Status Report on Software Configuration Management Impact Study

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Team

- Lead Authors
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  - David Leblang, retired (Clear Case, DSEE)
- Contributing Members
  - G. Clemm, Rational (Clear Case, Odin)
  - R. Conradi, U. Trondheim (EPOS)
  - A. van der Hoek, UCI (NUCM)
  - W. Tichy, U. Karlsruhe (RCS)
  - D. Wiborg-Weber, Continuus (CCM)

Domain of SCM

- Managing a repository of components
  - Version Control; Product Models; Composition and Selection
- Helping engineers in their usual activities
  - Building (derived object control); Work Space Control
- Controlling and supporting the process
  - Change Control; Cooperative Work; Process Support

Growing Market for SCM Products

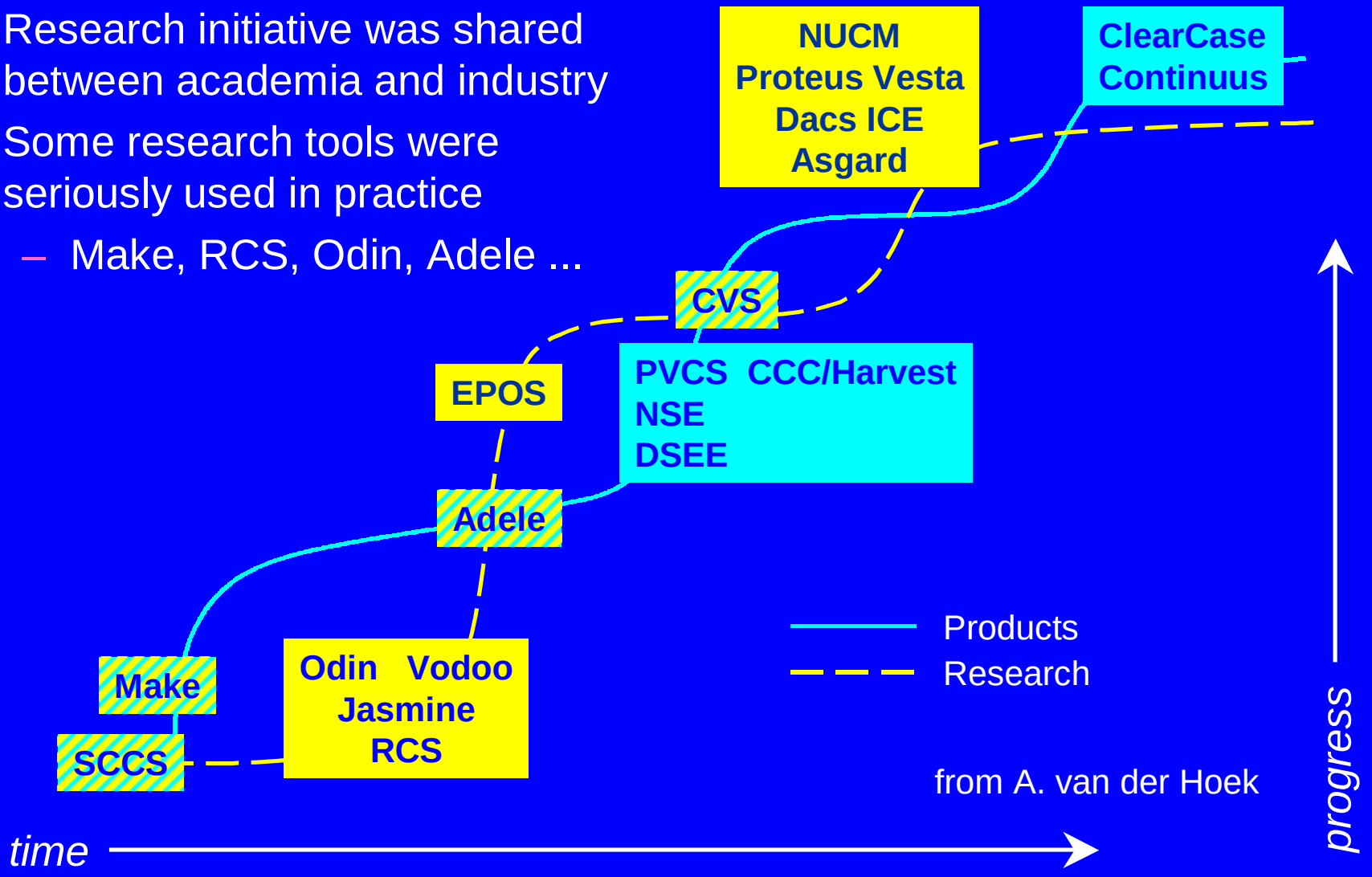
- Ovum
  - $1B (1998), $2B (2000), $3.3B (2002)
  - 25% mainframe;15%-20% workstations; 5%-10% PC
- Gartner
  - $6B (2003)

General Plan of Study

- Examine characteristics/features of leading products in SCM market
- Assume that products used in practice
- Trace characteristics/features back to research ideas and prototypes
- Try to establish arguments for/against influence of research on practice (via products)

An Argument: Research/Product Timing

- Research initiative was shared between academia and industry
- Some research tools were seriously used in practice
  - Make, RCS, Odin, Adele ...



An Argument: Professional Interaction

- Product architects present at nearly all SCM workshops (1988-2001)
  - Cagan, Clemm, Dart, Leblang, Wiborg-Weber, ...

An Argument: Testimonials

- Initial research perspective
  - "We invented almost everything …"
  - "Tools are only an engineering issue …"
- Initial vendor perspective
  - "Research had very little influence …"
  - "We do not sell ideas, but tools. We (re)invented everything we needed…"
- After some discussion, a much more balanced perspective emerged from both communities

Some Lessons Learned (1)

- Vendors tend to consider that impact is restricted to…
  - *algorithms* (e.g., differencing)
  - *pieces of reusable code* (e.g., RCS)

  and not…
  - *concepts* (e.g., hierarchical workspaces)
  - *architectures* (peer-to-peer repositories)

  which are often seen as “engineering common sense”

Some Lessons Learned (2)

- Researchers tend to consider that…
  - *precedence*
  - *concepts*
  - *prototypes*

  are sufficient as impact and ignore…
  - *efficiency*
  - *usability*
  - *reliability*

  dismissing them as “engineering common sense”

Some Lessons Learned (3)

- Both are right, both are wrong
- A good idea is had more than once
- Vendors have disincentives for distributing credit for ideas
- Researchers have incentives for claiming credit for ideas
- Research and productization both require *engineered creativity*

Conclusion

- SCM is a successful field
- Research provided many inputs and was clearly influential
- Vendors successful in finding/adapting ideas to fit customer needs
- Many ideas tried by researchers have not (yet) found their way into products/practice
- Interplay between vendors and researchers exists, but not any easy relationship