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
- Novell Netware
- IBM AIX
- Red Hat
- Suse
- sernet

Incumbent
- Microsoft (MS)
  - Windows PC le + Server

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

- Novell
- IBM
- Red Hat
- Suse
- sernet
- OSS
- Samba

Incumbent

- Microsoft (MS)
- Windows PC

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

Interoperability as new legal norm

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

MS: forced to open documentation of current SMB versions for challengers; starts to cooperate with samba
OSS community spurs transformation of the field

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

open standard protocoll 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 developers
- highly distributed and collective development process

- decentralized, meritocratic decision-making
- social relationship, reputation

community-managed open Source project (O‘Mahony 2007, et al.)
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’ 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, ressources 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 ‘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 achieve a goal