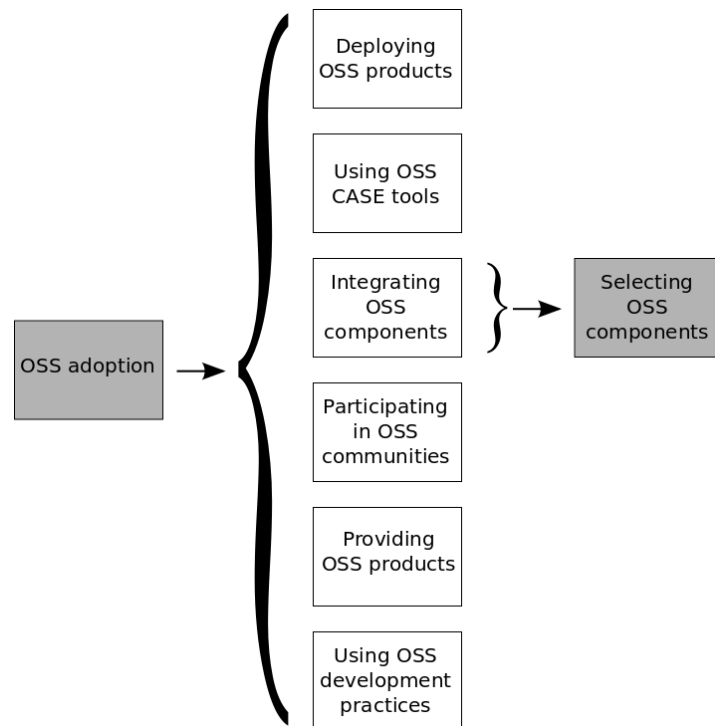


Adoption of Open Source Software in Software-Intensive Industry

PhD Defense Øyvind Hauge, 17 June 2010

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Focus



- Empirical studies
- Software-intensive organizations
- Software engineering

1. Introduction and background
2. Research
3. Results and contributions
4. Summary and implications

What Is OSS?

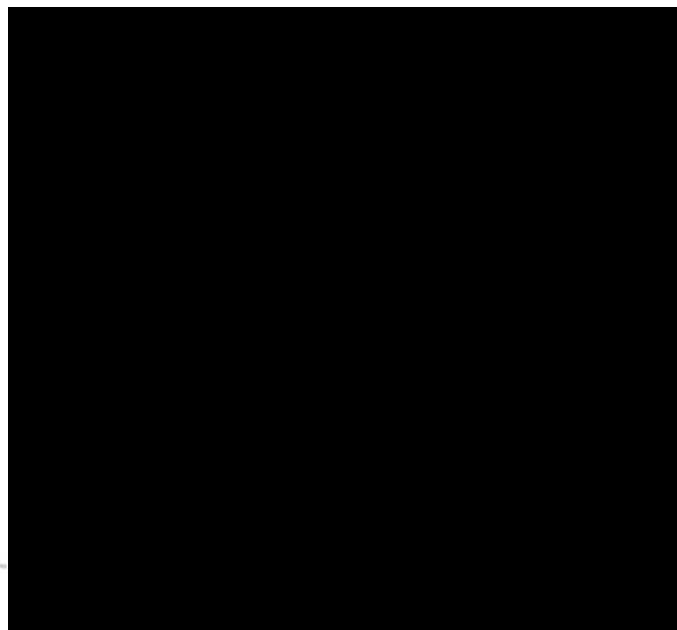
- Software products that you may
 - Run
 - ***Study***
 - ***Modify***
 - ***Redistribute***
- Often developed by ***distributed communities***

Why OSS?

- Software products worth billions of Euro
- Development practices that manage highly distributed development
- Grassroot movement that successfully involve large number of developers and users

Topic 1: OSS Adoption

“Both evidence and theory confirm that open source delivers better reliability, lower costs, shorter development times, and a higher quality of code (including better security)” (Raymond, 2004, p. 88).



