Signs of Agile Trends in Global Software Engineering Research: A Tertiary Study
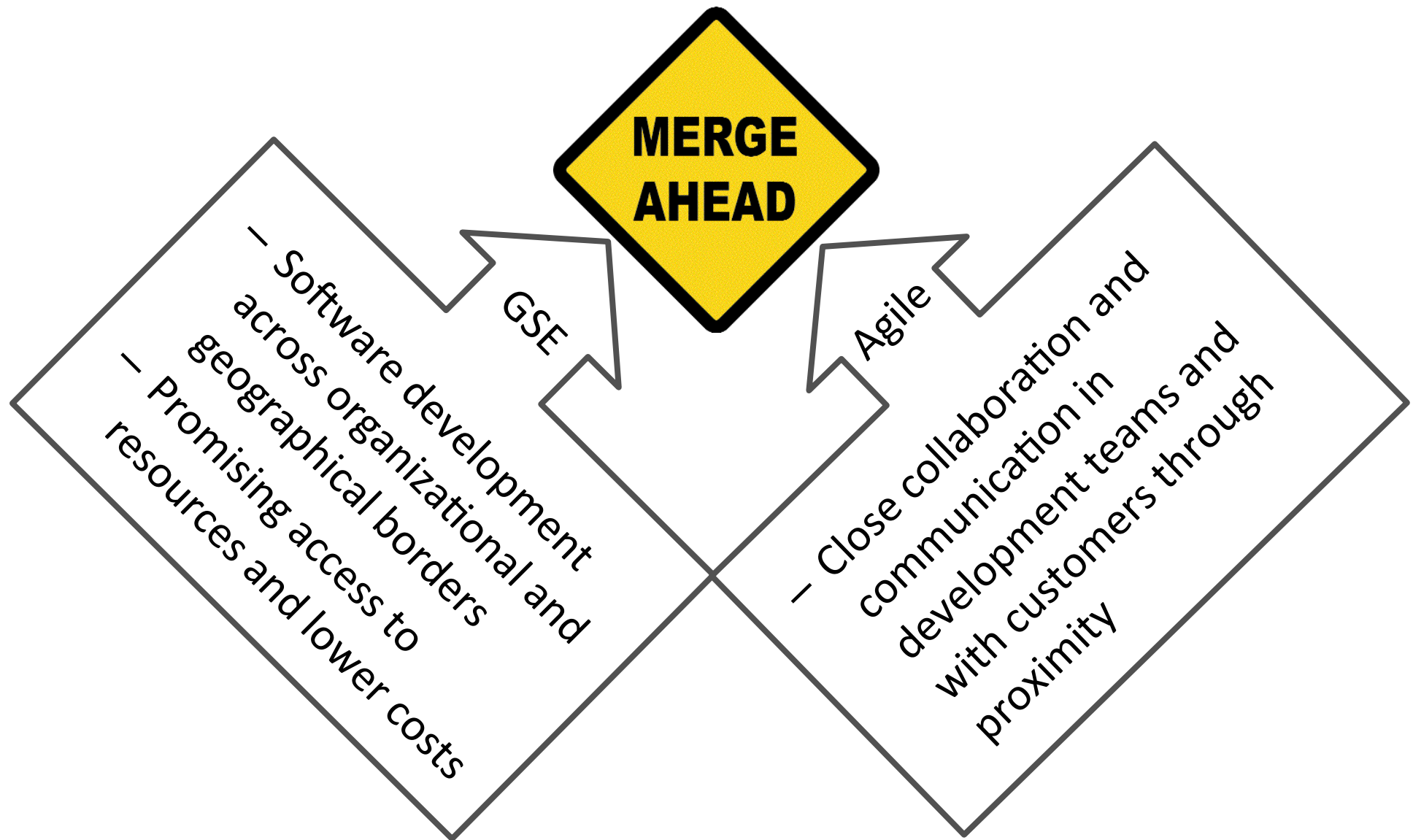
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BLEKINGE TEKNISKA HÖGSKOLA · BTH ·

What motivated us

MERGE AHEAD

GSE

– Software development and across organizational and geographical borders
– Promising access to resources and lower costs

