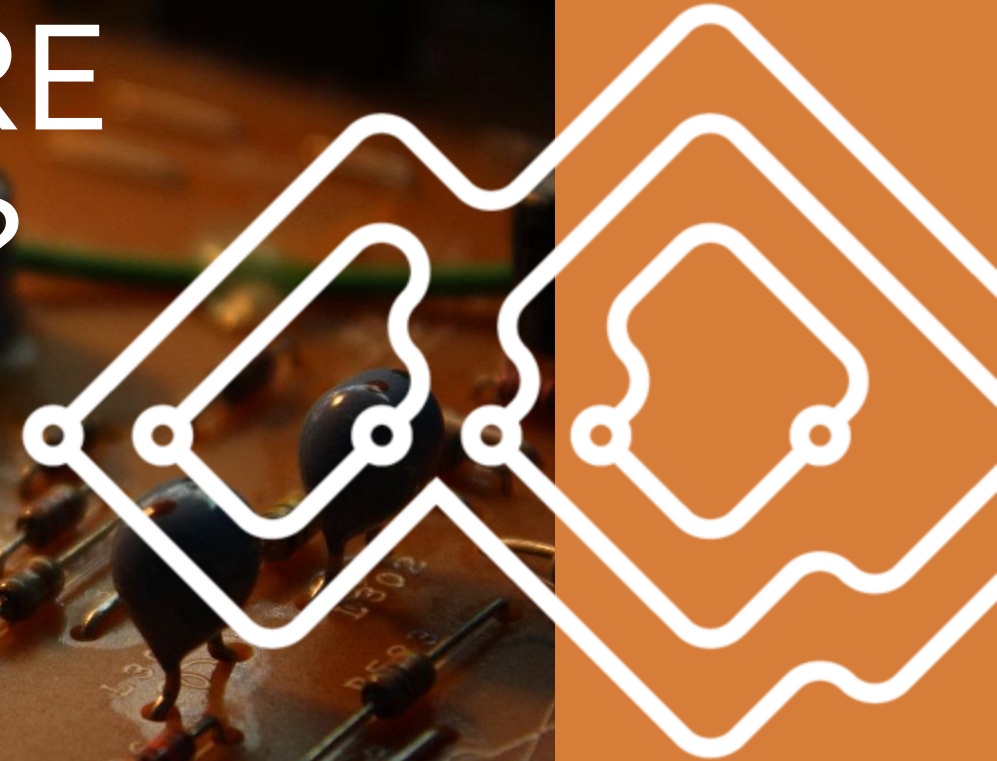# HOW INNOVATIVE ARE PEER COMMUNITIES?

Approaches to the empirical assessment of peer innovation

Online Expert Workshop, 14.01.2022
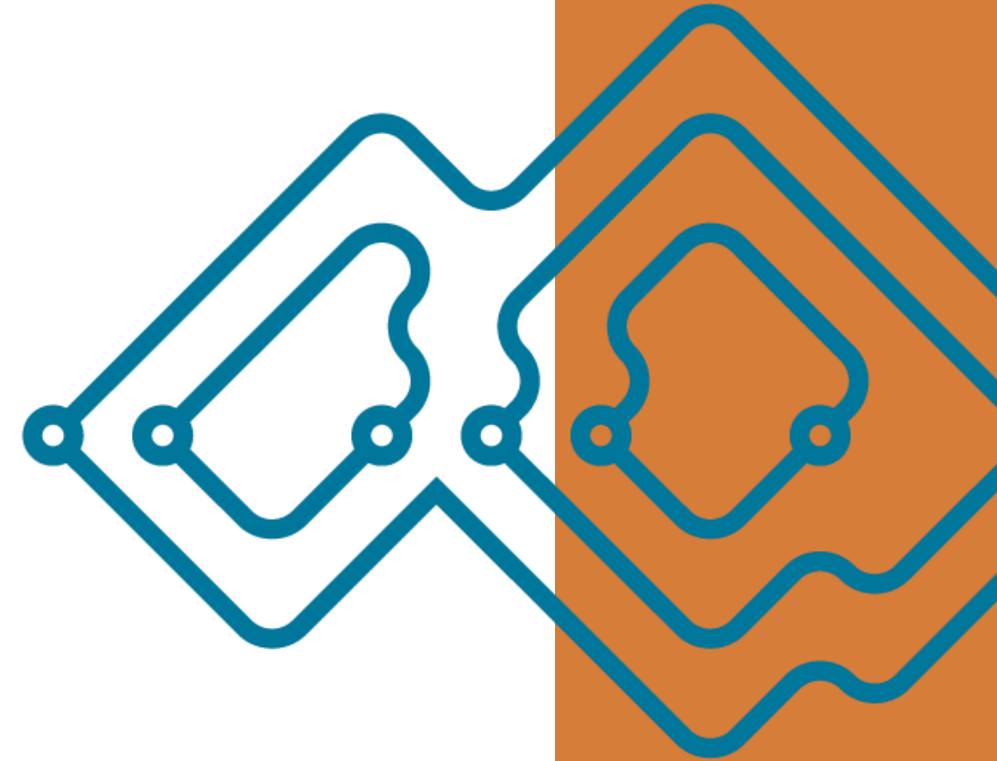
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INTRODUCTION

