How can OSS Projects be compared with Organizations?

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Introduction

Concepts
— OSS research often uses different concepts of a collective that works together to reach a common goal:
  – Community
  – Project
  – Foundation
  – Organization
— Those concepts around OSS and their relations to each other are often not clarified.
Introduction

> **OSS Governance**
  — Has been widely discussed in literature [2-4].
  — “the means of achieving the direction, control, and coordination of wholly or partially autonomous individuals and organizations on behalf of an OSS development project to which they jointly contribute [5].”
  — What exactly is to be governed? What is a project?

> **Research Question**
  — What are the different elements comprised within an OSS project?
Agenda

Introduction

The Elements of an Organization

Organizational Framework of OSS Projects
Elements of an Organization

> Luhmann [6]

— An organization can decide which people are part of it and which are not.

— Organizations have goals and the decisions are oriented around these goals.

— Goals are reached with organized processes that can be structured either in [8]:
  - core processes (central to earn money)
  - management processes (structure the processes to achieve those core processes)
  - supporting processes (are necessary to run the core processes, but are not central to an organization)

— Processes can be formal and informal
Luhmann [6]
— Organizations have structures, which regulate the position of members within the organization
— Hierarchies enable an organization to coordinate its people.
— Structures can be formal and informal.
Elements of an Organization

Assets

— Besides people, common goals, roles, rules and structures, most, if not all, organizations are in need of assets.

— From an accounting viewpoint, an asset is a resource controlled by an entity as a result of past events and from which future economic benefits are expected to flow to the entity [10].

— IFRS [10] distinguishes between:
  – Tangible assets
  – Intangible assets
Although this figure implies a well-defined structure, each element is closely interlinked with the other elements.
Agenda

Introduction

The Elements of an Organization

Organizational Framework of OSS Projects
The People-Dimension

> Motivation to contribute
  — Contributors can either be paid or are volunteers.
  — Motivations behind employees and volunteers contributing to an OSS projects differ [14].
  — A developer’s “itch worth scratching”, might be not as strong for a paid developer as for a volunteer [15].

> Some tasks are less attractive for volunteers and could therefore be carried out by hired people [16].
Volunteers

— The involvement of a community in an OSS project is a vital factor [17, 18].
— Attracting and gaining volunteers for an OSS project is an important aspect of community building.
— The community can ease the way for new volunteers by defining guidelines, wikis and answering their questions [19].
— With the help of issue trackers, potential new contributors can get in touch with the existing community.
— Increasing modularity of the source code is another way to attract new contributors [21].
Hired

— A high number of developers are paid by an employer for their OSS efforts [24].
— In a study by O’Mahony and Bechky [25], 63% of respondents were paid by a corporate sponsor.
— Berdou [28] distinguishes different forms of hired people:
  - free sponsorship (no clear instructions, often from contributors)
  - clear mandate (contrast to free sponsorship)
  - OSS-friendly jobs (allowed to spend some time working on OSS)
  - sub-contracting (develop a specific application: bounty program)
Bylaws

— Bylaws are rules established by the community to regulate itself.

— Some OSS projects have formal membership rules and agreements, such as bylaws with different roles and functions [19].

— As an example, the bylaws of the Eclipse Foundation:
  - regulate the overall purpose of the community
  - the powers and duties of the different roles
  - how and when members are elected
  - how meetings are organized
The Organization-Dimension

> **Structures**

— Relationships with external groups, leadership and control are common sources of conflict [32, 33].
— Structures regulate the coordination efforts between different actors
— Formal / informal structures (“onion-model”)
— From informal to formal [1]
  - spontaneous
  - internal
  - external
Core Processes

— Formal rules about the development process ensure that operational tasks, such as requirements elicitation, assignment of people to tasks etc. are organized [5].

— Eclipse Development Process:
  - describes the principles upon which the process should rely: openness, transparency and meritocracy.

— The software development process is often informal [37].
The Organization-Dimension

> Examples for management processes:
  — Election process
  — Decision process
  — Voting

> Examples for supporting processes:
  — Ensuring that contributions do not infringe third-party IP-rights
  — Funding process (including bookkeeping)
  — Community reports
  — Annual reports
The Asset-Dimension

> **Tangible Assets**
> With respect to the development of software, the availability of an IT Infrastructure is an important aspect:
> - PC’s
> - Webservers

> **Intangible Assets**
> Although OSS does not fully meet the conditions to be included as an asset in financial reports [44], it can be protected in different ways:
> - Copyright of the source code
> - Trademarks & brands
Comparison

— Our framework describes the different elements comprised within a single OSS project and shows the broad variety and complex constellation surrounding such a project.

— Each of the three main elements of our framework is enriched with examples from the corresponding OSS research stream.

— Similar to Markus [5], we see formal and informal structures and norms as one of the main elements of OSS governance.
Discussion

— an OSS community may have different projects and therefore a project does not correspond to the organization (the three dimensions of our framework).

— Moreover, an umbrella organization such as the Linux Foundation may offer their legal entity in order to protect other OSS projects and offer them services relating

— Therefore, the legal aspect of the organization does not need to correspond to the project.
Further research

— Our organizational framework broadens the view of Riehle and Berschneider [49] that shows 3 different ways in which a mature OSS project can govern itself in the future:
  - 1) continue as is,
  - 2) create its own legal entity or
  - 3) affiliate with an existing OSS foundation.

— In addition to these 3 forms, an “in-between” solution involving collaboration with different OSS foundations is also possible. Such collaboration can be in all areas of our organizational framework or in specific areas only.
Implications

— For practitioners, our framework will help to provide a better understanding of the structure an OSS project can have and how the different elements can be organized, similar to an organization.

— Our framework can provide practitioners valuable insights on several managerial aspects relating to OSS governance.
OSS Governance

> **Definition**

— evolutionary process
— individuals and / or organizations in communities
— OSS production, distribution and use
— creating knowledge how to cooperate in communities

> **3-phase-model**

— 1. Spontaneous governance (non-existing explicit and formal coordination)
— 2. Internal governance (enhance efficiency and effectiveness through division of roles, training, modularization)
— 3. institutionalization and the involvement of the outside world