Value-Driven Industry Transformation: Leveraging Open-Source to Establish new Standards

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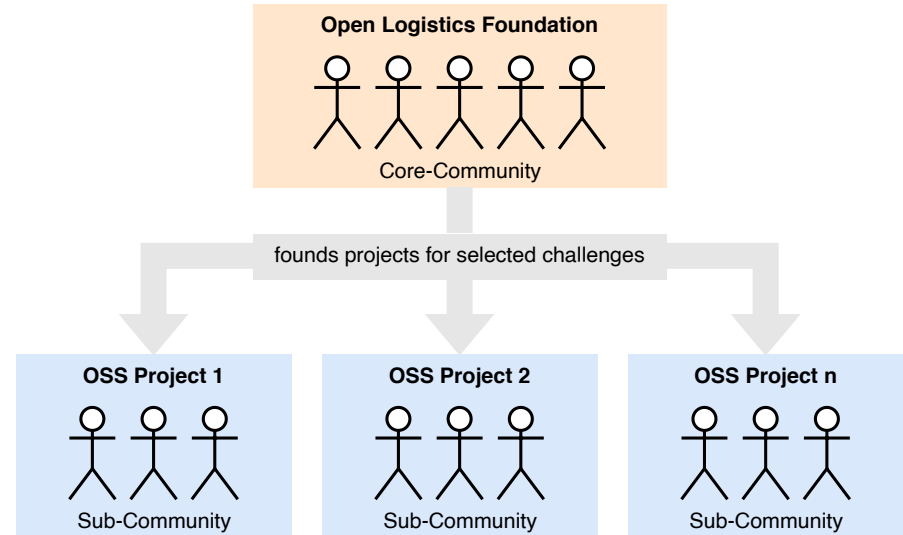Picture generated with Dall-E

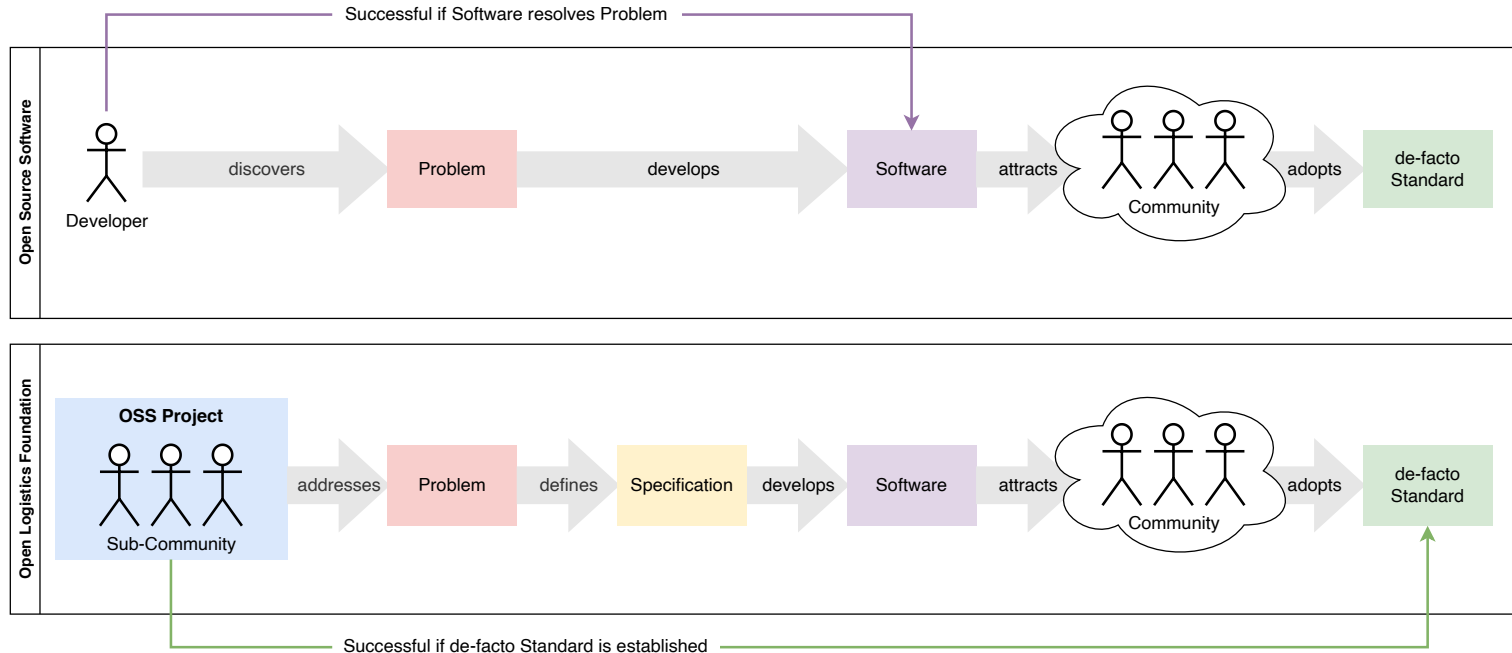# Context: Digital Transformation in Logistics

