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Workshop Documentation

How innovative are peer communities? Approaches to the empirical assessment of peer innovation

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Documentation of the Online Expert Workshop

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Abstract: On Friday, 14 January 2022, a virtual expert workshop on approaches for empirically capturing innovation in peer communities was held as part of the PeerInnovation project. This short report documents the event, briefly summarises the main points of discussion and draws conclusions for further work in the project.

Introduction

As part of the PeerInnovation project, an online expert workshop entitled "How innovative are peer communities? Approaches to the empirical assessment of peer innovation" was held on Friday 14 January 2022. The aim of the workshop was to bring together innovation scholars from different backgrounds and practitioners from peer communities for an interactive, transdisciplinary exchange of ideas on the nature of peer innovation, with a focus on its empirical assessment. The workshop aimed to provide an overview of existing research efforts to measure innovation activities in peer communities, including the measurement approach developed by the research team of the PeerInnovation project. In preparation for the workshop, the approach of the project was described in a discussion paper that was sent to the participants one week before the event. At the workshop, this approach was presented by members of the project team and put up for discussion in order to get methodological and practical feedback from the participants.

This report serves to document the course of the event, to record the most important points of discussion and to derive initial conclusions for further work in the project.

Course of the event

The workshop was scheduled for a full day. The morning was dedicated to introducing the topic and presenting the empirical approach developed in the PeerInnovation project. In the afternoon, further empirical studies were presented before the participants discussed in parallel working groups. The results of the group work were then presented in the plenary before the workshop was reflected upon and concluded.

Agenda

Part 1: 9:30 – 12:00

9:30 **Welcome and Introduction**
Jan Peuckert, Institute for Ecological Economy Research (IÖW)

10:00 **The multiple contributions of peer innovation to sociotechnical change**
Sampsa Hyysalo, Aalto University

10:30 **Review of indicators for measuring innovation in online communities**
Jakob Pohlisch, Vienna University of Economics and Business

11:00 **Break**

11:15 **How to identify innovation activities in online communities**
Philipp Heß, Technical University Berlin

12:00 **Lunchbreak**

Part 2: 13:00 – 16:00

13:00 **Collecting data on innovation projects in open hardware communities: the LOSH approach**
Martin Häuer, Fraunhofer Institute for Production Systems and Design Technology IPK

13:30 **Netnographic approach to investigate user innovations in the online community Instructables**
Jakob J. Korbel, Technical University Berlin

14:00 **Working groups**

15:00 **Break**

15:15 **Presentation of the group results in plenary**

15:45 **Wrap up and farewell**

Presentations and Discussions

First, Jan Peuckert welcomed the workshop participants. Jan Peuckert is a research associate at the Institute for Ecological Economy Research and heads the joint research project PeerInnovation. He studied economics and management in Berlin and Lisbon. His research focuses on the role of the collaborative economy for societal transitions towards sustainability.

Peuckert briefly introduced the research project and the objectives of the workshop. He justified the need for new measurement methods that capture innovation in peer communities with the lack of consistent and reliable data on innovation activities of informal, non-market actors, which significantly affects the understanding and visibility of this phenomenon among decision-makers. Although both the transition and innovation literatures point to the importance of user communities, their role in sustainable innovation would be systematically undervalued. Empirical evidence would need to be created to enable wider recognition and political support. This is the research gap that the PeerInnovation project addresses by investigating innovation activities in peer communities.

At the end of the welcome talk, participants were asked to briefly introduce themselves and tell their expectations of the workshop. Participants saw the workshop as an opportunity to deepen the understanding of peer innovation and to learn from each other.

The multiple contributions of peer innovation to sociotechnical change

In the following keynote, Prof Sampsa Hyysalo from Aalto University in Helsinki looked at the multiple contributions of user communities to socio-technical change. Sampsa Hyysalo is Professor of Co-Design at the Aalto University School of Art, Design and Architecture in Helsinki, Finland. His research focuses on designer-user relations in sociotechnical change. This includes engagement in participatory design, codesign, open and user innovation, open

design, peer knowledge creation, user communities, citizen science and user knowledge in organizations, design ethnography, longitudinal ethnography, social shaping of technology, process studies of innovation, practice theory, and sustainability transitions.

