Capabilities for Open Source Innovation: Collaboration in OpenStack

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Three Topics

- Open source and technology innovation
- Collaboration in OpenStack
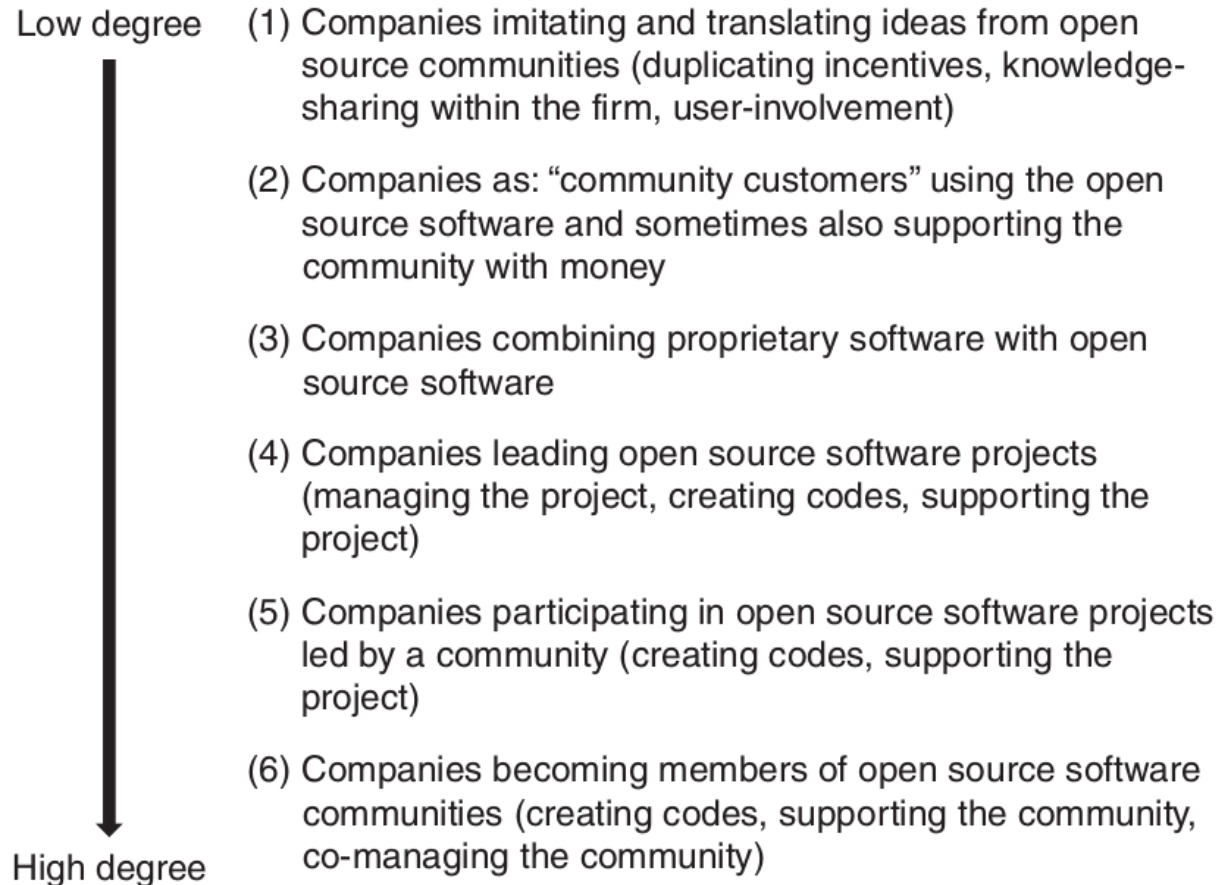- Long-term strategy in OpenStack

Open Source & Innovation

- What makes companies successful?
  - at open source
  - at technology innovation
- The two have a lot in common
- Organizational capabilities
  - can be learned
  - impact strategic outcomes

Open Source & Innovation

- Open Innovation (Henry Chesbrough)
  - share ideas externally
  - assimilate external ideas inward
- Open Source
  - share code externally
  - assimilate external code
  - create and capture value for customers
  - co-develop across company boundaries

Levels of Engagement

Low degree

(1) Companies imitating and translating ideas from open source communities (duplicating incentives, knowledge-sharing within the firm, user-involvement)

(2) Companies as: "community customers" using the open source software and sometimes also supporting the community with money

(3) Companies combining proprietary software with open source software

(4) Companies leading open source software projects (managing the project, creating codes, supporting the project)

(5) Companies participating in open source software projects led by a community (creating codes, supporting the project)

