

On the role of FOSS business models and participation architectures in supporting open innovation

Michelle W. Purcell
College of Computing & Informatics
Drexel University
3141 Chestnut St., Philadelphia PA
610-864-1060
E-mail: mjw23@drexel.edu

ABSTRACT

Most research regarding innovation in free and open source software (FOSS) pertains to identifying supporting conditions for promoting code contribution. This raises concerns about the ability of FOSS communities to remain innovative based only on the perspectives of developer-users. Preliminary research suggests different open source business models may provide motivation to support greater involvement of non-developer users. This research focuses on understanding the relationship between business model and supporting participation architectures, beyond users' code contributions, to enable user participation in design of the software.

Categories and Subject Descriptors

H.5.3 [Information Interfaces and Presentation]: Group and Organization Interfaces – *collaborative computing, computer-supported cooperative work, organizational design.*

General Terms

Design, Management.

Keywords

Open innovation, Free and open source software, Participation architectures, Organizational studies.

1. OVERVIEW OF RESEARCH

Free and open source software (FOSS) is often discussed as innovative usually in regard to the ability to support distributed development though the openness of code [5, 9]. Often this focuses on user needs being represented by developer-users who have the ability to implement changes by contributing code. However, literature points to a lack of diversity of user involvement and usability [6, 10]. This raises concern about the ability of FOSS organizations to remain innovative based entirely on the perspectives of developer-users.

While previous studies investigated approaches for improving user

representation, for example, improving the role of human-computer interaction (HCI) specialists within FOSS to represent user needs and the need for development of richer tools to enable generative discussions between HCI specialists and developers [1, 2, 7], they did not consider the varied contexts under which open source software projects operate. The perspective of the research proposed here is that while the ideas suggested above are valid, their effectiveness depends upon alignment with community decision making processes regarding how to allocate scarce developer resources, which I propose are influenced by the business model of the project. I have conducted preliminary research of one community which employs a deployment business model, meaning that while the code is free users are willing to pay support, subscription, and professional services to maintain and customize the software [4]. Preliminary research shows that user representation is widened through motivation of software support companies to develop on behalf of their user customers. However, this also leads to the question of how do users who do not contract with software support companies become involved.

The proposed research takes an ecological approach toward understanding the role of representation diversity through examination of participation architectures, “the socio-technical framework that extends participation opportunities to external parties and integrates contributions” [12, p. 146], which enable varying degrees of openness which in turn are positively related to sustaining and growing an innovation community [12]. To facilitate openness the participation architecture must support distributed cognition because in diverse communities knowledge is ‘stretched across’ participants rather than shared between them [8]. Therefore, the overarching research question is:

What is the relationship between FOSS contexts including business model, user participation architecture and the ability to support distributed cognition to widen user involvement?

The sampling approach which is based on exploring the relationship between business model, participation architectures and user representation will aid in better understanding the relationship between business model and technological innovation, an area in need of further research [3]. In addition, as I plan on using distributed cognition as a lens for analysis, findings will elaborate on how characteristics of the participation architecture enable distributed collaboration within the larger social activity of the community and may promote feedback in furtherance of user ideas; knowledge that has relevance to improving the generativity of tools used in user-developer distributed collaboration, an area which is considered problematic [11].

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To date I have obtained permission from one community to study their processes and based on preliminary research I have submitted the paper “Toward understanding new feature request systems as participation architectures for supporting open innovation” to OpenSym 2015. I am working to obtain permission to study other communities for the dual purpose of: 1) aiming for a sample that achieves maximum variation and 2) considering the potential effect business model may have on instantiation of participation architectures. From the symposium I seek feedback and suggestions on my planned research and analysis methods.

2. REFERENCES

- [1] Bach, P. 2009. Design Information sharing across multiple knowledge systems in a FLOSS community. (Chapel Hill, NC, Feb. 2009).
- [2] Bach, P.M. et al. 2009. Designers wanted: participation and the user experience in open source software development. *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (2009), 985–994.
- [3] Baden-Fuller, C. and Haefliger, S. 2013. Business models and technological innovation. *Long range planning*. 46, 6 (2013), 419–426.
- [4] Chesbrough, H.W. and Appleyard, M.M. 2007. Open Innovation and Strategy. *California Management Review*. 50, 1 (2007), 57 – 76.
- [5] Von Hippel, E. and von Krogh, G. 2003. Open Source Software and the “Private-Collective” Innovation Model: Issues for Organization Science. *Organization Science*. 14, 2 (2003), 209–223.
- [6] Iivari, N. 2009. “Constructing the users” in open source software development: An interpretive case study of user participation. *Information Technology & People*. 22, 2 (2009), 132–156.
- [7] Iivari, N. 2011. Participatory design in OSS development: interpretive case studies in company and community OSS development contexts. *Behaviour & Information Technology*. 30, 3 (2011), 309–323.
- [8] Lave, J. 1988. *Cognition in practice: Mind, mathematics and culture in everyday life*. Cambridge University Press.
- [9] Lin, Y. 2004. Epistemologically multiple actor-centered systems: or, EMACS at work! *Ubiquity*.
- [10] Nichols, D. and Twidale, M. 2003. The Usability of Open Source Software. *First Monday*. 8, 1 (2003).
- [11] Twidale, M.B. and Nichols, D.M. 2005. Exploring usability discussions in open source development. *System Sciences, 2005. HICSS’05. Proceedings of the 38th Annual Hawaii International Conference on* (2005), 198c–198c.
- [12] West, J. and O’Mahony, S. 2008. The role of participation architecture in growing sponsored open source communities. *Industry and Innovation*. 15, 2 (2008), 145–168.