- **Digitalization in Traditional Industries**

- **Necessity for Radical Strategy Shift and Digital Transformation**

- **Challenges of the European Logistics Industry:**
  - Intense competition,
  - minimal collaboration, and
  - varying digital maturity levels

- **Open Logistics Foundation (OLF):** Introduction of a proactive approach through the collaborative development of logistics-specific open-source software (OSS) to foster industry-wide digital services.

Open Logistics Foundation

- **Collaborative OSS Development:** OLF's pioneering strategy to transform the logistics industry by establishing a committed core-community for collaborative OSS development.

- **Reversed OSS Project Trajectory:** Shift from traditional individual-driven OSS projects to a structured, community-led approach aiming at setting industry standards.
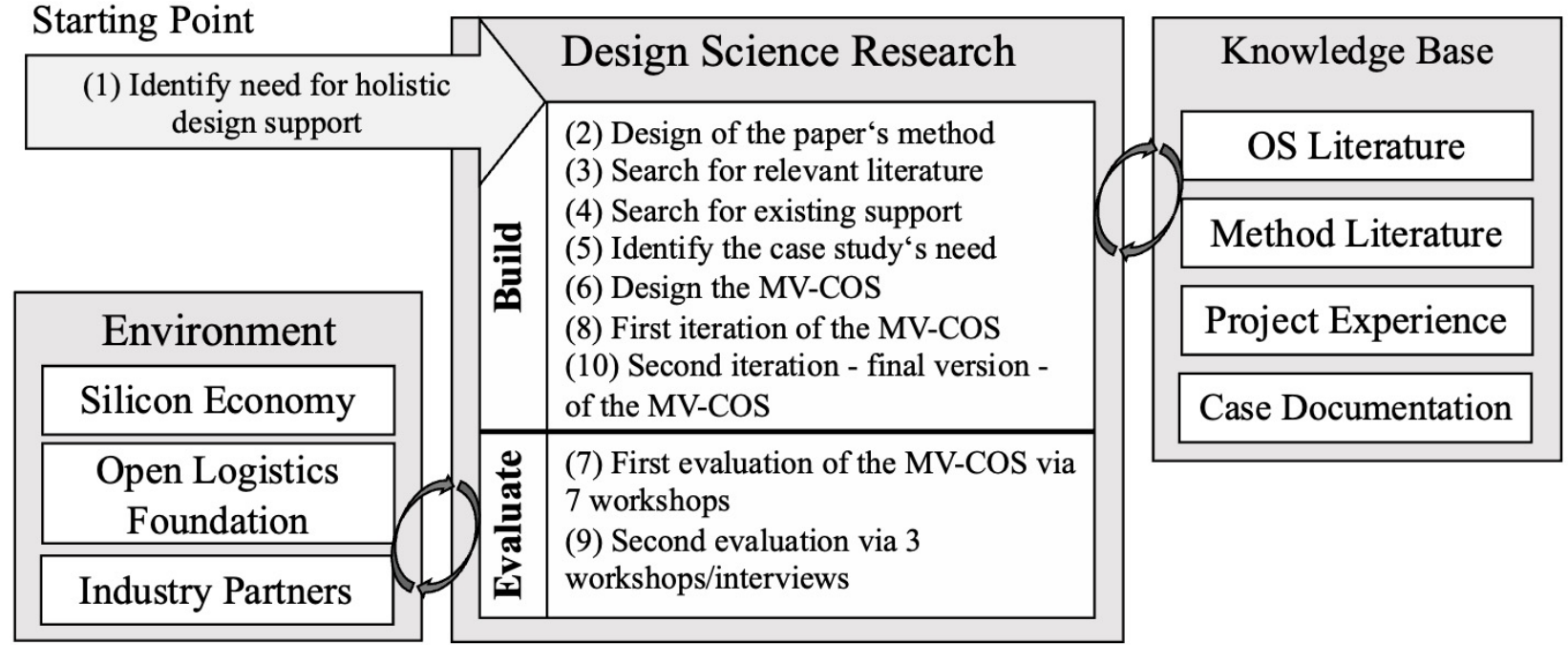

Open Logistics Foundation

Core-Community

founds projects for selected challenges

OSS Project 1 — Sub-Community

OSS Project 2 — Sub-Community

OSS Project n — Sub-Community

Open Logistics Foundation

Open Source Software

Successful if Software resolves Problem

Developer — discovers → Problem — develops → Software — attracts → Community — adopts → de-facto Standard

Open Logistics Foundation

OSS Project / Sub-Community — addresses → Problem — defines → Specification — develops → Software — attracts → Community — adopts → de-facto Standard

Successful if de-facto Standard is established

Challenge

"How to design value-driven OSS projects to significantly increase
the odds of establishing new industry standards
to steer the industry transformation?"

