



# REGENT'S UNIVERSITY LONDON PROJECT PROPOSAL FOR UNIFYING THE JUJU ECOSYSTEM

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**UED 707: MAJOR PROJECT**

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# UNIFYING THE JUJU ECOSYSTEM

- Introduction
- Literature Review
- Methodology
- UX Development
- Analysis and Findings
- Recommendations



# UNIFYING THE JUJU ECOSYSTEM



# BUSINESS CLIENT



## Canonical & Juju Ecosystem

- Canonical Ltd. (founded 2004) is leader in open-source (Ubuntu, Juju).
- **Juju** is a model-driven application orchestration for cloud, Kubernetes, and hybrid infrastructures.
- Juju's **key features** are *charms* (automation logic), scalability, and repeatable deployments.
- Success of Juju depends not only on technical power but also on **clear and accessible documentation**.

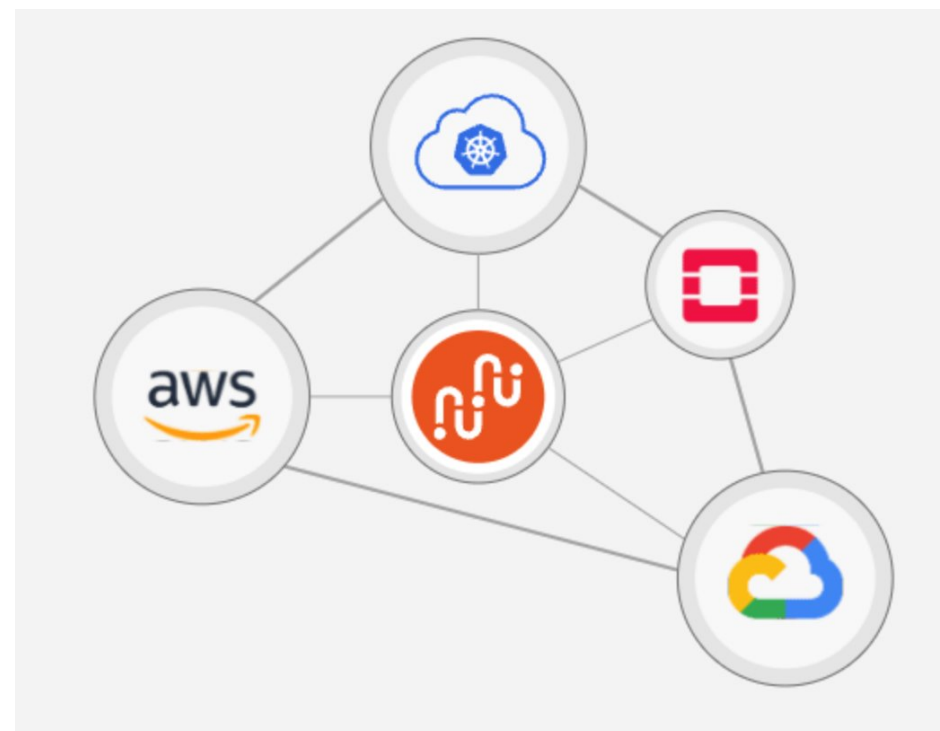


Image Credit: <https://juju.is>

## Challenges in OSS\* Onboarding

- OSS communities depend on a steady flow of newcomers for sustainability (Steinmacher et al., 2014).
- Newcomers face **technical and social barriers**, leading to high attrition (Steinmacher et al., 2016).
- Juju, Canonical's open-source orchestration tool, is powerful but hindered by **fragmented, inconsistent documentation**.
- As a result, users struggle to understand Juju's value, slowing adoption and engagement.



# MOTIVATIONAL BACKGROUND



## Why This Research Matters:

- OSS thrives on collaboration, but usability and documentation shape adoption and sustainability.
- Juju's complexity risks overshadowing its strengths if onboarding is unclear.

## Research aims:

- Apply **UX principles** to make Juju's documentation more **accessible & intuitive**.
- Reduce onboarding friction, highlight value proposition, and encourage long-term engagement.
- Broader impact: Provides a **case study** for improving OSS documentation strategies.

## Juju ecosystem

Juju is an ecosystem of tools for deploying and managing applications on any cloud on any infrastructure, Kubernetes or otherwise, using the Juju operator lifecycle manager and operators called 'charms'.

