



Lost in Translation? Appropriation of Open Source Software Development at Hewlett-Packard

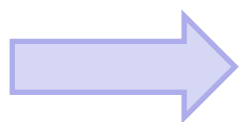
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What happens to open source software development (**OSSD**) – as an **organization form** – as it gets translated into a **corporate context**?

- Can corporate systems development environments become like OSSD communities? Should they?
- Is corporate OSSD possible?



Longitudinal field study at Hewlett Packard and interviews with third parties

Our Presentation



- Highlights: What might happen when a firm adopts OSSD?
- What actually happened at HP?
- How we interpreted this
- Conclusions
- Implications

When OSSD Meets Traditional Practices...



Something Old (Existing Practices)

- Organizational hierarchy
- Corporate culture (initially)
- Team-based development

Something Borrowed (from OSSD)

- Transparency of work processes
- All development online (documentation, for a, etc.)
- Common development tools
- Substantial productivity gains

Something New (Unique Features)

- Transparency and non-anonymity create a virtual panopticon
- Needs for learning and adaptation
- Intellectual property decisions become part of developers' work
- Partners tightly controlled

Something Blue

- Early innovators sidelined ("black sheep")
- Inhibition of spontaneity, creativity, innovativeness ("fishbowl effect")
- Controlled participation reduces input into process

Methodology



- Nine months in the field at HP (in 2001-2003)
 - Observation, participation, field note writing
 - Interviews, documents (corporate and external)
- 52 interviews at HP and partner firms
- Coding using NVivo
- Actor-network theory as a theoretical lens

Two Views on the Translation of an Organizing Idea



Actor-Network Theory

Emergence and stabilization of an **actor-network** (Callon 1986)

- Problematization
- Interessèment
- Enrolment
- Mobilization

Translation Theory

Reformation or translation of an **idea** (Steiner 1998)

- Initial act of trust
- Incursion and extraction
- Incorporation
- Appropriation
- Reciprocation

The Process at HP (I)

Initial Trust; Problematization



A discussion came up about how we need to find a way we can work better with third parties, and there was some bantering about how there is Open Source, but we have security needs that we have to make sure that we don't expose our IP....

— HP Software developer

- Interest and trust in OSSD within HP
- OSSD had many different routes into HP

The Process at HP (II)

Incursion and Extraction; Intressement



I started learning about open source... and said its very fascinating to see how we could bring this into HP, and how it could work inside of HP in such a structured environment ...
— Software developer involved in CDP.

- **“Raiding”** of the OSSD idea for meaning relevant to the HP context
- **Relationships** between actors begin to form

The Process at HP (III)

Incorporation; Enrolment



The open source movement is natural, inevitable and creates huge benefits...

— CEO Carly Fiorina

- **Alignment** of some OSSD initiatives under the heading “Progressive Open Source” (POS)... ...while others were becoming marginalized
- **Molding** of the OSSD idea to fit HP

The Process at HP (IV)

Appropriation; Mobilization



When I think about where we stand now as opposed to a year ago, it's really an amazing progress

— Software development manager

- “POS” had at this stage acquired all **relevant** meaning from OSSD in the HP context
- From 600 developers to 2,000... to 3,500... to 10,000
- Transparency – fishbowl effect