Hyysalo confirmed in his keynote that user innovation in new technologies was happening and catalyzed by peers in online forums. He also pointed to the diverse innovations of users that go beyond technological objects and stressed the importance of contributions to sociotechnical change compared to the inventive achievements of user communities. Hyysalo cautions against reducing the role of user communities to their contribution to technology development. It would be important not to neglect the contributions to sociotechnical change brought about by small adjustments, adaptations and bricolage activities when users actively engage with new technologies.

After his presentation, the workshop participants had the opportunity to ask questions.

When asked about the ideological discourse in peer communities, Hyysalo reiterates that in hacker forums – at least in the energy related technology forums that he studied – community members actively suppress ideological discussions, as this allows them to focus on technological issues and to engage with others who are not similarly ecologically motivated. This is in contrast, for example, to sustainable maker communities, where ideology is the unifying force, and it is very much at odds with the prevailing understanding of grassroot innovation. The type of online forum should therefore be taken into account. Tech-forums would often have a fairly large DIY section.

When asked about how user contributions could be fitted into the theoretical model of transition phases, Hyysalo replies that there is no empirical support for phased contributions, but the relative importance of contributions over the transition process would probably change. However, to investigate these shifts empirically one would need a theory of the relative importance of different contributions and their causal interrelations. Hyysalo considers this approach to be extremely difficult and the model of phased contributions to be more rhetorically appealing than scientifically practicable.

One participant asks about how communities can support innovators that were stuck with their projects because they face certain problems for which they have no solution. With regard to analyzing innovation diffusion in peer communities, Hyysalo points to the difficulty of empirically verifying whether an original idea has been taken up by others. In looking for examples of objectively verifiable implementations, he noted that most user innovations spread only modestly. Indeed, those that spread the most were not necessarily adoptive, but adaptive (users were able to take the basic idea and then adapt it to their materials).

Review of indicators for measuring innovation in online communities

MEASURING HOUSEHOLD SECTOR
INNOVATION IN ONLINE COMMUNITIES

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In the following presentation, results from the PeerInnovation project were presented, which systematised the indicators proposed in the open and user innovation (OUI) literature to measure user innovation in online

communities. The speaker Jakob Pohlisch was part of the PeerInnovation research team until he took a position as Assistant Professor at the Institute for Entrepreneurship and Innovation at the Vienna University of Economics and Business. His research focuses on open and user innovation. More specifically, Jakob investigates how firms can leverage the potential of crowds in various contexts to increase their innovativeness. As a research fellow at the Chair of Innovation Economics at the Technical University Berlin, he continues to be connected to the project.

In his presentation, Pohlisch highlights the discrepancy between the perceived and actual relevance of peer innovation and suggests to use online data of community interactions to analyse the phenomenon with minimal human interference. Based on a review of online community indicators discussed in the OUI literature, he proposes a hierarchical typology of peer innovation measures to be explored in the PeerInnovation project.

Pohlisch answers questions about the classification of certain indicators by explaining that the typology was developed based on the extant innovation literature. The overview of the indicator landscape shows that measurement concepts are inconsistent and have been under-researched, especially at the community level. One participant points out that research on the governance of standardisation processes addresses similar questions and could be used to assess community aspects. Another participant adds that community organisation is crucial. Active moderation of the platform is particularly important to make peer exchange more effective. Pohlisch counters that the community feedback culture is already covered to some extent by contributor-level indicators, but community aspects such as the governance structure and the overall organisation are not. Indicators of the degree of social organisation can be found, explains the workshop participant. For instance, when posts get pinned to topics that have been discussed before, community interaction becomes much more effective.

Another discussion revolves around the interrelation of idea popularity and innovativeness. One participant notes that many of the really new-to-the-world innovations were not necessarily popular. Many original innovations respond to very particular conditions that not many people face. While there are certainly innovations among the very popular ideas that are relevant to others, if the popularity indicator is taken too far, these very particularistic cases, which can actually be quite radical in terms of innovation, are missed. Pohlisch confirms that the literature is inconclusive about the interpretation of certain indicators, such as idea popularity or the past success of the contributor, and therefore a more discerned discussion of factors would be needed.

