



# Open Source Community Roles and Community Continuity

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Open source communities are built on the engagement of people, and these engagements are subject to change. Open source communities can recognize and support role adaptation where members join, support, and exit communities as their experiences and commitments change.

Open source software (OSS) communities are more than a collection of tasks and contributors; they are sociotechnical infrastructures<sup>1</sup> where member learning and computational architectures coexist. In such settings, the roles that community members embody are seldom fixed. Rather, member roles are situated positions that emerge and

change as people traverse and reshape the social and technical landscape of OSS communities, combining code, norms, and tools.<sup>2,3</sup> Existing depictions of OSS member roles as core/periphery, steward/episodic, and paid/volunteer have advanced research but are often limited to views of repository activity. These depictions are largely descriptive, treating member roles as externally viewed constructs, potentially obscuring the impacts stemming from how members embody and change their roles within an OSS community. To foreground roles as an observed construct from within an OSS community,<sup>3,4</sup> this

commentary explores the adaptability of roles at the intersection of member experience and commitment.

The adaptability of OSS community roles can be a source of continuity within OSS communities and the OSS ecosystems they are part of.<sup>3,5,6</sup> OSS role adaptability is, in part, the permeability of members entering and exiting communities.<sup>7,8</sup> Additionally, OSS role adaptability is members changing between newcomers, aspiring contributors, core stewards, and expert nomads within a community. As OSS community member experiences

## FROM THE EDITOR

Welcome back to the Open Source column! This month, researcher and open source enthusiast Matt Germonprez returns to our column and writes about open source community roles and how people adopt and play roles, but also how they move on to new roles and change existing ones. As always, relevant reading for anyone interested in open source projects and how their communities work!—Dirk Riehle

deepen and commitments shift, so too do their roles within a community.<sup>2,3</sup> By conceptualizing OSS roles as adaptable, this commentary extends views of OSS community membership as well as membership change as an engine for continuity, improving the vocabulary for both research and practice when describing OSS community engagement.

## THE INTERSECTION OF OSS COMMUNITY EXPERIENCE AND COMMITMENT

### Experience

Experience is more than the acquisition of technical skills. It includes

the sociotechnical proficiency people accrue by participating in OSS communities that include reviewing code, negotiating meaning, learning boundaries, and developing a feel for “what matters.” Experience is accrued as members align with an OSS community’s evolving architecture and discourse, become legible to others, and learn how to work on both the social and technical aspects of a community. Being part of a community, members make sense of what they do, how they engage with others, and how they construct meaning through their engagements. While experience can be expressed as a point in time, it is built over time; built from the learning associated with shared historical and social resources, frameworks, and practices that enable mutual engagement.<sup>9</sup>

### Commitment

If experience captures what members gain, then commitment captures what members give. Commitment is the time and energy that members give and is visible in a persistence and depth of work that sustains an OSS community. Commitment is the relationship between a member and an OSS community and is driven not only by instrumental factors, such as skill development or reputation, but also by ideological fit and goal alignment.

When members perceive that their personal objectives, whether ideological, professional, or altruistic, align with a community, they are likely to sustain commitment.<sup>10</sup> Conversely, misalignment of goals can lead to ideological friction or community withdrawal.<sup>11</sup> Members use their experiences of the social and the technical aspects of a community to commit to practices that sustain collaboration and well-being for all.

### A matrix of OSS community roles

Together, experience and commitment frame a matrix of OSS community roles (Figure 1). The matrix includes low experience with low commitment as an *observer or newcomer*, a member with an interest to learn more about an OSS community. Low experience with high commitment as an *aspiring contributor* who is motivated but still learning about a community. High experience with high commitment as a *core steward or maintainer*, a member who is still learning, but deeply embedded both technically and socially. High experience with low commitment as an *expert nomad*, a technically adept but transient member.

### OSS ROLE ADAPTABILITY

OSS community roles are not static. People enter as observers, integrate as aspiring contributors, sometimes become stewards, and may drift into expert nomadism, reentering elsewhere as newcomers in new communities. Role adaptability serves as a mechanism by which knowledge and practice circulate within OSS communities and across OSS ecosystems.<sup>12</sup> OSS role adaptability, not simply the identification of members in single roles, characterizes OSS communities by cycles of transformation and reentry that reflect personal development and community dynamics.

1. *Entry (newcomer → aspiring contributor):* Members enter OSS communities through exploration and observation.



FIGURE 1. OSS community roles at the intersection of experience and commitment.

Their commitment increases as they find ideological or professional fit with an OSS community. The change to an aspiring contributor occurs when observation becomes participation and learning occurs in action.

2. *Integration (aspiring contributor → core steward):* Through participation, aspiring contributors build competence, recognition, and social capital within a community. As their technical and social experience grows, they assume stewardship responsibilities, whether through code maintenance, mentoring, or governance. The change represents a shift to deepened engagement, where identity and community alignment are strongest.
3. *Drift (core steward → expert nomad):* Sustained commitment can give way to drift as responsibilities accumulate or ideological alignment weakens. Contributors may experience burnout, conflict, or shifting priorities. Some members transition into expert nomads, applying their expertise to new OSS communities while maintaining looser attachments with the original OSS community. This drift is not necessarily negative as expert nomads can be vital boundary spanners between communities, transferring knowledge and practices.
4. *Exit and renewal (expert nomad → observer):* Some members disengage from an OSS community for a number of reasons, including job changes, community changes, and personal interests. This disengagement can be partial or complete, potentially reentering new OSS communities as observers or aspiring contributors once again in new communities of interest.

OSS community role adaptability highlights roles as a process of change at the intersection of experience and commitment (Figure 2).