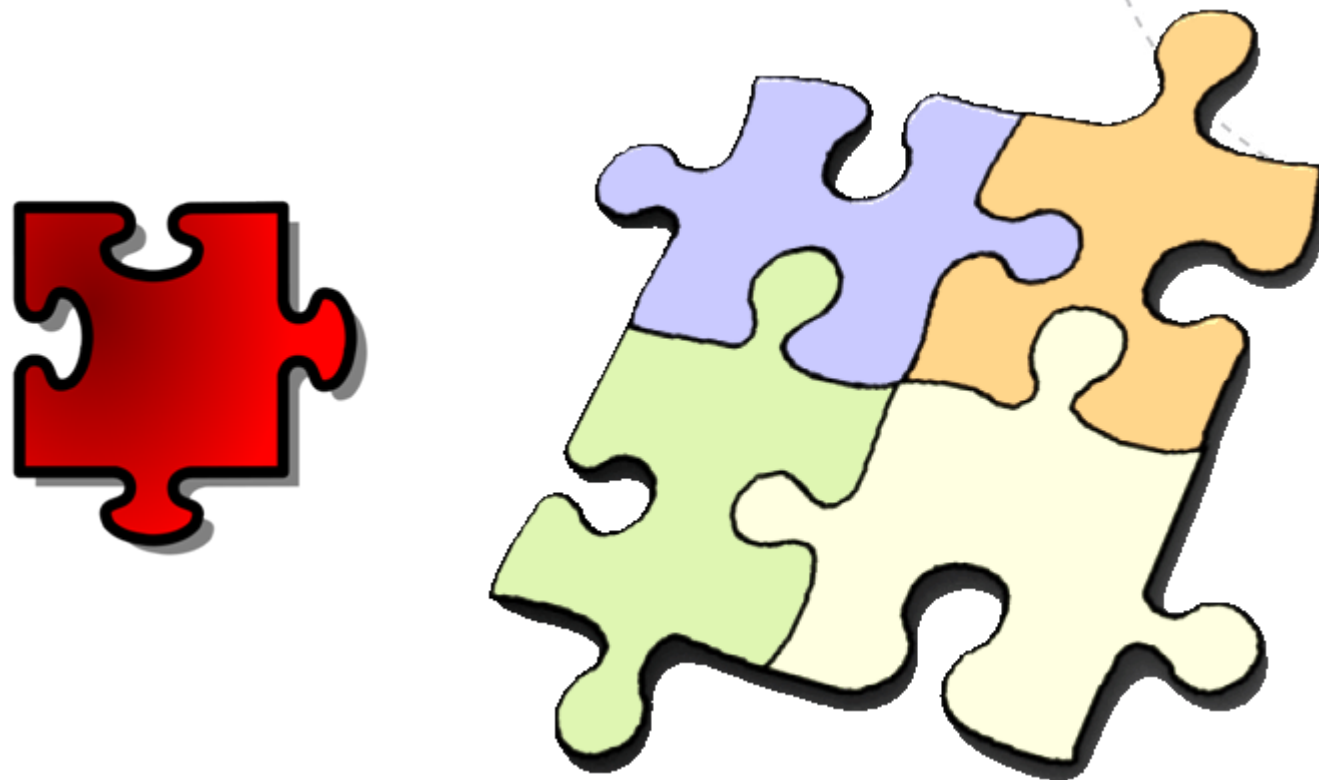
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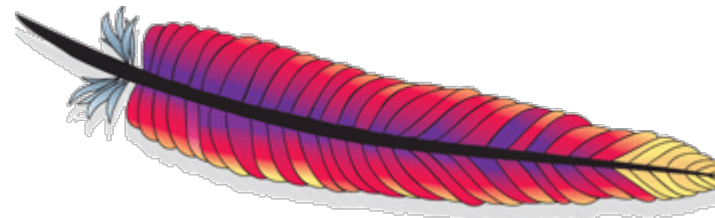
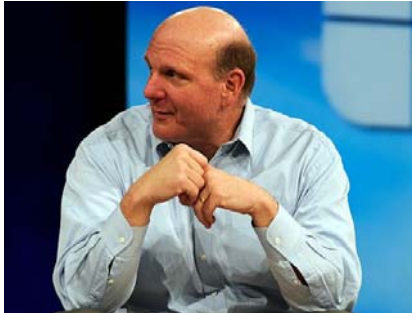
Existing research on OSS

- Limited, but increasing
- A lot of opinions and experience reports
- Focused on the communities (outside organizations) that developed OSS products