Ultimately, a two-step approach to identifying experts within a community is proposed. It starts with the kind of deep-end support that can be observed in tech forums: Typically, someone comes with a problem, then gets answers and the most competent people finally solve it. The thread then ends with "problem solved" or with the comment "you probably won't be able to do that …", indicating that they really know what they are talking about. Key contributors could therefore be identified by paying attention to who writes that last post. Often it is these highly skilled people who also create innovations that really represent something new, even if their ideas are not particularly popular.

How to identify innovation activities in online communities

After a short coffee break, Philipp Hess presented the approach developed in the PeerInnovation project to identify innovation activities in online communities. Philipp Heß is a researcher and PhD candidate at the Chair of Innovation Economics at Technical University Berlin. He studied at Chalmers University of Technology, Gothenburg and at TU Berlin, from which he holds a Master's degree in Industrial Engineering. His research interests lie in the field of innovation, standardization and sustainability. Since 2017, he is the scientific director of the German Standardization Panel. Heß heads the PeerInnovation research team at the Technical University of Berlin since Pohlisch left.

In his presentation, Heß describes the netnographic approach to capture innovation activities in peer communities using interaction data from online forums. In particular, he discusses the labelling process, which is used to manually generate a training dataset for the development of a semi-automatic recognition of innovation activities. He explains the codification rules using a thread from one of the peer communities studied and then presents the first labelling results.

The ensuing discussion revolved around the fundamental question of how the degree of novelty or added value of an idea presented in the thread can be assessed at all. Hess explained that no external data sources should be used for this assessment, but rather the information within the online forum, especially the reaction of the community. In his experience, one participant notes, community members are not necessarily in a position to judge whether an idea has already been realised elsewhere. Users often mistakenly think their solution is new, although it is only new to them. The approach could therefore be subject to conflating user design and user innovation, which would in turn affect the performance of the algorithm. Hess answers that assessing the degree of novelty is a general difficulty in measuring innovations and one reason why the approach in the project is to label innovation activities rather than innovations. In response to a participant's comment that there are databases that can be used to determine the degree of novelty of an idea, Hess replies that such a check cannot be carried out within the project.

While the discussants agree that it would be possible, but very complicated, to objectively assess whether an idea is really new, the question is raised whether such an objective reference is necessary at all. After all, even the Community Innovation Survey of the European Union would rely on the subjective assessments of firms to assess innovativeness. Some indicators proposed by the OUI literature would make it possible to evaluate an idea on the basis of the knowledge available in the community. Hess argues that the community members who respond to the idea are probably the best experts one can find to evaluate it and often try to assess its novelty.

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

After a lunch break, the workshop continued with a presentation of Martin Häuer from the Fraunhofer institute for Production Systems and Design Technology. He is a researcher, engineer and activist in the field of open source hardware, and active in various open source and standardization communities. In his projects, he aims to promote an infrastructure for a sustainable circular economy - and believes that open source principles are an essential part of this. He initiated and led the creation of DIN SPEC 3105 - the first official standard in the field of open source hardware and itself a pilot project for open standardization, as it was published under a free/open license.

In his presentation, Häuer introduced the Library of Open Source Hardware (LOSH), which is to be developed within the Open!Next project. This library crawls online data from different collaboration platforms creating a database of linked open data that can be searched for innovation projects. The LOSH approach could also give a rough overview of peer innovation in the field of open hardware by providing meta-information about collaborative activities.

When asked if the database could be used to measure peer innovation, Häuer confirms that it would be technically possible. There are even plans to develop a query tool for the database that would automatically generate reports. It would then be possible to produce monthly reports showing over time where open source hardware was added, what type of license was used, etc. With regard to the coverage, Häuer claims to be able to cover more than half of the open hardware landscape. The largest database for open source hardware, he says, is Thingiverse, with about 5 million projects. About half of these use free, open licenses. With regard to GitHub, it is still unclear how high the share of hardware projects is there. Of course, the certification data of the Open Source Hardware Association (OSHWA) is also included.

As one participant refers to a similar approach of the FabCity OS project, Häuer emphasises once again that the vision of LOSH is to link open data. Once this common data format existed, it could be used for many other analyses. For example, one could investigate whether a certain component is successfully used in many different environments. However, since there is no shared documentation standard, this is not yet possible.