(6) Companies becoming members of open source software communities (creating codes, supporting the community, co-managing the community)

High degree

(source: Westenholz, 2012, p. 28, cited in Ciesielska & Westenholz, 2016, p. 347)

Open Source & Innovation

- Other relevant research
  - strategic alliances
  - standards bodies with patent pools
  - internal and outsourced R&D
 - licensing as acquisition

Shared Characteristics

Characteristic	Technology Innovation	Open Source
collaboration in external communities (knowledge and resources)	•	•
access to external innovation (source code)	•	•
share ideas outward	•	•
organizational learning, assimilate ideas inward	•	•
efficiency of reuse/modification	•	•
strategic approach to customer value	•	•
low barrier to entry	•	•

2017 Survey

- Common characteristics of open source collaboration and levels of engagement

- Open survey targeting companies involved in OpenStack projects

- Range: small startups to Fortune 50 (>300k employees)

- Primarily 30 Platinum & Gold members
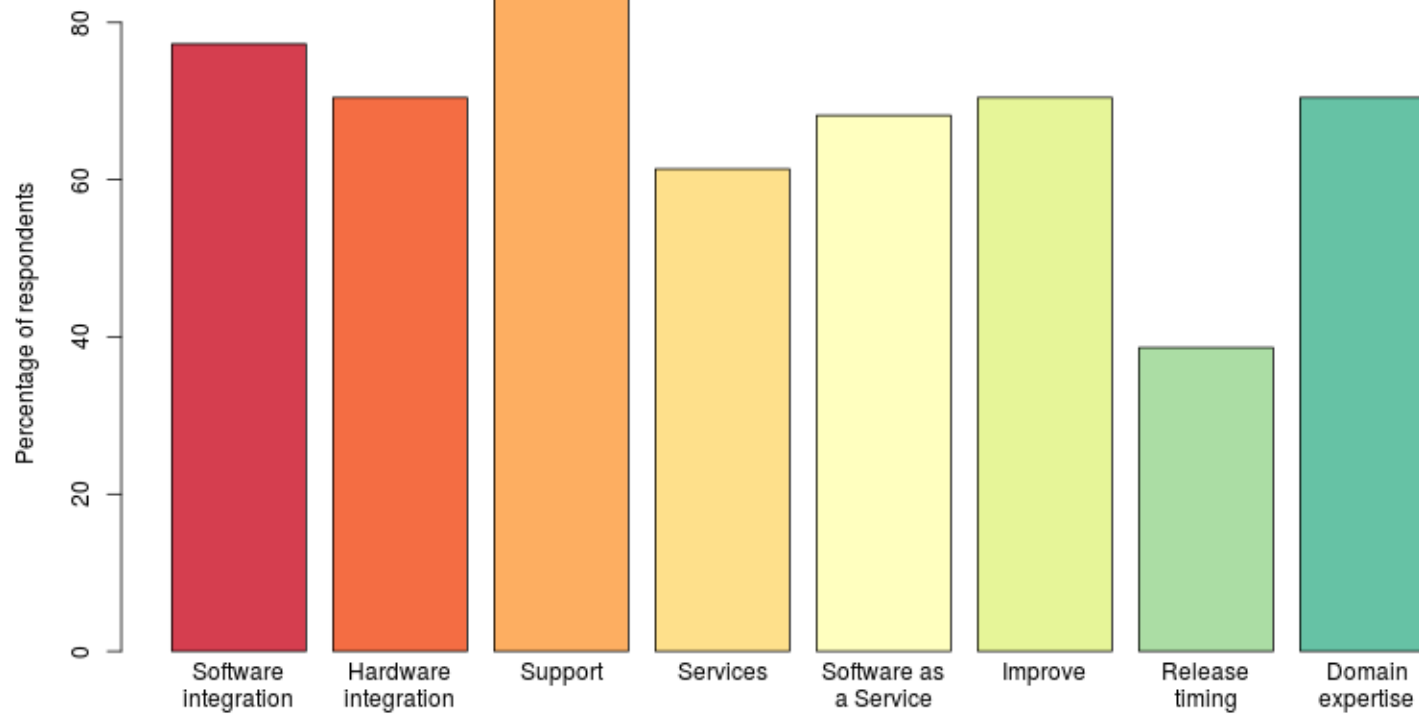
- Active investment in open source