Topic 2: Software Selection







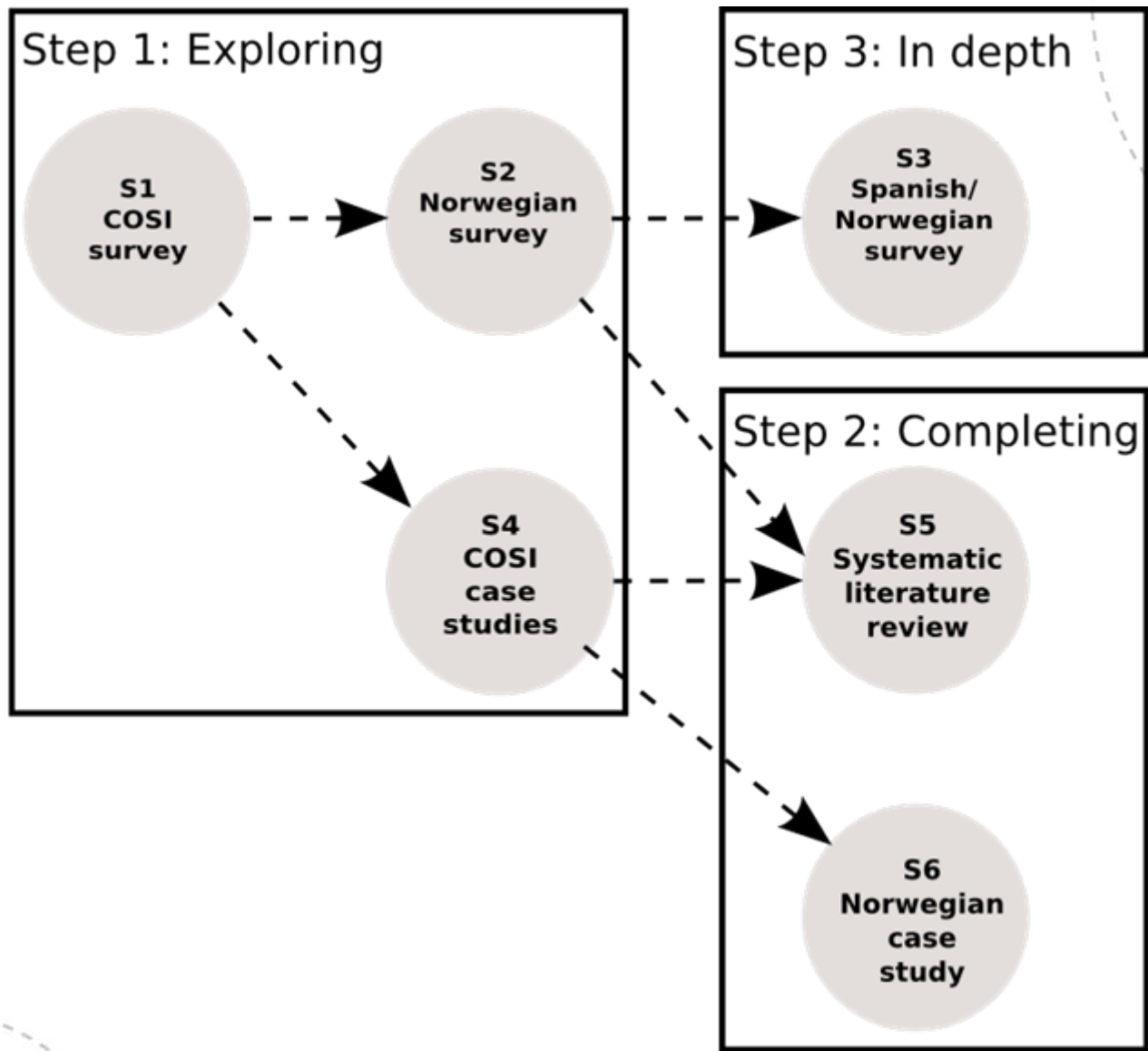
Existing Research on Selection

- Formalized selection methods
- Rational decision making
- Quantifiable evaluation criteria
 - Product
 - Provider
- Influence on practice has been very limited

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Research Questions

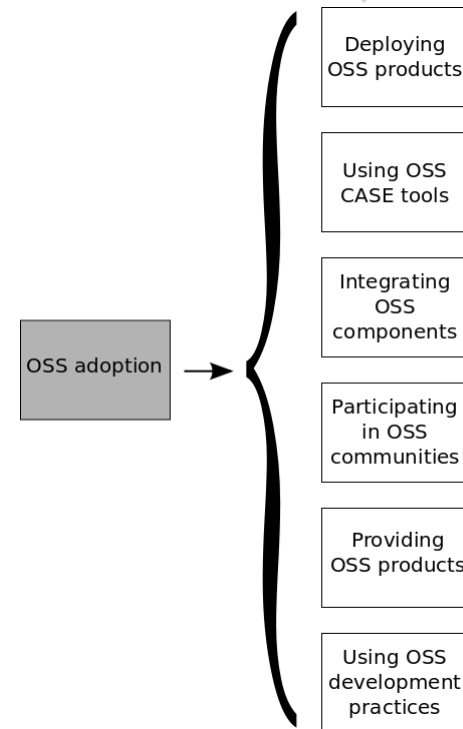
- RQ1: **How** and to what extent **are** software-intensive **organizations** currently **adopting OSS**?
- RQ2: What is the current **status of research on OSS adoption** in organizations and how may this research **benefit practitioners**?
- RQ3: Which strategies and resources do software **developers** use to identify, evaluate, and **select OSS components**?