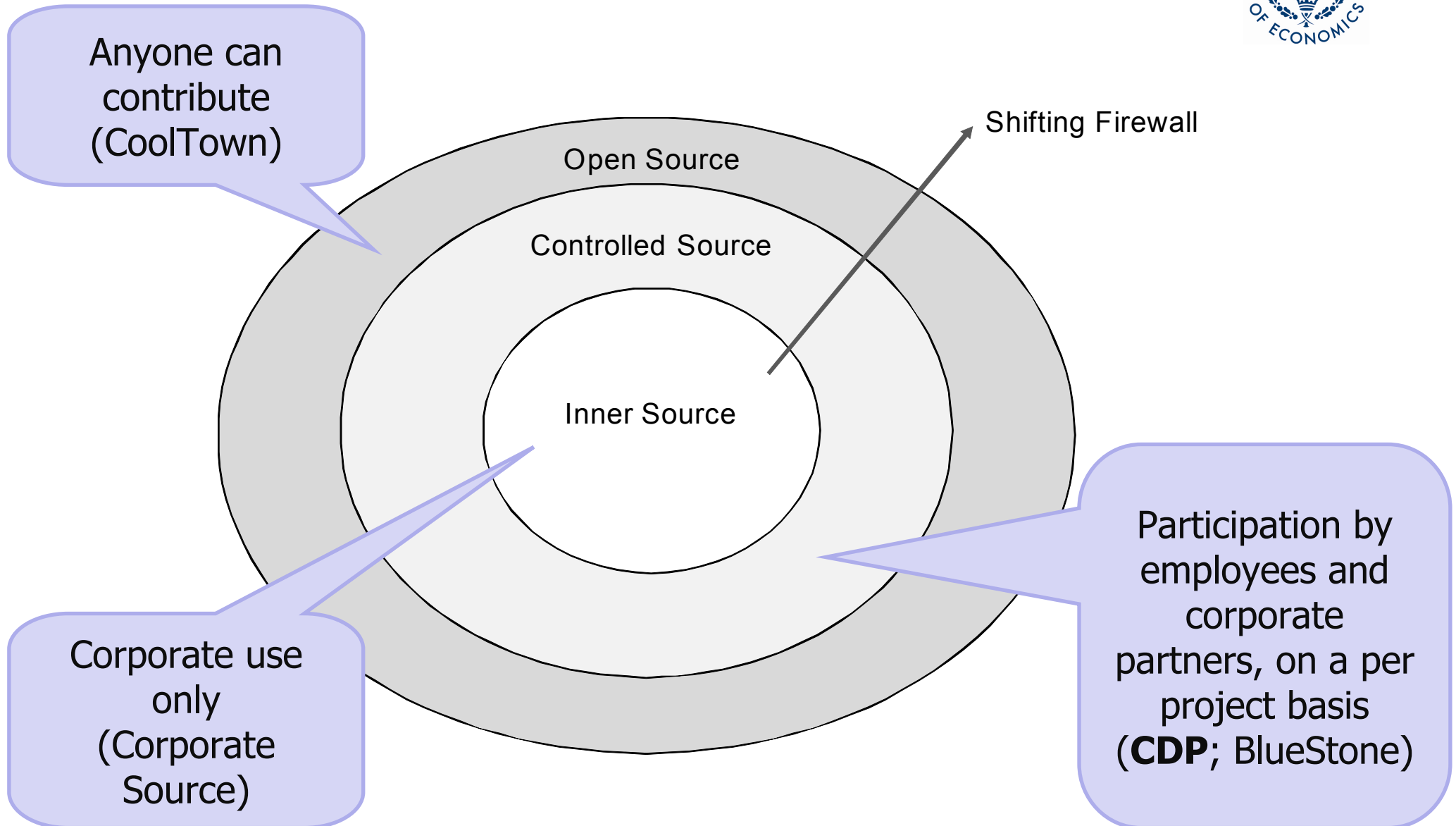
The Process at HP (V)

Reciprocation



- POS resembles OSSD, yet also meets traditional criteria for software success (time, budget, etc.)
- The success of POS at HP lends further credibility to open source, contributing to the status of OSSD

Degrees of Openness within "Progressive" (Corporate) Open Source at HP



Open Source Software Development	“Progressive” (Corporate) Open Source
Open participation	Controlled participation with varying degrees of openness
No restrictions on location	Geographic dispersion and 24/7 development possible
Frequent version releases, fast development, varying code quality	Faster development, high code quality required, time and budget restrictions
Open feedback from users	Feedback from controlled community of developers
Unrestricted flow of people entering and leaving the project	Assigned team of developers – with flexibility in staffing
Few restrictions on offering contributions to the code	People not on project team can offer suggestions through forums
Swift trust and fleeting social ties, anonymity	Longer-lasting social ties – strong connection to “IRL” – real life
Limited hierarchy	Traditional hierarchy remains intact
Limited control	Transparency facilitates extensive control and “micro-management”

Conclusions on Corporate OSSD



- A “**hybrid**” organization form
- May lead to considerable **improvements** in software development
- Organizational control is altered as transparency and non-anonymity create a “virtual **panopticon**”
- **Intellectual property rights** decisions become integrated into developers’ everyday work

Further Research



- Emergence, functioning and resilience of corporate OSSD as a hybrid organization form
- Openness of work processes as a continuum
- Better understanding of tradeoffs: control, innovativeness, speed, secrecy, motivation, culture, corporate identity
- Complexity of control in multi-party contexts

Practice Implications



- Open source is not an off-the-shelf solution
- The new “hybrid” organization form places new demands on developers as well as managers
- Bring partners in vs. throw tasks out? (outsourcing R&D; open innovation)



Thank You!