

# Institutional foundations of open innovation and field dynamics in the software industry:

From antagonism to contested cooperation  
between firms and Open Source communities

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# The problem of collaborative innovation between firms and OSS communities

- Open Source software development (OSS) as a widespread (open) innovation model in the IT industry
- despite significant differences in institutional logic, it is increasingly used by market-oriented actors in the software industry
- “What explains the emergence of communities within [...] fields of endeavor” and “what are traditional organizations not doing or not capable of accomplishing that communities provide instead?” (O’Mahony and Lakhani 2011: 35 f.)

# Thesis put forward

- In order to understand the arising forms of collaboration between companies and OSS communities we need to focus on the interplay between the meso level of field dynamics and the rising forms of cooperation between firms and communities:
  - a) communities play an important role in the institutional reconfiguring of fields spurring open and distributed forms of innovation
  - b) corporate actors' strategies towards collaboration with the community are shaped by their position in the field

# Sources and research design

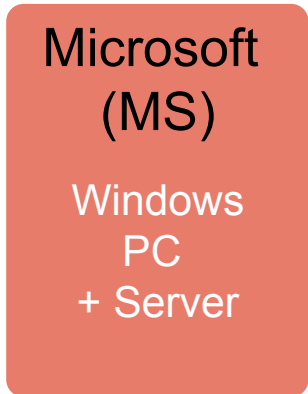
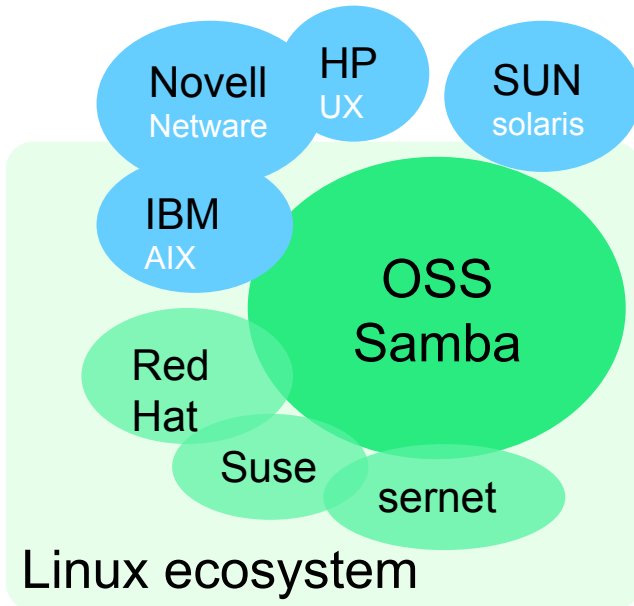
- first empirical results from a case study of the field of *work group server operating systems*
- ongoing research project (started in 2013, conducted at the Sociological Research Institute (SOFI) and the University of Oldenburg)
- interviews with developers and managers of the SAMBA community and cooperating companies
- interviews with industry experts, analysis of publicly available documents (homepage, mailing lists)
- participatory observation of the developers' conference in 2014

# Field of workgroup server systems

**conflict and antagonism** (ca. 1993-2007)

Coalition of Challengers

Incumbent



**Microsoft's innovation strategy:**

- market dominance (PC+Workgroup);
- proprietary protocol (SMB) for client–server workgroups;
- file-, print-services, Active Directory

Legal institutions:

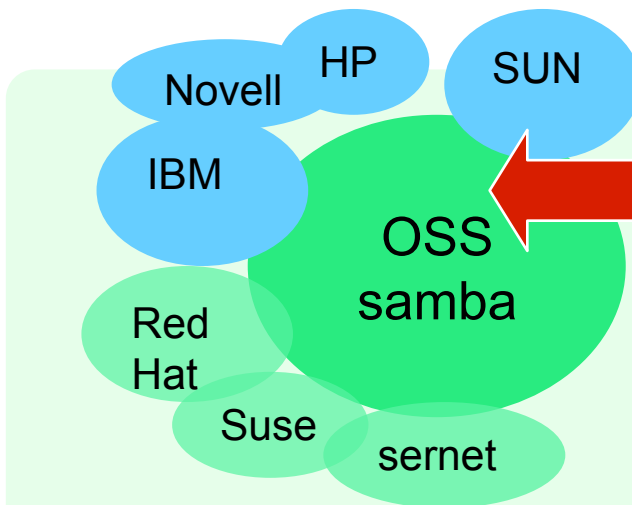
patents, licence, copyright vs. **GPL/,copyleft'**  
competition regulation (US; EU)