### OSS ROLE ADAPTABILITY: OSS COMMUNITY CONTINUITY

OSS role adaptability extends a perspective in the study of OSS communities by conceptualizing roles as relational and dynamic rather than dichotomous. This shifts attention from roles as ex-

adaptability, communities generate pipelines of knowledge flow and collective learning via member circulation and because there is a continual renewal of energy and purpose, communities continually recharge and maintain productive momentum. As such, OSS role adaptability engenders OSS community continuity, not in the retention of contributors in specific roles, but in the regularity of role changes within a community.

### Experience is more than the acquisition of technical skills.

ternally observed research constructs from online trace data (for example, core/periphery, steward/episodic, and paid/volunteer) to roles as dynamic and changing within an OSS community.<sup>3</sup> Recognizing role adaptability in OSS communities foregrounds the interaction of social learning and motivational commitment, emphasizing that the movement between observation, stewardship, disengagement, and reentry are important and normal parts of an OSS community.

OSS role adaptability highlights a process by which change becomes an expectation and an asset to a community's rhythm. Through OSS role

This perspective of OSS community continuity suggests that the sustainability of an OSS community is, in part, tied to a circulation of roles. The investment in practices to support role changes can have longstanding impacts on a community and by anticipating and even expecting change, members are recognized for their interests in or drift from a community. Role adaptability highlights that experience and commitment are constitutive of open source practice and that through role adaptability, communities can not only create continuity internally but to the open source ecosystems they are part of. Beyond

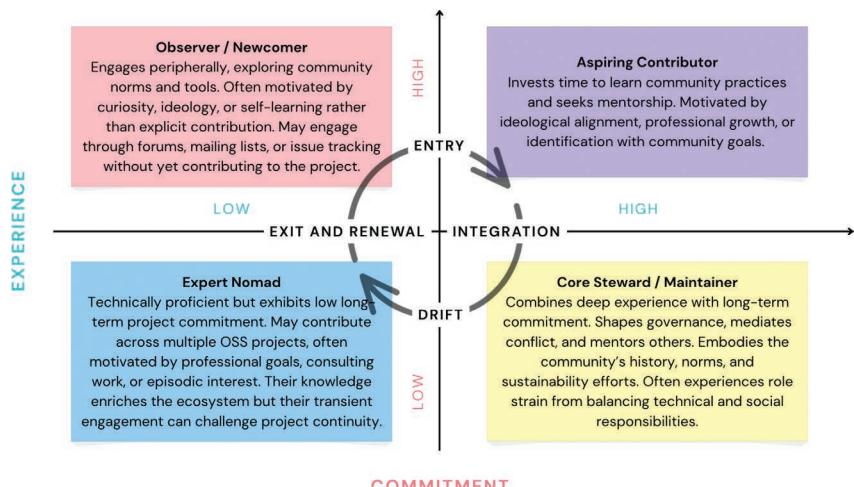


FIGURE 2. OSS community role adaptability.

any one OSS community, OSS role adaptability is important for continuity within open source ecosystems via cross-community collaboration and renewal as newcomers and expert nomads carry experiences and commitments that accelerate standardization, interoperability, and best practices between communities.<sup>7,8,9</sup>

### Practical implications

OSS role adaptability provides insight into how OSS communities interface with an array of potential members. For example, we know that corporate sponsorship and employment shape open source participation and OSS role adaptability can help ground these relationships as firm-sponsored developers often possess high experience but variable commitment. Their professional obligations may align or conflict with community goals, situating them in a balance between core steward and expert nomad roles. OSS community governance strategies that recognize the complexity and adaptability of roles can better foster cross-role dialogue and recognize diverse motivations that allow, for example, communities to integrate firm-sponsored developers without reinforcing corporate structures. For maintainers, community leads, and community managers, OSS role adaptability, as shown in [Figure 2](#), provides a framework to support an array of changing roles. Recognizing that members occupy different roles along experience and commitment dimensions can inform targeted OSS community work, including:

- **from observers to aspiring contributors:** invest in documentation, mentorship, and inclusive communication
- **from aspiring contributors to core stewards:** provide recognition, decision-making opportunities, and pathways to leadership
- **from core stewards to expert nomads:** manage burnout through workload rotation and succession planning

- **from expert nomads to reentry:** create flexible participation mechanisms for transient experts and newcomers.

OSS communities can support role adaptability to onboard newcomers, support aspiring contributors and stewards, and welcome expert nomads and their boundary-spanning value. Communities can construct governance to recognize and support heterogeneity in roles and invest in boundary resources, mentorship programs, and mechanisms for member exits and reentries that preserve community continuity. Communities that support OSS role adaptability are supporting an approach that is buoyed by not only the recognition of members in certain roles but by value accrued from members changing between these roles.

Participation in OSS communities changes who members are, not just what they know. OSS role adaptability reflects this dynamic as individuals accumulate experience and deepen commitment. Roles in open source are then continually reconstituted through cycles of engagement, withdrawal, and return, extending common narratives of OSS roles that promote sustained contribution as an unambiguous good. Instead, role changes embody forms of reconfiguration: drifting, pausing, or reentering become expressions of agency that allow individuals to reconcile personal, ideological, and professional identities. Understanding these dynamics foregrounds the importance of flexibility, recognition, and support in OSS communities.

OSS role adaptability emphasizes engagement as a temporal process. The nature of OSS communities depends not on the number of contributors but on the quality and adaptability of their experiences and commitments. Understanding experience and commitment as interwoven in OSS community roles allows scholars and practitioners to view open source not

as a hierarchy of expertise, but as a cycle of becoming and a community constantly learning, adapting, and renewing itself. In supporting change, OSS communities open themselves up to an ongoing cycle of fresh perspectives from newcomers, challenges of community norms from aspiring contributors, translative ideas and stable practices from stewards, and bridging innovation from expert nomads—critical components in the long-term continuity of open source communities. □

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