Styles of Engagement
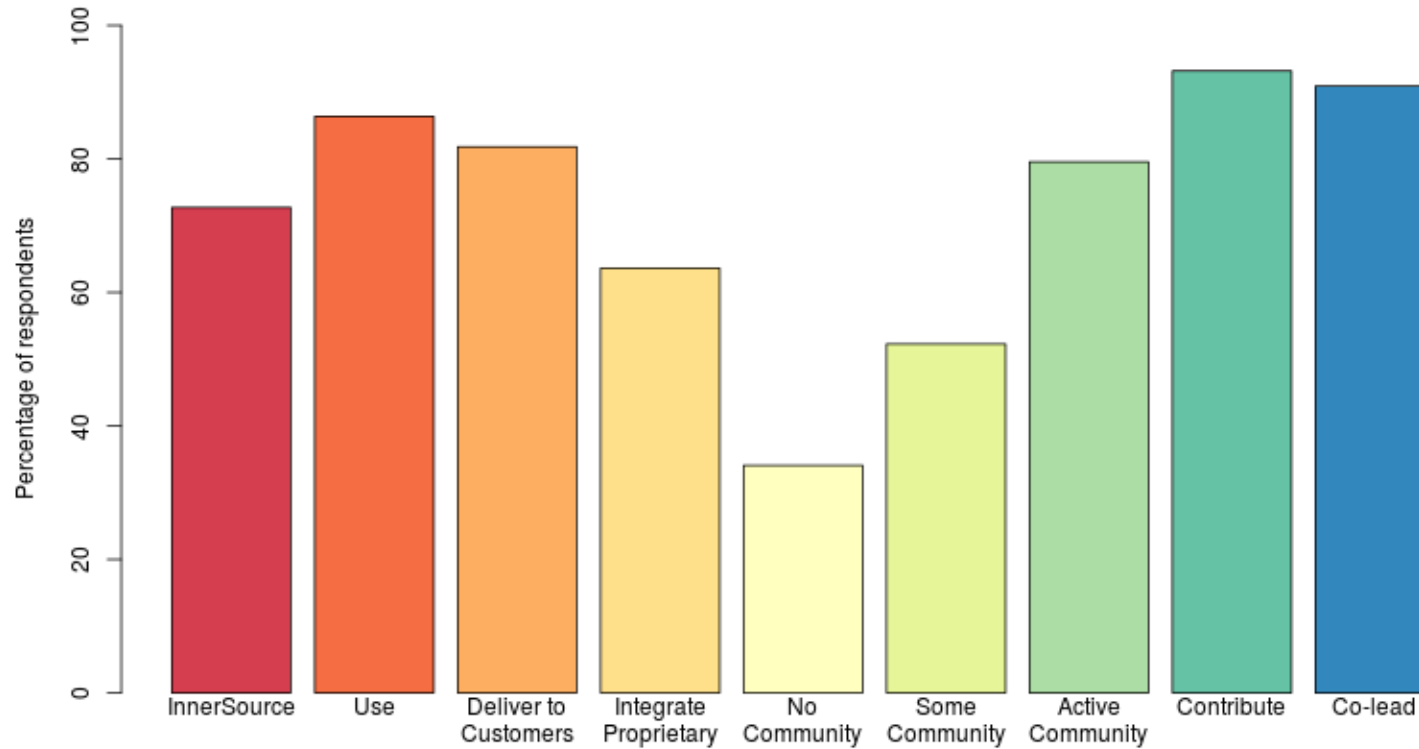
Styles of Engagement

