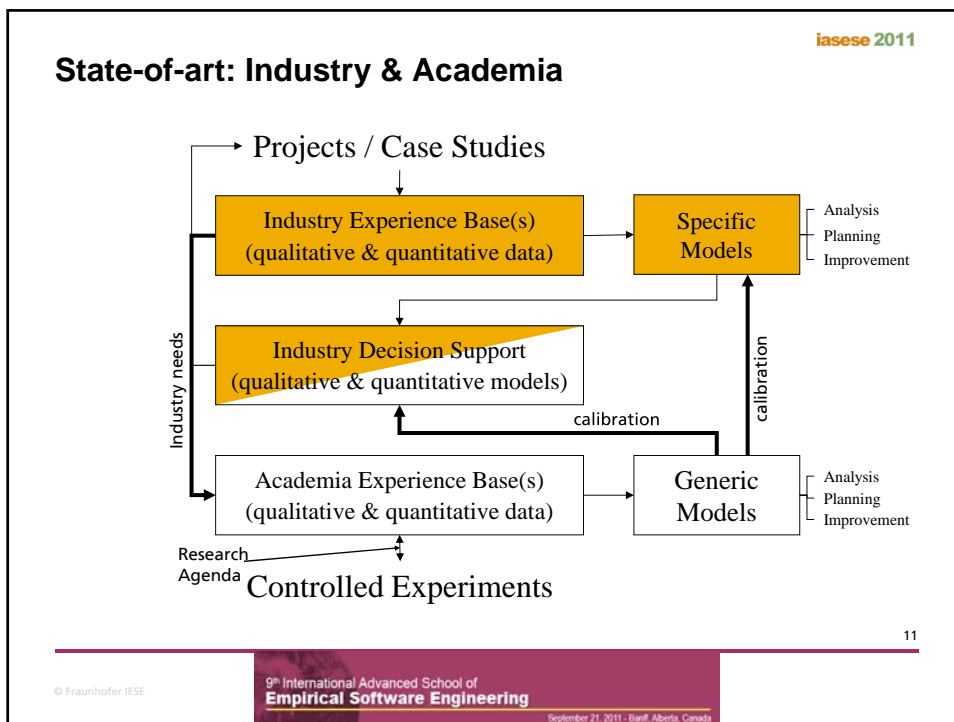
How to train testers?

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## Empirical Studies and SE Decision-Making



There are MANY decisions to make

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Thus, many studies are needed to capture the types of decisions AND their contexts

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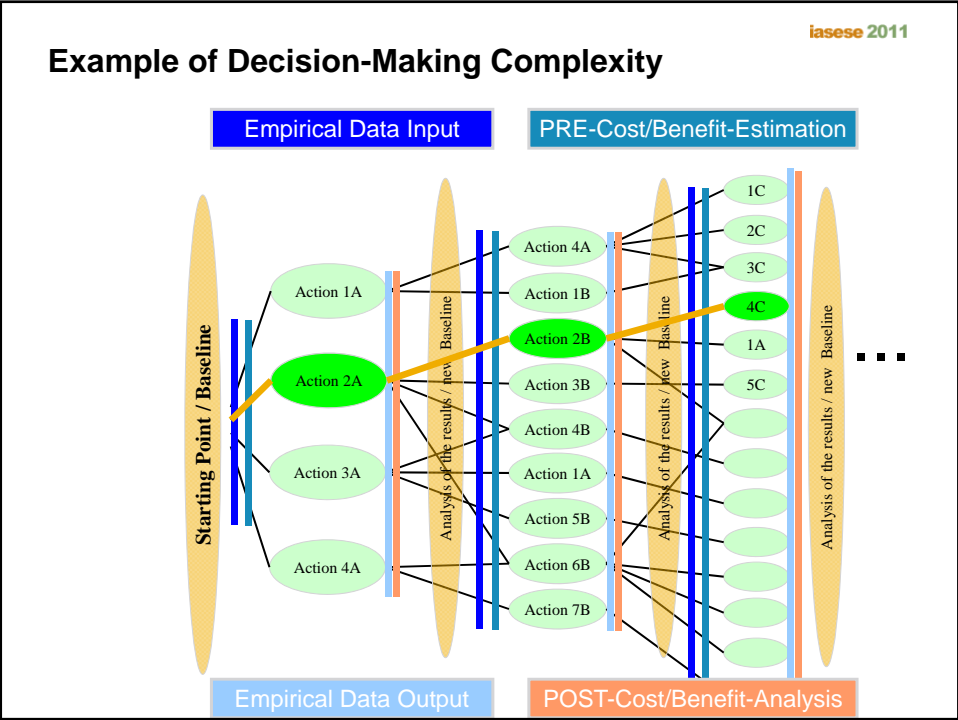
Thus, a systematic approach is needed:

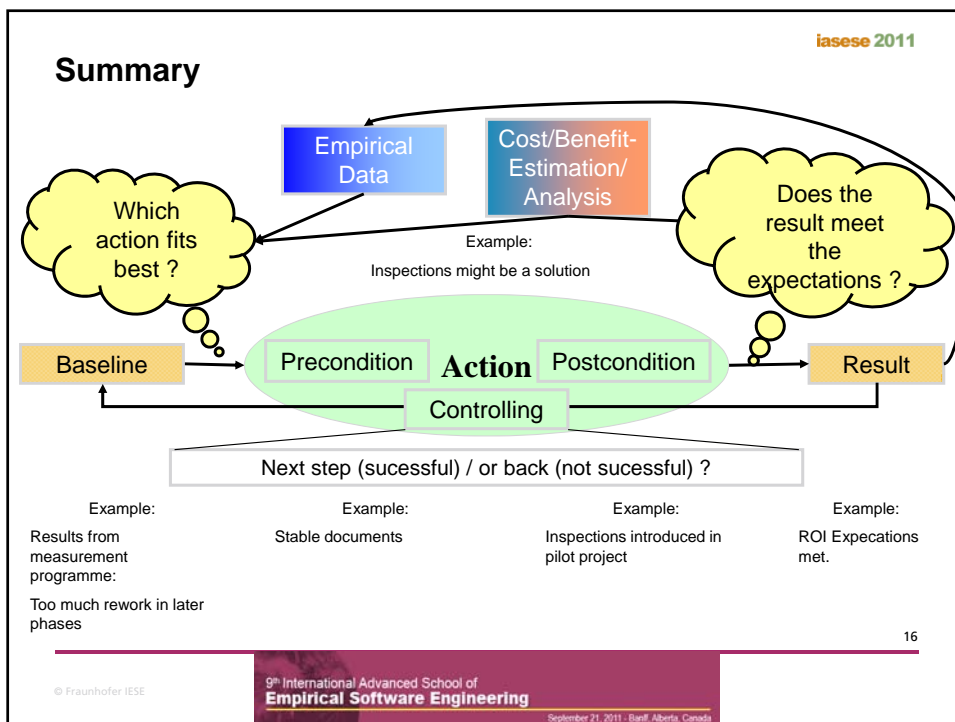
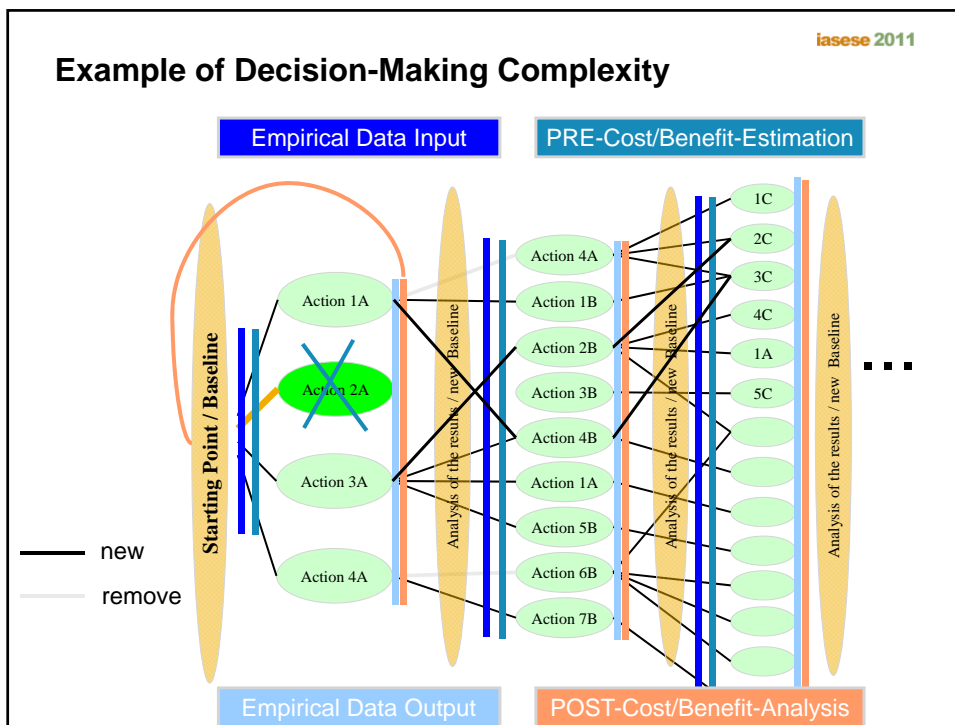
- Harmonised research agenda of the research communities and their individual plans for empirical studies
- Active involvement of industry (in line with the research agenda)
- Joint data pools and systematic combination of empirical results
- Complement controlled experiments, case studies and surveys with simulation where appropriate