Agile

– Close collaboration and communication in development teams and with customers through proximity
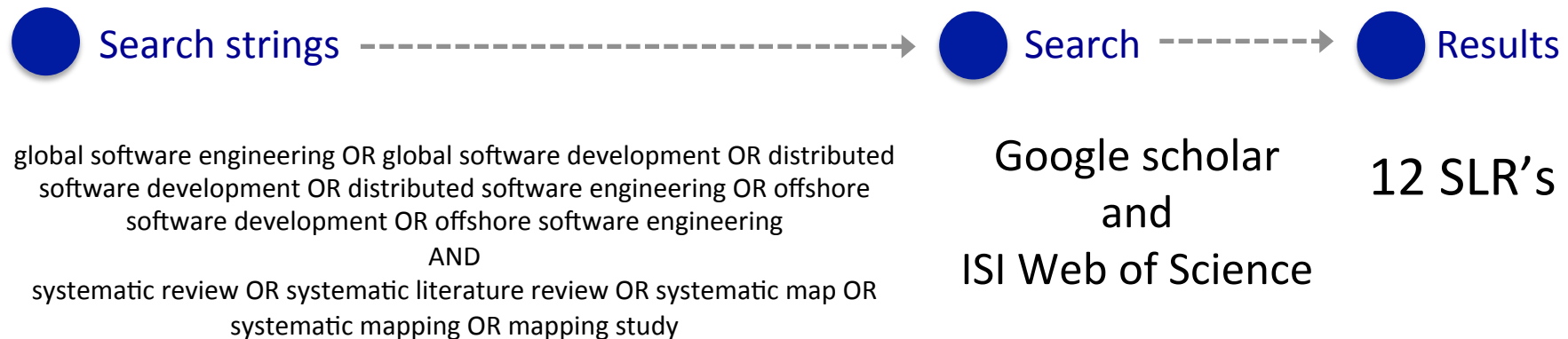
What motivated us

- GSE *and* agile?
  - Doing both would be great, but are they compatible?
  - Recent interest in agile GSE – yet no common understanding of the concept
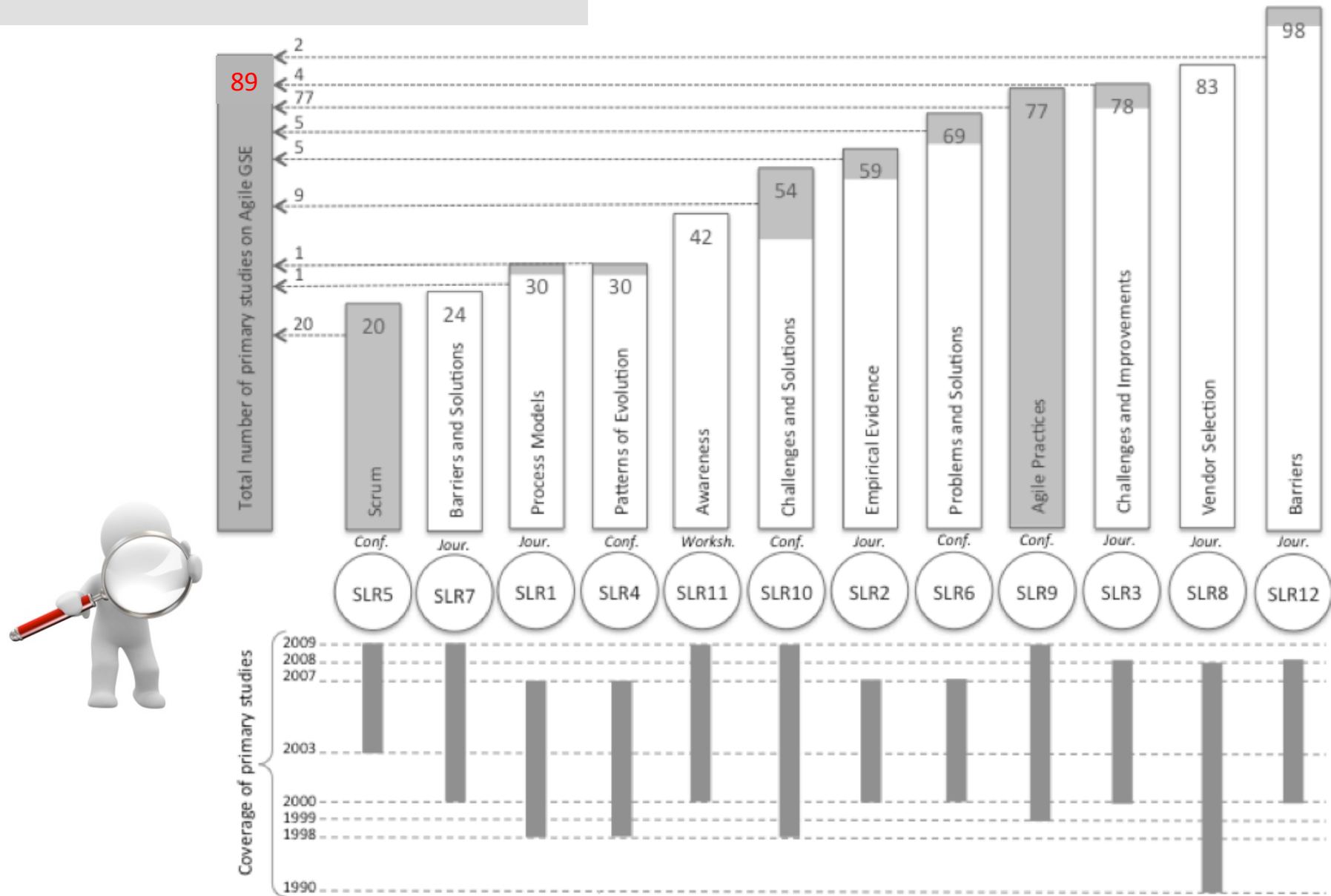
What we wanted to find out

- RQ1: Are there any signs of interest in implementing agile methods in global software engineering?