Regarding possible indicators for measuring peer innovation, Häuer points out that the number of open hardware projects would not be a good indicator because of the broad range of project complexity. It is important to consider how the community interacts, how many developers are involved and also how the commercial aspect develops. A very lively collaboration existed, for example, in the development of computer keyboards.

Regarding the quality of the OSHWA data, Häuer emphasises how important the OSHWA report was for the awareness of Open Hardware. The LOSH approach aims to strengthen this effect. It aims to further establish the recently published standard (DIN Spec 3501), which sets out documentation criteria and a community evaluation procedure. Projects that meet the specified criteria receive a certificate flagging them as open hardware projects.

Netnographic approach to investigate user innovations in the online community Instructables
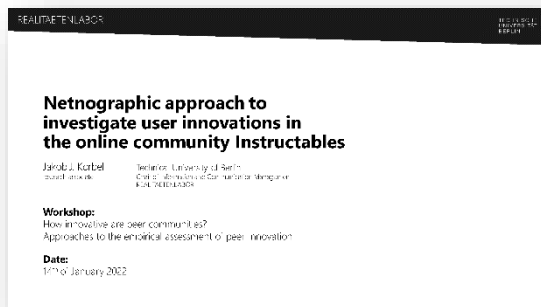
In the following, Jakob J. Korbel presented his research on the online community Instructables. Korbel is a researcher at the Chair of Information and Communication Management at the Technical University Berlin and manages the REALITAETENLABOR Berlin, a space for interdisciplinary and application-oriented developments. His research interests are virtual goods and products, virtual and augmented reality environments, and user innovations in online communities and virtual worlds.

In his presentation, Korbel describes the netnographic approach used to investigate renewable-energy-related user innovations in the online community Instructables. He begins by noting that innovation studies struggle with very different estimates of the actual prevalence of user innovations. Korbel briefly describes his approach to collecting, coding and analysing the data before presenting the results of his netnographic study. His main findings with regard to the measurement of peer innovation relate to the importance of the parallel community market and of context and complexity for the identification and classification of user innovations. Korbel emphasises that innovation developments are aimed at the community and therefore cannot be compared with commercial products. Moreover, the developments are made on components of complex systems and are used in different contexts, which must be taken into account when assessing the degree of innovativeness.

The subsequent discussion first addressed the obvious differences that exist between purely digital peer communities and (maker) communities like Instructables whose projects have an important physical dimension. It makes a big difference in terms of documentation whether the hacking is done primarily in the digital realm or whether the hacking is done primarily physically and then somehow digitised. Contextual adaptation was an important factor when it comes to physical implementation.

The relevance of the evaluation perspective was underlined by the participants. It was crucial whether the projects were compared with other community projects or commercial products and from which domain the respective evaluators came. One participant reported experiences with external evaluators from different domains: the estimates ended up to be very conservative because there was always an evaluator who did not recognise the innovation value. With regard to the PeerInnovation project, one participant suggested to complement the community assessment (focused on the parallel market) by the assessment of commercial market experts to get at more balanced estimations.

The type of technology could also have an impact on the identification of innovations. According to one participant, it is easier to discover innovative improvements in highly competitive fields such as extreme sports, a classic example of user innovation in the innovation literature. In other, less competitive fields such as renewable energy, it might be more difficult to become aware of significant inventions.

Working Groups

Two parallel working groups were prepared for the afternoon, one dealing with the contribution of peer communities to sustainable innovation (WG1) and the other with methodological issues of quantifying peer innovation (WG2). When registering for the workshop, participants were asked to select in which working group they wanted to participate (see list of participants at the end of the document). Depending on their preferences, the experts were assigned to two different break-out rooms. In these rooms, they were welcomed and briefed by facilitators who led their group to different work areas on a Miro board and moderated the working group discussion.

WG1: How do peer communities contribute to sustainable innovation?