- Most common:
  - contribute to community, 93%
  - participate as co-leaders, 91%
  - research predicts these would be less common
- Least common: open source with no community, 34%
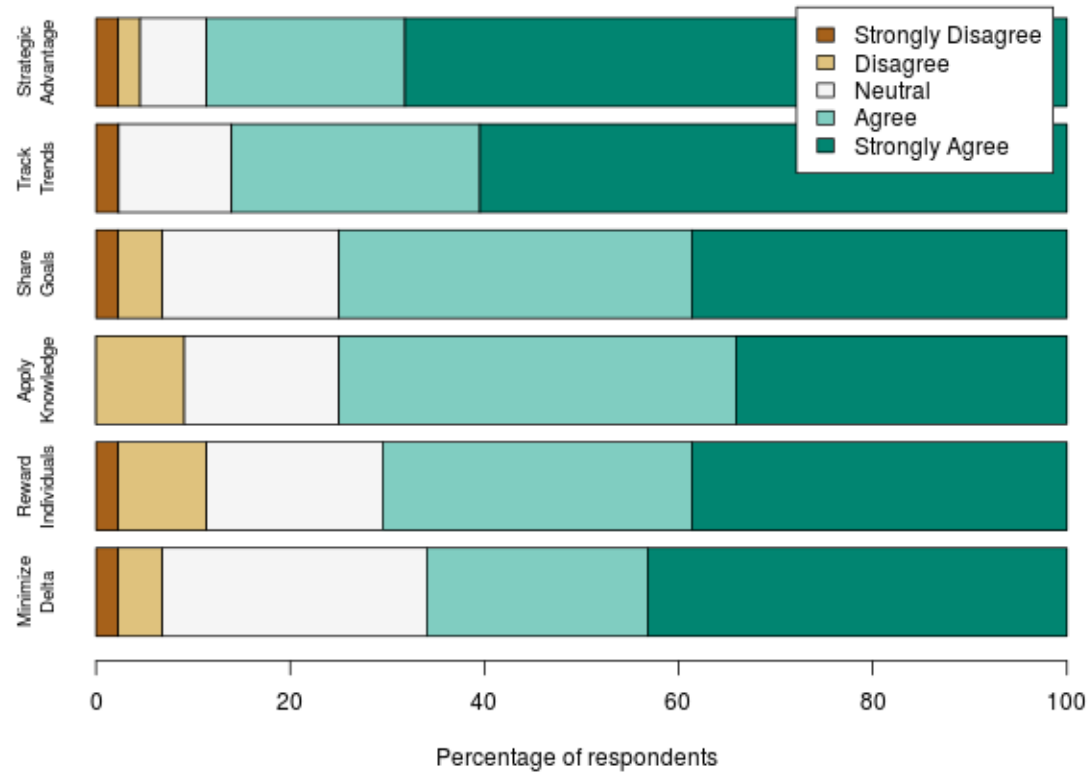- Integrating open source, 82%, more common than proprietary, 64%

Areas of Business Value

Areas of Business Value

- Most common:
  - support, 86%
  - software integration, 79%
- Correlations:
  - integration with distribution
  - contributing with support
  - active community with domain expertise
  - no community with SaaS

Participation Practices

Participation Practices

- Most common:
  - regard open source as strategic component of competitive advantage, 90%
  - track open source trends for impact on business strategy, 86%
  - sharing and assimilating knowledge, 75%

2017 Interviews

- At OpenStack PTG Atlanta
- Strategic planning with Board, TC, UC
- Strategic Areas
  - Community Health
  - Adjacent Technologies
  - Requirements Feedback Loop
  - Communicating about OpenStack
  - Changes to the Technology

Community Health

- Strengths
  - large and growing global community
  - strong collaboration
  - open governance
  - different companies collaborating on the same common goal
- Improving the situation
  - growing new community leaders

Adjacent Technologies

- Strengths
  - history of collaboration with other open source projects/technologies (Linux, Python, KVM, etc.)
  - strong integration points, tested well together, work well together
- Improving the situation
  - identify opportunities for cross-project collaboration
  - make our technology more consumable (independently) by other communities/projects

Requirements Feedback Loop

- Strengths
  - our culture, planning the work together
  - diversity of backgrounds brings strength, all the knowledge together in one room
  - driven by real use cases, customers, companies, organizations deploying OpenStack
- Improving the situation
  - breaking down barriers between ops and dev communities

Communicate about OpenStack

- Strengths
  - welcoming people and projects to OpenStack
  - projects collaborate to define the big picture
- Improving the situation
  - map OpenStack components to clarify our messaging
  - goal of "Big Tent" was good, but name and approach confusing

Changes to the Technology

- Strengths
  - evolving infrastructure
  - integrate new technology for new use cases, new user needs
- Improving the situation
  - reduce configuration options
  - cut unused features
  - curate project list

Three Take-aways

- Open source is mostly innovation-as-usual, with a few refinements

- OpenStack has an unusually high percentage of companies participating at the most effective level possible, co-leadership

- This participation is a massive advantage for OpenStack, now and in the long-term

Further Reading

- Ciesielska, M. & Westenholz, A. (2016) 'Dilemmas within commercial involvement in open source software', *Journal of Organizational Change Management*. vol. 29, no. 3, pp. 344-360.

- Morgan, L. and Finnegan, P. (2014) 'Beyond free software: An exploration of the business value of strategic open source', *The Journal of Strategic Information Systems*, vol. 23, no. 3, pp. 226-238.

- Pisano, G. (2016) 'Towards a Prescriptive Theory of Dynamic Capabilities: Connecting Strategic Choice, Learning, and Competition', *Harvard Business School Technology and Operations Management Unit Working Paper*, no. 16-146.

- Westenholz, A. (Ed.) (2012) *The Janus Face of Commercial Software Communities — An Investigation into Institutional (Non) Work by Interacting Institutional Actors*, Copenhagen Business School Press, Frederiksberg.