Try the Juju tutorial

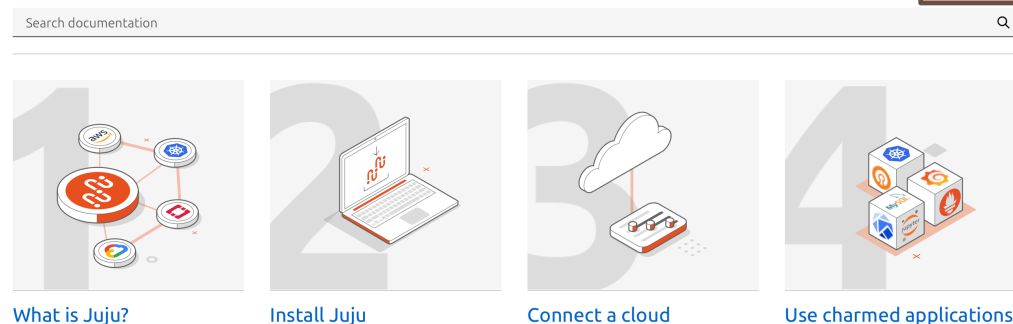


Image Credit: <https://juju.is>



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# RESEARCH QUESTION AND OBJECTIVES



## Research questions

- How can the onboarding experience be improved to make it more efficient and effective for current users?
- How might we ensure documentation is easily discoverable and accessible for new users?

## Research Objectives

- To identify the key challenges new users, face during the onboarding process within the Juju ecosystem.
- To design and propose a structured learning path tailored for newcomers.
- To evaluate the current documentation for its discoverability and accessibility.
- To recommend improvements for making documentation more accessible and easier to locate.
- To explore how different documentation formats or platforms affect user experience.

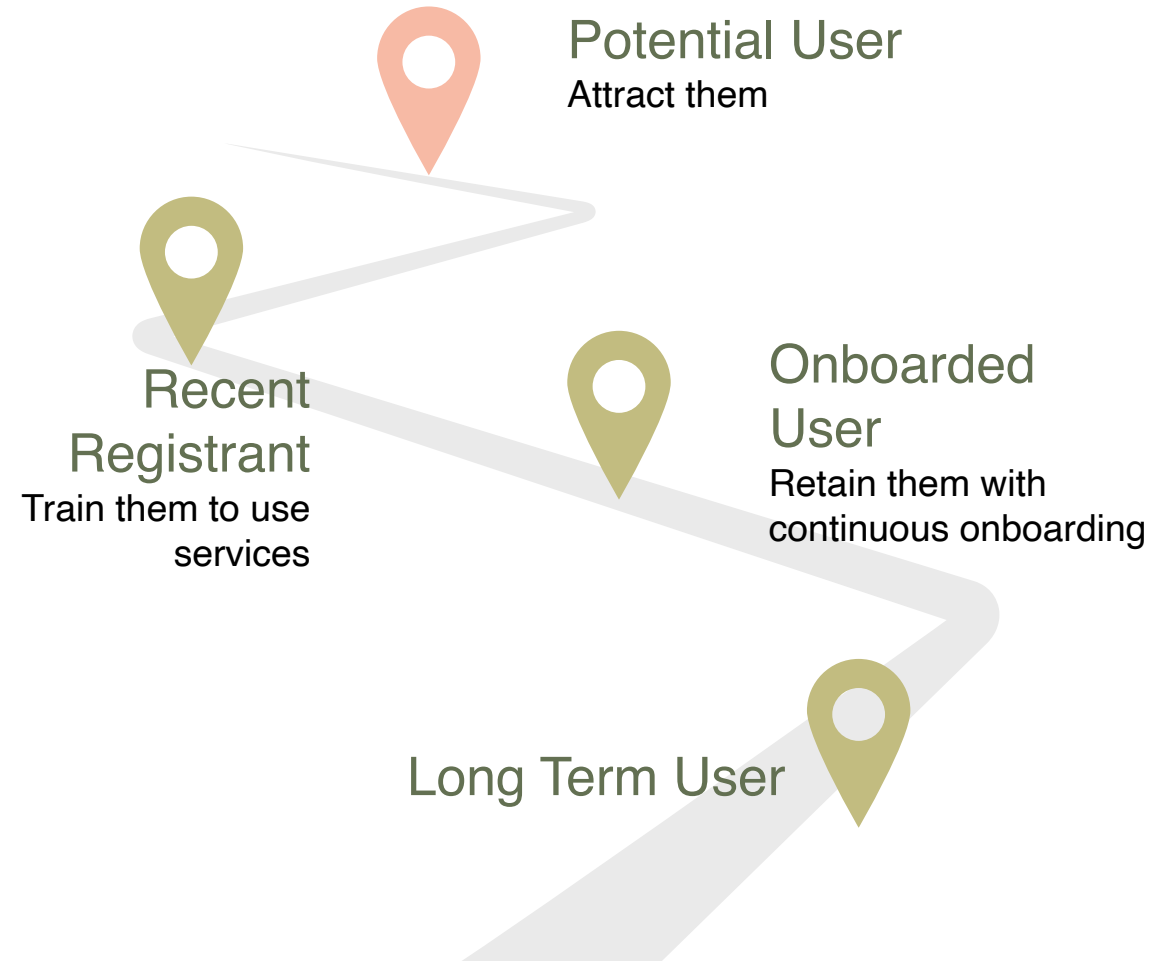
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# USER ONBOARDING JOURNEY



- It is the process of converting first-time visitors into long-term users by introducing them to a new product or service (Svanström, 2023).
- Onboarding isn't just for new users, it also helps existing users adapt to new features and redesigns, driving ongoing success and engagement (Kendrick, 2020).