The first working group asks what kind of sustainable solutions are developed and promoted by peer communities, in which areas and through which activities they drive sustainable innovation, and how this could be supported by different stakeholders. Participants were first asked to write and pin sticky notes on the board, before the facilitator engaged them in the discussion. While discussing group participants added further notes and clustered similar ideas.
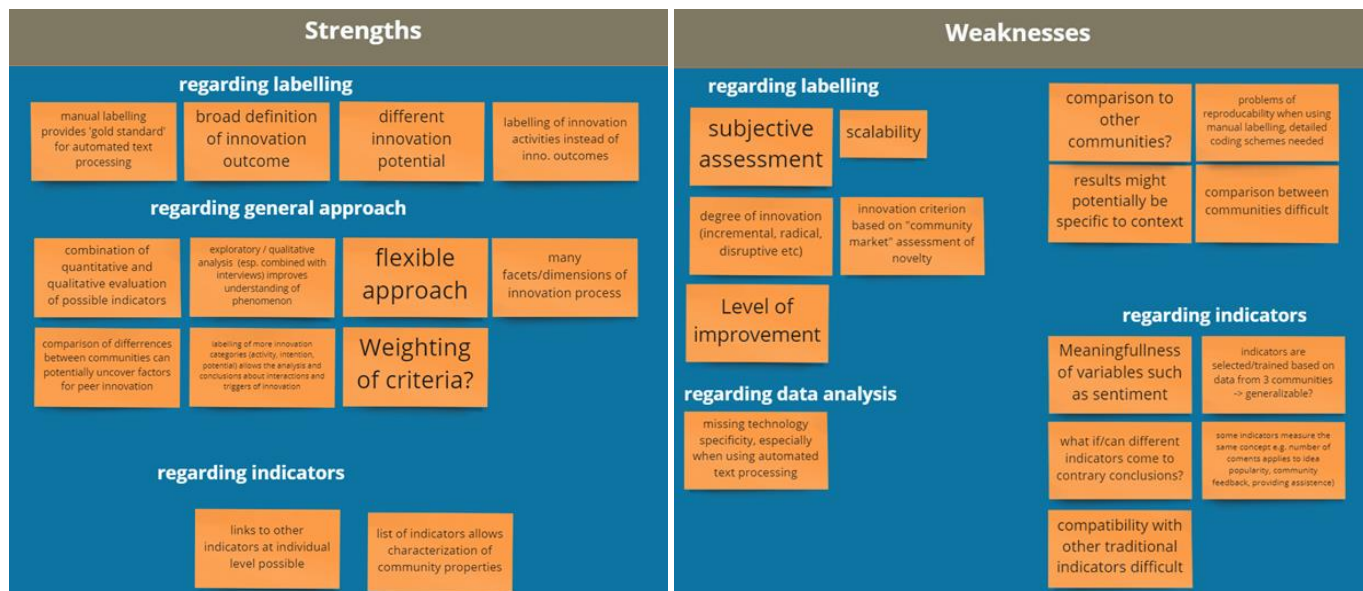
How and by whom could the positive role of peer communities for societal change towards sustainability be supported?

3-5 min brainstorming

digital infrastructures for collaboration

community management

Hackathons as an event base innovation accelaration.

Example: Just One Giant Lab (JOGL: https://jogl.io) community funding and peer review support for innovation projects

Small grants for public good fostering peer communities - maybe not government but a foundation affair

i think it's difficult to fund peer innovation activities directly like firm innovation projects are; but maybe provide infrastructure (public platforms, repositories) [only in liberal states w high trust in state?]

Peer investors like the funding role for community moderators since moderated plattforms keep up their innovative capabilities as learned today.

Discussion (10 min)

How could **policy** support peer innovation?

What could **citizens** do?

What is the role of **companies**?

document and support documentation

more liberal "intellectual property" legal environment where NOT everything is "all rights reserved" by default

education for collaboration

See Innovation Wetlands by Torrence & von hippel (2014/2016)

"civic hacker" communities for group governance/democracy reform, such as: Computational Democracy Project (https://compdemocracy.org) or g0v (https://g0v.asia)

hackathons (for sustainability issues)

role of companies double edged sword: bringing ideas into use/public value vs appropriation of peer innovation for private benefit

quality assurance (certification?)