**OSS Samba project:**

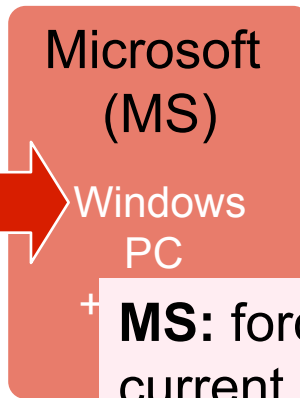
- reveal proprietary protocol
- open source strategy Linux ecosystem

# Dynamics of the field: institutional, organisational transformation

Coalition of Challengers



Incumbent



EU competition regulation:  
decision against MS (2001)  
2004, 2007

**Interoperability as  
new legal norm**

**MS:** forced to open documentation of  
current SMB versions for challengers;  
starts to cooperate with samba

Linux

**Samba:** implementation of current SMB versions;  
establish SMB as open standard in the context of  
the growing Linux ecosystem;  
starts to cooperate with Microsoft

# OSS community spurs transformation of the field

institutional transformation on a meso level  
achieved by the coalition of challengers

open standard protocol in the field of workgroup servers  
MS protocol (SMB/CIFS) opened by samba

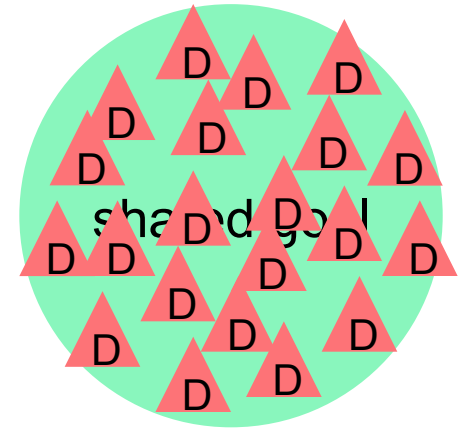
enabled by

new institutional foundations on a micro level

- community mode of knowledge production as new institutional logic for collaboration

# Institutional logic of the community: shared goals, rules and practices for cooperation

- shared goal:  
open source development (strategy)  
product idea (innovation)
- self-selection of tasks by developers
- individual membership of developer
- highly distributed and collective development process
- decentralized, meritocratic decision-making
- social relationship, reputation



**community-managed open Source project** (O'Mahony 2007, et al.)

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# Developer's role

Samba-developers are at the same time employees of different firms

linux distributions, samba/linux service providers, IBM, storage and LAN-manufacturer

- two “hats” of Samba developers:  
member and employee of a firm in the field
- developers's contributions to some extent originate from paid work, but he/she decides
- developer's decision-making within the team takes the firm into account, but no hierarchical order by the firm
- plurality of interests

**open source project sponsored by firms**

(O'Mahony/West 20089, private-collective model of innovation Krohn and von Hippel 2003/2006)

# Varying firms' strategies to collaborate with the community I: the incumbent

- Microsoft's (changed) strategy to collaborate with the community:
  - new strategy of supporting the Samba community (though not directly contributing to the code base)
  - huge efforts to help the community effectively implement MS protocols (sponsoring of Samba XP, “Plugfests”)
  - Goal: maintain field position by standard setting via community as an intermediary
  - Benefits:
    - spread of network protocol
    - improve documentation and find/eliminate bugs

# Varying firms' strategies to collaborate with the community II: the challengers

- Service providers' and Linux Distributors' common strategy to collaborate with the community:
  - community efforts vital for business models
  - governance by “*rallying calls*”
- Differences in resources and client relationships:
  - service providers: big number of incremental contributions, limited resources for research and development
  - Linux distributors: more resources for research on new features
  - Extensions added to shared source for maintenance and improvement

# Summary and Conclusion

- Crucial role of the field (meso) level in explaining the interaction between communities and firms for at least two reasons:
  - on the one hand, (institutional) field dynamics influence the rise of open and distributed innovation and communities are important drivers of institutional and structural changes in fields
  - the strategic attitudes of firms with respect to communities are shaped by their field-specific positions, resources and strategies

Thank you for your attention!



# Theoretical Background

- Strategic action fields as dynamic social order on a meso level (Fligstein and McAdam 2012:9)
- explain how the the rules of the game' (institutional foundations of the field) are created, adapted and transformed through collective efforts of the actors, that 'take one another's actions into account in their behavior' (:167)
- social skill of actors as a mechanism of change: '.. the ability to induce cooperation by appealing to and helping to create shared meanings and collective identities' (:17)
- Collective action model of institutional change (Hargrave and Ven 2006:877): opposing actors in the field frame issues, mobilize collective actions, and engage in contested processes in order achive a goal