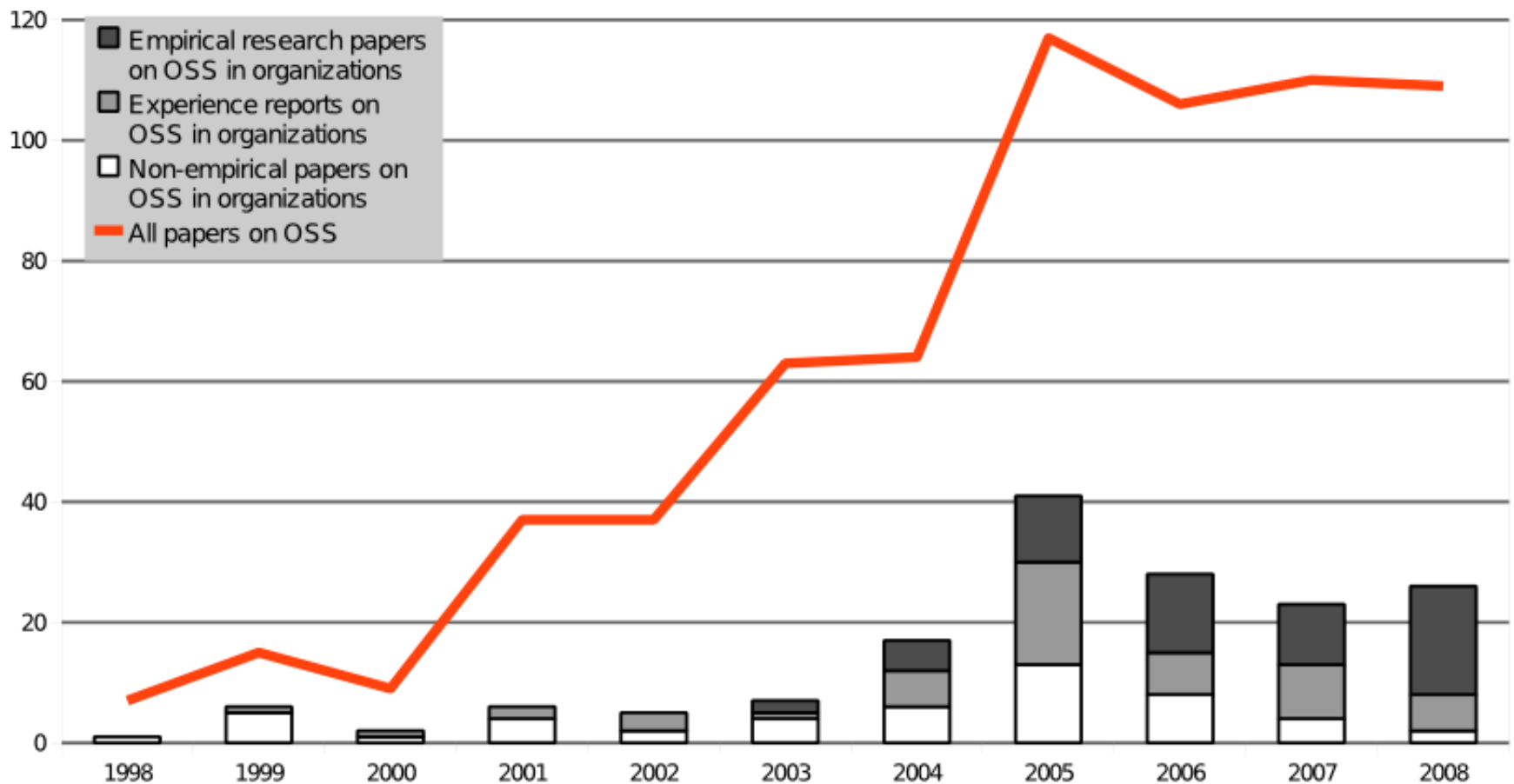
1. Introduction and background
2. Research
- 3. Results and contributions**