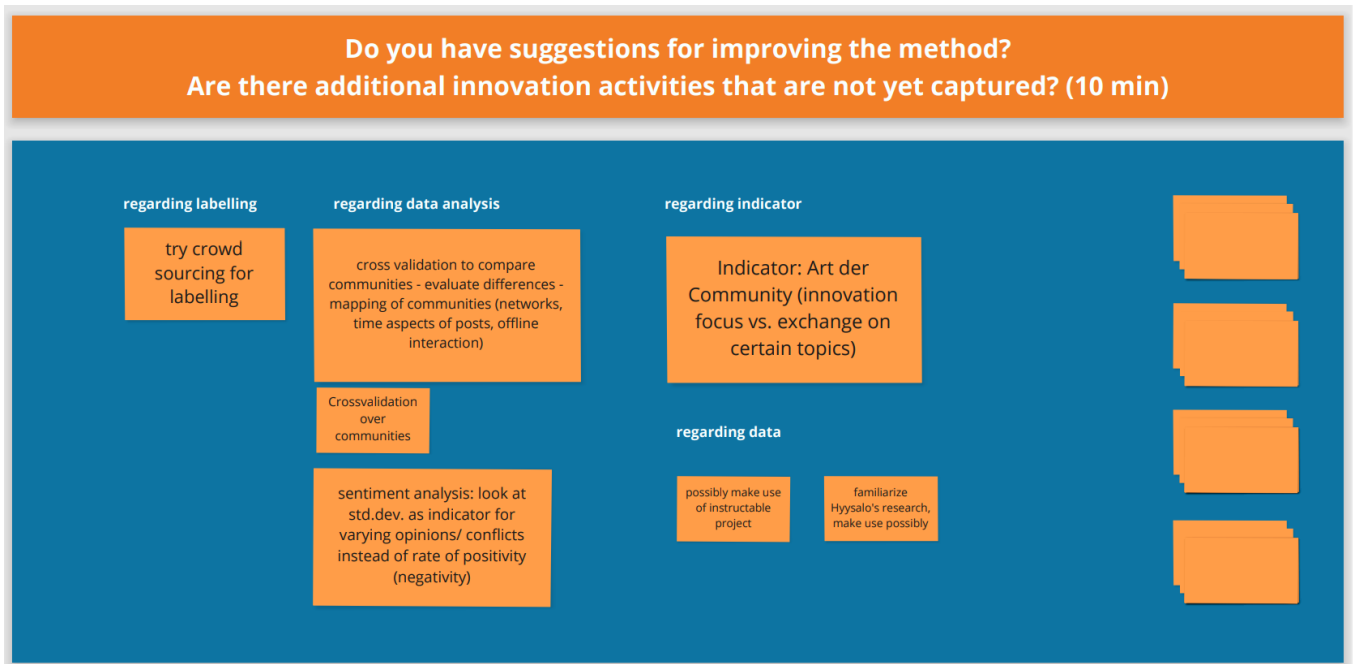## WG2: How to measure peer innovation?

The second working group explored which methods and indicator concepts were most relevant for quantifying innovation in online communities, what are the pitfalls of applying them to data from online forums, and how they could be adapted to different peer communities. Participants were first asked to think about strength and weaknesses of the proposed measurement approach, and then to come up with possible improvements. The answers were discussed and sorted according to which aspect of the approach was mainly concerned (labelling, general approach, data, indicators).

Strengths

regarding labelling

manual labelling provides 'gold standard' for automated text processing

broad definition of innovation outcome

different innovation potential

labelling of innovation activities instead of inno. outcomes

regarding general approach

combination of quantitative and qualitative evaluation of possible indicators

exploratory / qualitative analysis (esp. combined with interviews) improves understanding of phenomenon

flexible approach

many facets/dimensions of innovation process

comparison of differrences between communities can potentially uncover factors for peer innovation

labelling of more innovation categories (activity, intention, potential) allows the analysis and conclusions about interactions and triggers of innovation

Weighting of criteria?

regarding indicators

links to other indicators at individual level possible

list of indicators allows characterization of community properties

Weaknesses

regarding labelling

subjective assessment

scalability

comparison to other communities?

problems of reproducability when using manual labelling, detailed coding schemes needed

degree of innovation (incremental, radical, disruptive etc)

innovation criterion based on "community market" assessment of novelty

results might potentially be specific to context

comparison between communities difficult

Level of improvement

regarding data analysis

missing technology specificity, especially when using automated text processing

regarding indicators

Meaningfullness of variables such as sentiment

indicators are selected/trained based on data from 3 communities -> generalizable?