Jan Peuckert

Institute for Ecological Economy Research

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Objectives of this workshop

- bring together scholars from diverse backgrounds and practitioners for an interactive, transdisciplinary exchange of ideas

- gain an overview of current efforts to study peer innovation

- present our measurement approach and receive critical feedback for further improvement

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Research project "PeerInnovation"

- joint project of the Institute for Ecological Economy Research (IÖW) and the Technical University Berlin (TUB)
  - funded by the German Ministry of Education and Research

- research questions:
  - How do peer communities contribute to sustainable innovation?
  - How can relevant innovation activities be measured?

- main objective: tools to measure innovation in peer communities

www.peer-innovation.de

Motivation

- online communities of users play an important role in the transformation of socio-technical systems (e.g., Hyysalo 2021)

- adequate indicators for the assessment of innovation activities of informal non-market actors are still missing (e.g., Gault 2018)

- decision-makers significantly underestimate the role of private individuals as the original source of innovation (Bradonjic, Franke, Lüthje 2019)

- new measurement tools needed to make the new patterns of knowledge creation and diffusion in peer communities visible and to enable evidence-based policy support

User contributions to socio-technical change

- in socio-technical systems, new technologies coevolve with changes in user behaviour and social practices

- relevant user activities (and roles) (Schot, Kanger, Verbong 2016)
  - demonstration of feasibility (user-legitimator)
  - influencing political discourse and regime stability (user-citizen)
  - adoption and resource mobilization (user-consumer)
  - intermediation between various actors (user-intermediary)
  - creation of knowledge and learning (user-producer)

- growing importance of user-run online forums for peer-to-peer exchange and knowledge accumulation (Hyysalo 2021)

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Innovation metrics

- official innovation statistics have been focused on innovating firms and research institutes

- conventional indicators (e.g., patents, R&D, surveys) do not capture non-market activities

- Oslo Manual (OECD 2018)

  An innovation is a new or improved product or process (or combination thereof) that differs significantly from the unit's previous products or processes and that has been made available to potential users (product) or brought into use by the unit (process).

- OECD definition of innovation has been revised to include non-market actors, but how these activities can be captured empirically is still unclear.

The Measurement of Scientific, Technological and Innovation Activities

Oslo Manual 2018

GUIDELINES FOR COLLECTING, REPORTING AND USING DATA ON INNOVATION

OECD   eurostat   4ᵗʰ Edition

Users as sources of innovation

- users have been identified as an important source of ideas for new products and processes (von Hippel 2016)
  - people innovate for personal use or other self-rewards, not only as part of their jobs or for economic gain
  - often user innovators share their innovations with others
  - internet facilitates peer collaboration among users
- companies try to tap into the creativity of user communities
- Open Source has a significant economic impact (OFE 2021)
  - technologies are based on designs that are made publicly available so that anyone can study, modify, distribute, produce and sell them.

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Peer Innovation

a specific mode of innovation activity in the household sector,
in which self-motivated private individuals
collaboratively develop new or improved products or processes
and share the designs with an online peer community.