# LITERATURE REVIEW ON ONBOARDING



## Effective Onboarding

- Onboarding enhances user retention and promotes long-term engagement (Kiritsis, 2022).
- It should provide **seamless, guided, and engaging experiences** using UX design principles (Renz, 2014; Cox et al., n.d.).
- Adoption is defined as **commitment to continued use over time** (Sledgianowski et al., 2009).

## Onboarding of Newcomers

- OSS communities rely on **volunteers worldwide**, but integrating newcomers is challenging (Qureshi et al., 2011).
- Negative first impressions can **deter long-term participation** (Fogel, 2005; Rehman, 2024).
- Social and cultural barriers (unclear communication, lack of feedback, unwelcoming behaviour) often outweigh technical hurdles (Steinmacher et al., 2015).

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# DATA COLLECTION DETAILS



Image Credit: <https://www.coursera.org/articles/zoom-interview-tips>

- Semi-structured interviews conducted with 2 Canonical employees.



Image Credit: <https://thebluediamondgallery.com/laptop01/q/questionnaire.html>

- A questionnaire is designed with open-ended and closed ended questions.
- Questionnaire completed by 3 Canonical employees and 6 Juju ecosystem users that are not Canonical employees.

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# UX DEVELOPMENT



## Design Thinking Life-Cycle Model

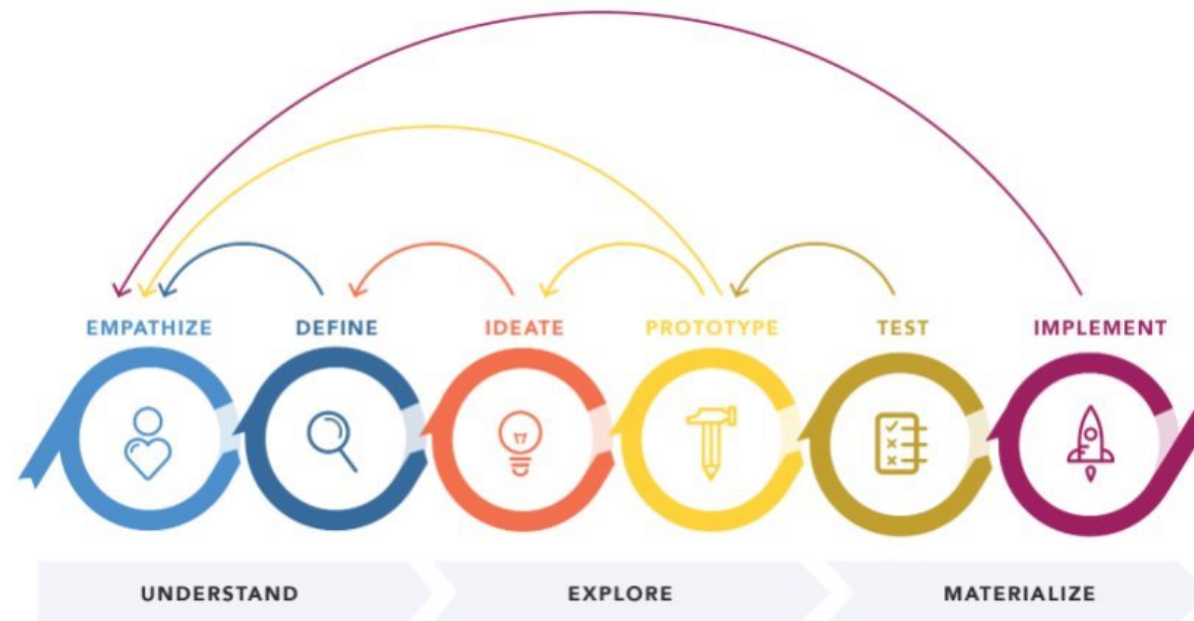


Image Credit" (Gibbons, 2008)

# EMPATHY MAP



## SAYS



The documentation is scattered and inconsistent.

I didn't know there was a blog or test environment.

Tutorials are helpful at the beginning but don't go deep enough.

It's hard to understand how all the parts of the ecosystem fit together.