Method

Starting Point

(1) Identify need for holistic design support

Design Science Research

Build

(2) Design of the paper's method
(3) Search for relevant literature
(4) Search for existing support
(5) Identify the case study's need
(6) Design the MV-COS
(8) First iteration of the MV-COS
(10) Second iteration - final version - of the MV-COS

Evaluate

(7) First evaluation of the MV-COS via 7 workshops
(9) Second evaluation via 3 workshops/interviews

Environment

Silicon Economy

Open Logistics Foundation

Industry Partners

Knowledge Base

OS Literature

Method Literature

Project Experience

Case Documentation

Minimum Viable core-Community driven Open-Source (MV-COS)

- **Minimum Viable core-Community Open-Source:** A strategic framework designed to guide the development of OSS projects with the potential to establish new industry standards, ensuring broad stakeholder appeal and industry transformation.

- **Key Objectives:**
  - Harmonizing collective efforts with OSS's democratizing essence,
  - emphasizing user inclusion and
  - aligning specifications to
  - exceed requirements and attract a critical mass of users.

MV-COS

Shared Vision

Motivation Initiator/Lead	Motivation Contributor	Motivation User
Expectation towards the OSS community	Expectation towards the OSS community	Expectation towards the OSS community

Vision of the OSS Community
What is your vision for the OSS community?

Initiator of the OSS Community:	Contributor of the OSS Community:	User of the OSS Community
Which OSS can you offer?	To which OSS would you like to contribute?	Which OSS would you like to use?
Benefits:	Benefits:	Benefits:

Added Value for the Initiator
Added Value for the Contributors
Added Value for the OSS User

Shared Implementation Strategy

(1)
(2)
(3)
(4)
(5)

The OSS User perspective is essential to understand the necessary requirements allowing to attract a critical mass of users. This is success critical when aiming at establishing a new de-facto standard.

Shared Implementation Strategy

Detailed description of the OSS project			
(1)	**Unique Value Proposition of the OSS** ⬦ What special added value does the OSS offer?		**User Requirements** ⬡ What requirements do users have for the OSS?
(2)	**Community Management** 👥 What is the structure of the community?	**Decision-making structure** 🗃 Who has which rights? Democracy Meritocracy	**Community Building** 🔗 What strategies are being pursued?
(3)	**Licenses** ⚖ Description of the license incl. rights and obligations		License model Rights of use Country-specific regulations
(4)	**Quality of the OSS** ★★☆ Minimum requirements	Interfaces	**Integration Possibilities of the OSS** 🗗 Minimum requirements
(5)	**Activities and Costs** 💳 (Joint) Costs/Expenses	**OSS KPIs** 📊 Definition of the success metrics	**Benefits** $€ (Common) Added values

Method

- **MV-COS Evaluation:** Iterative evaluation through ten workshops

- **Participant Diversity:** Included initiators, contributors, and users

- **Workshop Structure:** 90-minute digital sessions using Microsoft Teams, incorporating introductions, canvas walkthroughs, barrier analysis, recommendations, and feedback.

- **Insight Integration:** Findings from initial workshops refined the strategy implementation canvas, later validated by OSS strategy experts in a secondary workshop round.

Evaluation

- **Shared Vision, revealed Requirements, shared Strategy**

- **Establishing shared OSS Understanding**

- **Ensures Value for the Users**

- **Need for Structured Approach**
  - enhance transparency,
  - stakeholder engagement, and
  - project standardization.

- **MV-COS Utility**

Conclusion

- **OLF Strategy:** Emphasizes collaborative selection and development of logistics-specific OSS, distinct from traditional individual-led OSS projects.

- **MV-COS Adoption:** Provides a structured, multi-canvas approach for designing value-driven OSS projects. Establishes Stakeholder Integration ensuring alignment and onboarding from the outset, simplifying collaboration and enhancing project value.

- **Limitations:** Bias towards OSS-familiar environments and IT-heavy perspectives.

- **Future Work:** Evaluate the MV-COS in diverse contexts, develop detailed implementation strategies, and assess its impact on OSS project collaboration and success.

- **Potential for Software Solution:** Design a software tool for MV-COS, enhancing support and alignment through domain-specific languages and integrated guidance.

Thank You

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