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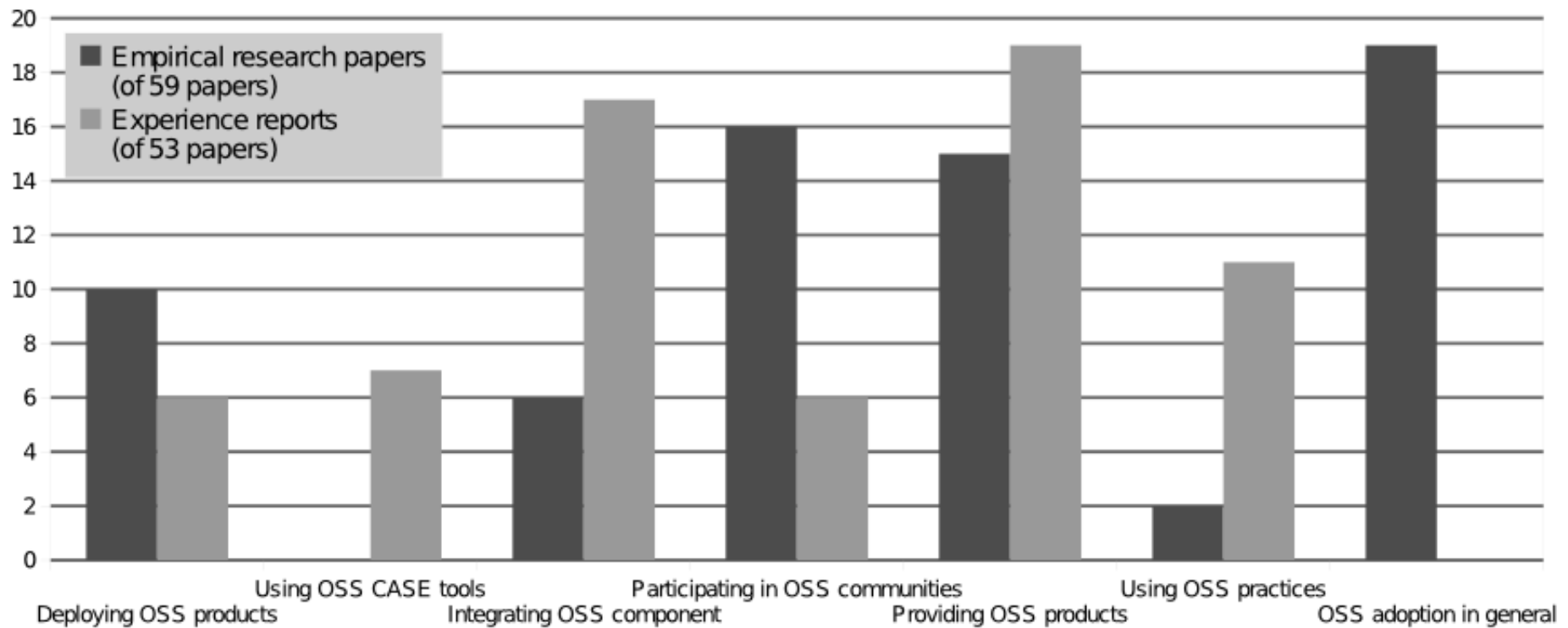
RQ1 → Contribution C1 and C3