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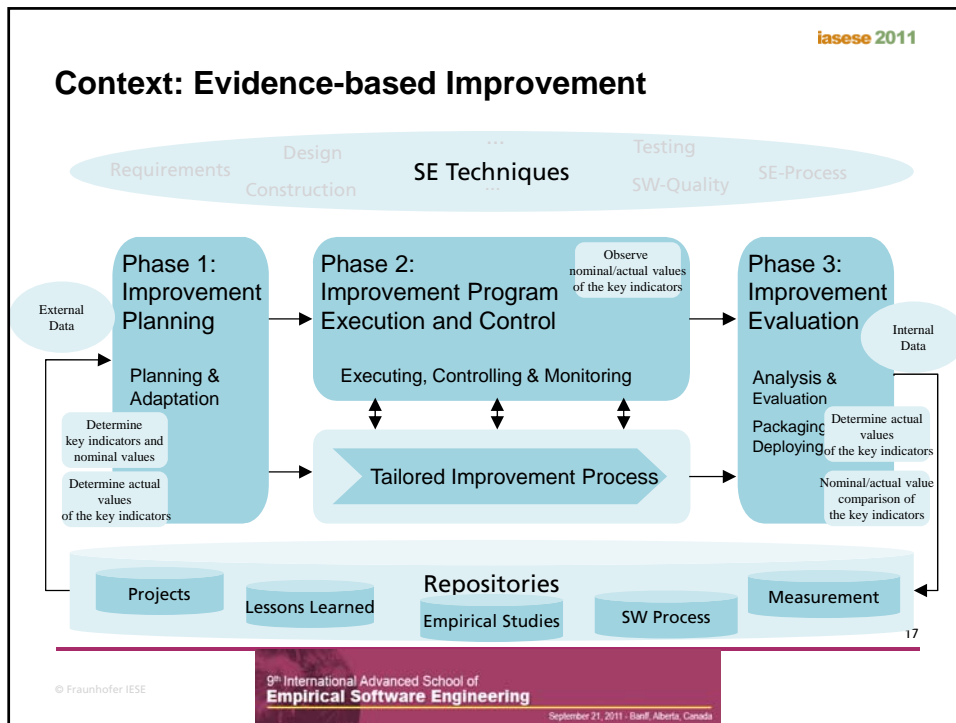
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## Wrap-up

- What is the topic?
  - Evidence-based Decision-Support
- What is our motivation?
  - Foster the empirical SE paradigm
- What is the relation to ESEIW?
  - ESEIW provides one means to disseminate results
- What should you take home?
  - Ideas of how empirical work can enhance your work in three SE domains

- Product Management 
- Project Management 
- Quality Management 

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