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Peer communities studied

OpenEnergyMonitor (OEM)

Oem

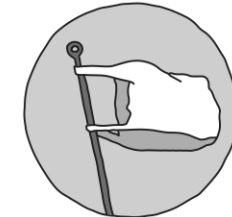open-source electronic tools
for monitoring
energy consumption

3.200 contributors
65.000 posts
since 2016

OpenStreetMap (OSM)

open maps and free editable
geographic database

22.000 contributors
806.000 posts
since 2006

Precious Plastic (PP)

open-source machines
to reuse and creatively recycle
plastic waste

4.700 contributors
37.000 posts
since 2013

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Development procedure

1. Retrieval of interaction data from online community forums

2. Network analysis and interviews with community members

3. Identification of innovation activities
   - Reading and labelling forum threads
   - Testing the predictive power of community indicators
   - Development of an algorithm for automatic detection of relevant activities

4. Check transferability and need for adaption

5. Online toolbox for peer innovation measurement

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Round of introductions

1. Your name and affiliation?
2. What is your (scientific) background?
3. What is your relation to peer innovation?
4. What are your expectations for the workshop?

Project Team

Research IÖW

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WG 1

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WG2

Daniel Koc | OpenStreetMap

Daniel Weiß | Free University Berlin

Jakob J. Korbel | Technical University Berlin

Jakob Pohlisch | Vienna University of Economics and Business

Martin Häuer | Fraunhofer IPK

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Agenda

Part 1: 10:00 – 12:00

10:00

Sampsa Hyysalo | Aalto University

The multiple contributions of peer innovation to sociotechnical change

10:30

Jakob Pohlisch | Vienna University of Economics and Business

Review of indicators for measuring innovation in online communities

11:00 *Break*

11:15

Philipp Heß | Technical University Berlin

How to identify innovation activities in online communities

Part 2: 13:00 – 16:00

13:00

Martin Häuer | Fraunhofer IPK

Collecting data on innovation projects in open hardware communities: the LOSH approach

13:30

Jakob J. Korbel | Technical University Berlin

Netnographic approach to investigate user innovations in the online community Instructables

14:00 *Working groups*

15:00 *Break*

15:15 *Plenary session*

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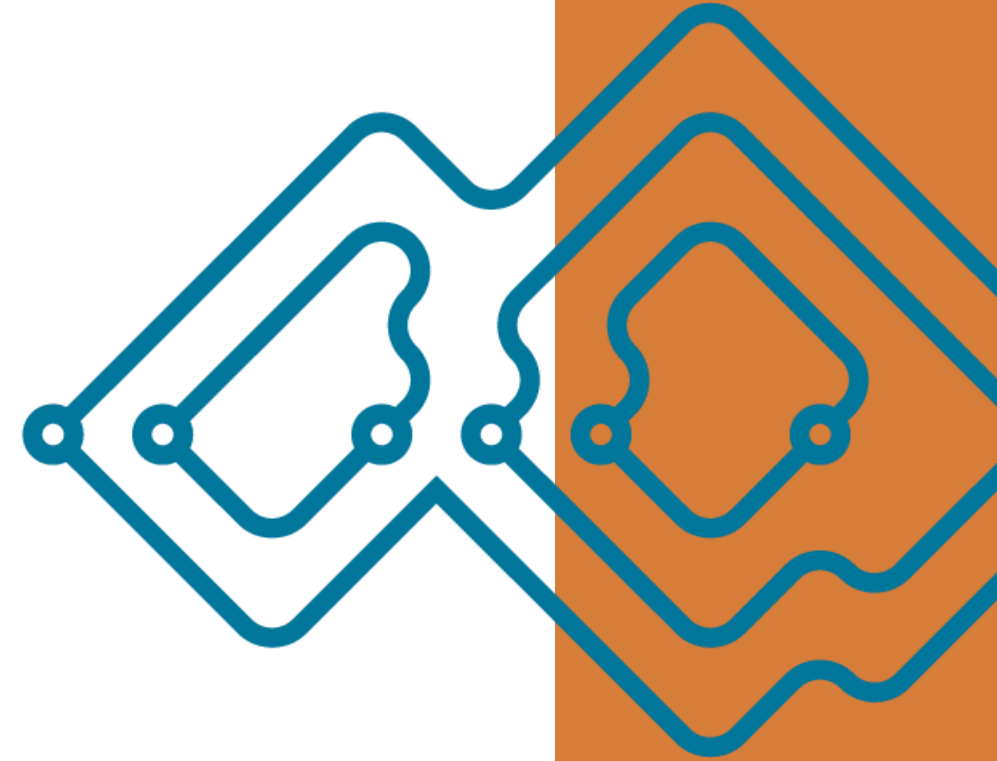
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