- RQ2: What is known about the application of agile practices in GSE?

How we did it

● Search strings - - - - - - - - - - - - - - - - - -> ● Search - - - - - -> ● Results

global software engineering OR global software development OR distributed
software development OR distributed software engineering OR offshore
software development OR offshore software engineering
AND
systematic review OR systematic literature review OR systematic map OR
systematic mapping OR mapping study

Google scholar
and
ISI Web of Science

12 SLR's

- We found (surprisingly) many systematic literature reviews on GSE whereof several specifically cover GSE *and* agile
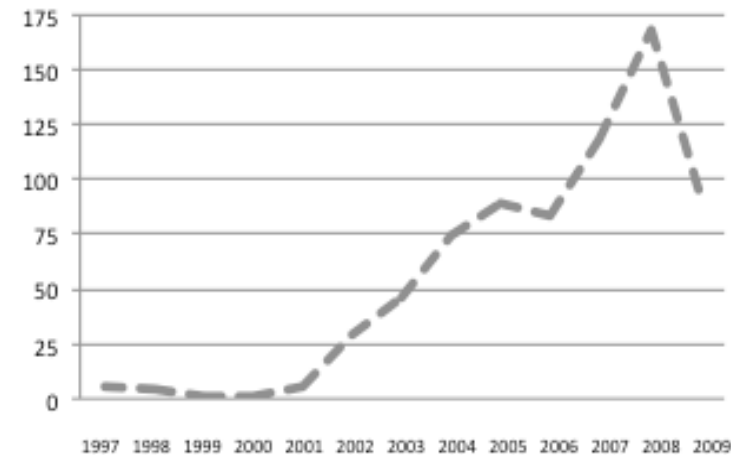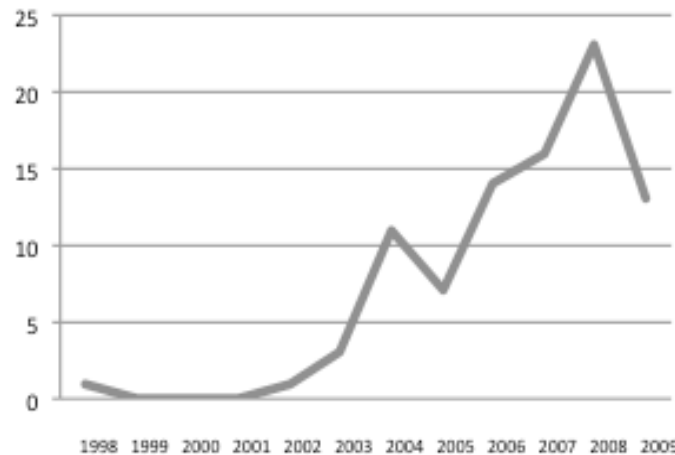- Thus, we did a tertiary study incorporating existing SLRs

What we found

How we interpret this

Concurring trends between research on agile and research on GSE

- 20% of the (434) primary studies were addressing 'agile' studies (89)

- Out of 40 identified empirical cases agile, incremental and iterative methods were by far the most used type of methodology

- The use of agile methods is an important factor for succeeding in GSE

- 2 studies are *mapping* studies

- 5 journal publications and 7 conference/magazine publications

ICGSE 2011 | Helsinki | August 15, 2011

How we interpret this

1. GSE project's contextual factors limits the use of Scrum

2. Distribution influence communication, coordination and collaboration processes

3. Scrum need to be modified to support distributed software development teams

4. Most studies are successful empirical experiences

5. The most common practices used are continuous integration, daily standups, pair programming, retrospectives, scrum of scrums meetings, and test-driven development

(Taken mainly from the two SLR's dedicated to agile GSE, SLR5 and SLR9)

- We see a *tension* between the simplicity in agile methods and the complexity in GSE
- We believe that these problems are solvable using CSCW solutions such as video conferencing, social media, solutions for distributed tracking and control, etc.

Further on…

● Implications for research

- We need to define the state of the art and state of the practice in terms of characteristics of the various agile methods used in GSE and lessons learned from applying such methods in industry.

- Paying attention to software ecosystems research, which address open innovation and collaboration across organizational borders.

- There is a need for a new review on agile in GSE since existing reviews do not cover 2008 – 2011, and from the trend-curve it is expected that most publications on the topic are published in the period from 2008 until 2011.

- Developing a common research agenda

- Better describing the contexts of primary studies

● Implications for practice

- Searching for new innovative approaches to communicate, coordinate and collaborate in distributed contexts while keeping the benefits of agile

- Understanding Agile GSE trends in various global contexts (currently known observations come mostly from Europe, followed by North America, Oceania and Asia)

Thank you for your attention

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