

# **A Contribution Management Framework**

for Firms Engaged in Open Source Software Ecosystems  
– a research preview

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This presentation is available here:  
<http://github.com/bjornregnell/ossre>

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# Research goal

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**Open Source Software Requirements Engineering**

→ Our research **goal** and **focus**:

**Deep understanding** of, and **effective support** for:  
**Contribution management** in OSSRE

# Background



Johan Linåker

Johan Linåker's **licentiate thesis**:

- **"Towards Strategic Support for Requirements Engineering in Open Source Software Ecosystems – What to reveal, when and to whom?"**

<http://cs.lth.se/johan-linaaker/>

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- Systematic literature review on Open Innovation with OSS
- Network analysis of stakeholder contributions in OSS repos

On-going **doctoral thesis** project:

- Contribution Management Framework

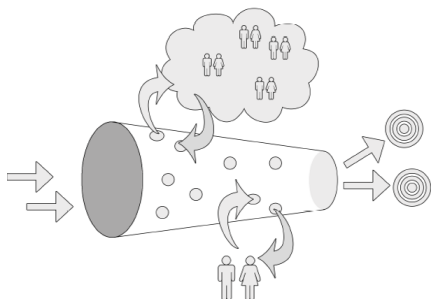
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<sup>1</sup> J. Linåker, P. Rempel, B. Regnell, and P. Mäder, "How firms adapt and interact in open source ecosystems: analyzing stakeholder influence and collaboration patterns," in *Requirements Engineering: Foundation for Software Quality*, Springer, 2016, pp. 63–81.



# Open Innovation and Open Source Software

Open Innovation modelled as a funnel with permeable border:<sup>2</sup>

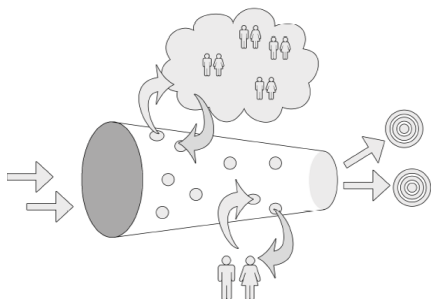


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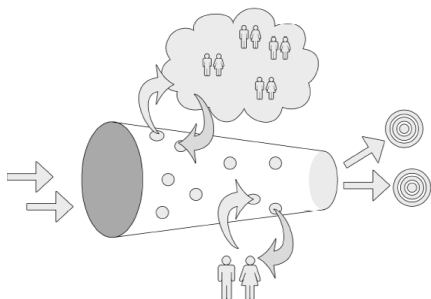


- RE process complexity:
  - Internal RE:  
inside the focal firm
  - External RE:  
in the community

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OSS is a major approach to Open Innovation (OI) in the software industry.

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# Research methodology

- **Design Science** approach, see Wieringa (2014)<sup>3</sup>

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# Research methodology

- **Design Science** approach, see Wieringa (2014)<sup>3</sup>
- Definition of the **design problem**: (abbreviated, see paper)

**Design a framework and tools for OSS **contribution management** to effectively support product planning in OSSRE.**

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- First iteration:
  - Initial framework based on findings in previous research<sup>45</sup>
  - Initial validation: interview with industrial OSS expert

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# Contribution Management Framework

Stakeholders → Contributions → Time Horizons

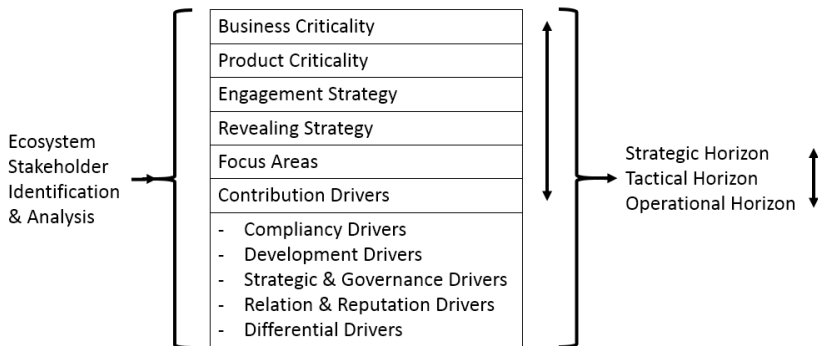
Example of questions that the framework may help to answer:

- Who are the stakeholders in the focal OSS community?
- Which stakeholders have the same interests as our firm?
- How to collaborate with the OSS community?
- What to contribute & when?
- Which actions are most important to take in a short-, medium-, and long-term view?
- ...

General goal: How to maximize return-on-investment.

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# Contribution Management Framework

Candidate framework "levels": from business goals to product contributions

- **Business Criticality:** Level of value drawn from the community.
- **Product Criticality:** Level of integration with internal product plan/dev.
- **Engagement Strategy:** {Parasitic | Commensalistic | Symbiotic}
- **Revealing Strategy:** Licensing, {Selective revealing | Full transparency}
- **Focus Areas/Modules:** Selection of product modules to share
- **Contribution Drivers:**
  - Compliancy
  - Development & Maintenance
  - Strategy & Governance
  - Relationship & Reputation
  - Differentiation

# Conclusions and future work

- Initial validation indicates utility of the proposed framework
- Further iterations in the design science cycle:
  - More **qualitative data collection** from interviews with industrial OSS experts
  - Design a process for developing contextual **guidelines**
  - Study **different contexts**: start-ups vs mature firms etc.
  - Design a **team workshop** process where the framework is applied in collaborative sessions
  - Design **software tools** for strategic decision-making, e.g. stakeholder network analysis tools based on open data.
- Validate the frame-work "live" in real-world contexts.

Q&A