I'm still learning, there's no clear starting point.

## DOES

Learns by doing, diving into real problems or exploring codebases.

Starts with tutorials and documentation, then shifts to experimentation.

Reaches out to colleagues or attends office hours instead of using forums.

Avoids or is unaware of resources like the community forum or official blog.

Uses the test environment only when they know it exists, often it's overlooked.



## FEELS



Frustrated by lack of coherence across learning resources.

Overwhelmed by complexity and disconnected documentation.

Discouraged when guides don't translate to real-world scenarios.

Uncertain about whether they're using the ecosystem correctly.

Isolated in their learning journey, often relying on colleagues.

## THINKS

There should be a central resource tying everything together."

I'm probably missing something important because the docs don't connect."

This has potential, but the learning curve is steep and unsupported.

"Advanced use cases aren't well documented, what comes after the basics?"

Troubleshooting is painful because I don't even know where to start."



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# FINDINGS IN RELATION TO RESEARCH QUESTION 1



## Improving Efficiency & Effectiveness

- Users struggle with scattered resources, unclear learning paths, and weak troubleshooting support.
- A **single-entry point** is needed to bring all documentation together.
- Clear **learning paths should be designed** for beginners, intermediate, and advanced users.
- Documentation should include **practical troubleshooting guidance** and real-world examples.
- **Updated and professional materials** (e.g., diagrams, videos) build user confidence and trust.

# FINDINGS IN RELATION TO RESEARCH QUESTION 2



## Improving Discoverability & Accessibility

- A **central hub** should replace the current scattered documentation sources.
- Guides should be written at **different difficulty levels** to match users' knowledge.
- Important resources (forums, blogs, test environments) must be **clearly signposted**.
- Documentation should be **regularly updated** to stay relevant and useful.
- Use **clear language and visuals** to reduce jargon barriers for newcomers.

# FINDINGS IN RELATION TO LITERATURE



- Research shows newcomers are essential for OSS sustainability (Qureshi et al., 2011).
- Early learning delays often lead to users dropping out (Steinmacher et al., 2014).
- Documentation must support both technical learning and community integration (Scacchi, 2022).
- Fragmented or outdated resources reduce motivation and trust.
- Juju's challenges reflect common issues across OSS communities.

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# RECOMMENDATIONS & CONTRIBUTIONS



## Recommendations

- Create a **centralized documentation hub** (Juju + Charmcraft + Rockcraft).
- Develop **tiered learning pathways** (beginner, intermediate, advanced).
- Improve professional **quality** of tutorials, diagrams, and videos.
- Actively **signpost** community forums & test environments.

## Contributions

- Provided evidence-based UX insights linking user pain points to literature.
- Delivered a framework for structured, discoverable, and sustainable onboarding.
- Highlighted that onboarding is also about building trust, engagement and community.

# PROTOTYPES



## ■ Figma Prototypes

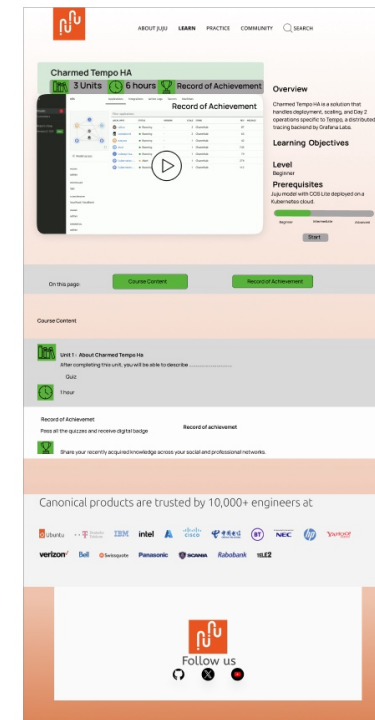
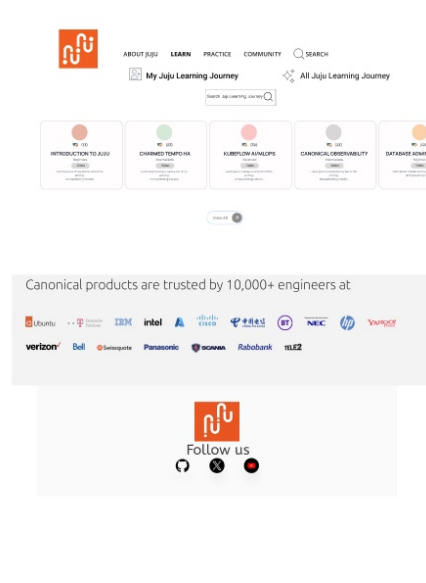




Image Credit: <https://juju.is>

THANK YOU

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