- Empirically grounded descriptions of how organizations adopt OSS
- OSS adoption is *significant*



RQ2 → Contribution C2

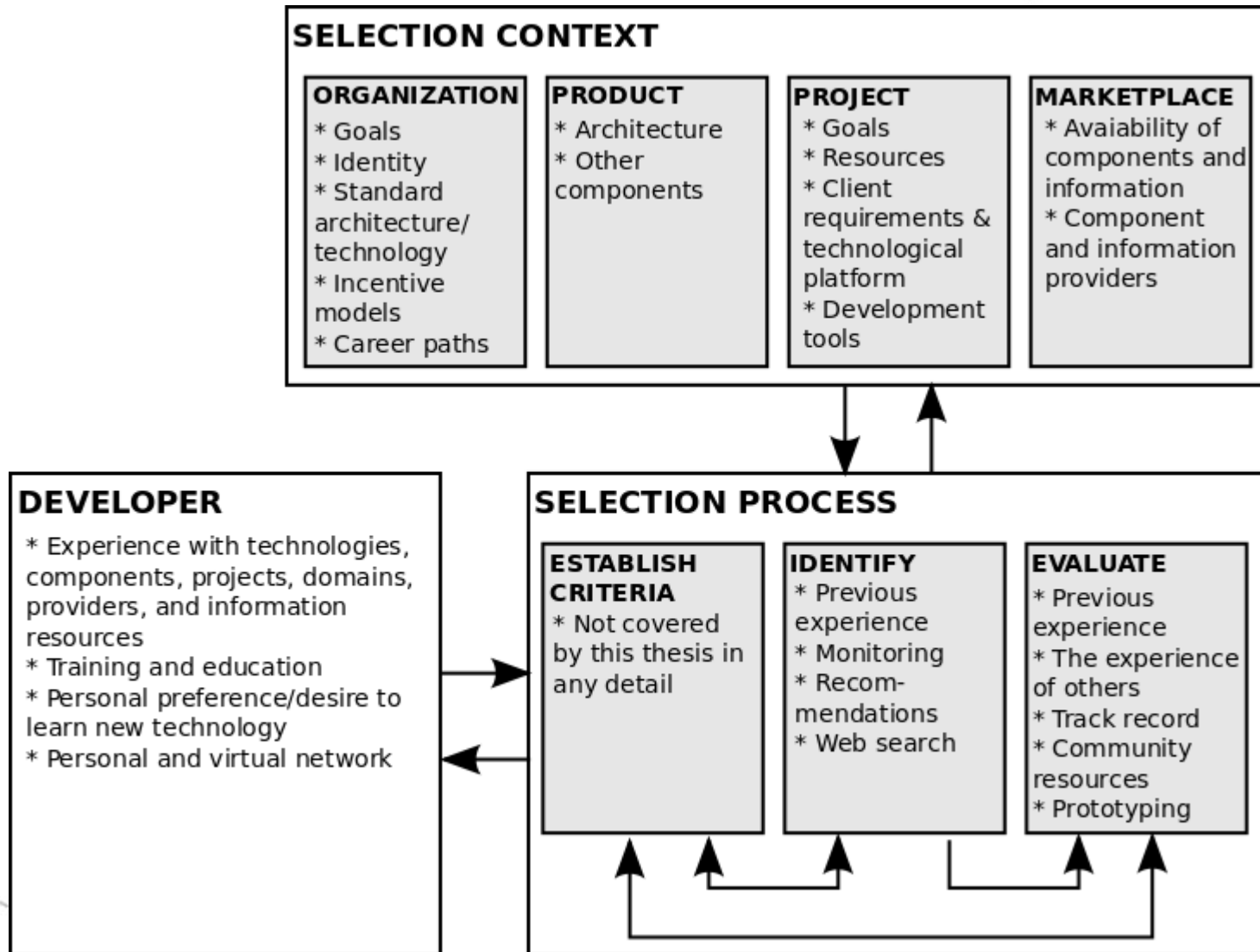




RQ3 → Contribution C4

- Identification
 - Experience
 - Monitoring and review of “trusted” sites
 - Unstructured web-search
- Evaluation
 - Experience
 - Reviewing
 - “Trusted” sites for experience reports
 - Provider site for activity and documentation
 - Unstructured web-search for experience reports
 - Prototyping

RQ3 → Contribution C5



Evaluation and limitations

- Positive
 - Grounded in empirical evidence from the industry
 - Extends previous research within the group
 - Reliable and well documented
- Room for improvement
 - Scope and focus
 - Replication and extension particularly with richer data
 - Improved understanding should be materialized

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Summary contributions

- A platform for future research on OSS adoption
 - C1 Empirically grounded descriptions of how organizations adopt OSS
 - C2 A systematic literature review of the OSS literature
 - C3 A classification framework of how organizations adopt OSS
 - Improve vocabulary
 - Topics and direction for future research
- An empirical basis for software selection research
 - C4 Empirically grounded descriptions of practices and resources
 - C5 A model for situated software selection

Implications

- OSS adoption
 - Researchers should **align their efforts**, solve **real industrial needs**, and **look to related areas** for support
 - Practitioners should not be afraid to **exploit the benefits of OSS**, but **evaluate adoption in their own context**
- Software selection
 - Researchers should focus on **supporting actual practice**
 - Practitioners should understand and use available **informal knowledge sharing platforms**

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