what if/can different indicators come to contrary conclusions?

some indicators measure the same concept e.g. number of coments applies to idea popularity, community feedback, providing assistence)

compatibility with other traditional indicators difficult

Do you have suggestions for improving the method?
Are there additional innovation activities that are not yet captured? (10 min)

regarding labelling

try crowd sourcing for labelling

regarding data analysis

cross validation to compare communities - evaluate differences - mapping of communities (networks, time aspects of posts, offline interaction)

Crossvalidation over communities

sentiment analysis: look at std.dev. as indicator for varying opinions/ conflicts instead of rate of positivity (negativity)

regarding indicator

Indicator: Art der Community (innovation focus vs. exchange on certain topics)

regarding data

possibly make use of instructable project

familiarize Hyysalo's research, make use possibly

Plenary discussion

After a short coffee break, the results of the working groups were presented and discussed in the plenary. As the first working group ended with the question of funding opportunities for peer innovation, this discussion was taken up again in the plenary. It was added that community management had been identified as an important factor for the effectiveness of peer exchange. Therefore, providing the digital infrastructures for online collaboration and offering intermediation, such as moderating online forums, could be a starting point for promoting peer innovation. Apart from selling components or starter kits as a possible source for funding, contests have proven to be an effective means to promote peer innovation, adds another participant. In addition, the government could support peer innovation by giving people access to makerspaces and the necessary resources, educating them early on about how to use these opportunities and by promoting maker events, adds another participant.

Commenting on the results of the second working group, one participant posted the link to a crowdsourcing platform in the group chat: zooniverse.org. This platform has already been successfully used to accomplish research tasks such as labelling and could be useful for analysing community interaction data. With regard to the proposed labelling approach, one discussant argues that given the aim of the project to determine the contribution of peer communities to socio-technical change, indicators should also be developed that go beyond innovation activities as a proxy for value creation. In response to this demand, it is proposed to continue the attempt to subjectively assess the innovation potential on the basis of the community forum data, which has worked surprisingly well. Another participant points out that the advantage of studying digital peer communities is that one can directly access the results of the innovation process. One can therefore assess the innovativeness of the projects and does not have to infer it indirectly through the contributors. One participant welcomes the combination of quantitative and qualitative methods in the process of validating the labels and suggests applying the labelling approach not only to open hardware communities, but also to the software sector. It is right not to try to count user innovations, adds one participant. The machine-learning approach would generate a number, but the question would remain how to interpret it.

Wrap-up and conclusions

In the final reflection session, most workshop participants praised the instructive exchange of ideas and expressed their interest in the further course of the project. Some participants offered concrete support by providing data and previous research results. The project team thanked all participants for their feedback and suggestions and promised to keep them informed about project progress and upcoming events.

Conclusions

The following conclusions from the workshop will be taken into account for further project work:

The importance of the parallel community market, context and complexity in evaluating community projects (Korbel & Grosse 2020) should enter our line of reasoning when justifying the project approach of using indicators of other community members' appreciation for detecting peer innovation. Since the innovation has to compete in the community market and not necessarily with commercial products, the positive evaluation by the community should be a good indication of its added value. In fact, other community members must be seen as the best possible evaluators of the innovation's value. Whether the idea can be turned into a business or a commercial product, on the other hand, is only a secondary question that manufacturers or entrepreneurs may ask themselves seeking to exploit the creativity of peer communities for profit (crowdsourcing innovation).

The measurement approach presented, in particular the combination of qualitative and quantitative methods in determining peer innovation based on the interaction data from the online forums, was confirmed in its basic features. In principle, online communities show great potential for investigating peer innovation, as they give direct access to project documentation, which allows to directly assess projects rather than surveying people. Considering the trade-off between feasibility and quality of the assessments, it should be justifiable to keep the proposed measurement method (manual labelling of three peer communities and subsequent (automated) training and testing of the indicators). However, some suggested improvements are recommended, as for instance revising the labelling rules (e.g. the definition of "idea presentation) and exploring the possibility to crowdsource the labelling of data in order to further validate the rules. Indicators that go beyond the identification of activities to assess innovation potential or innovation success would also be desirable and should be explored.

The community market has different requirements for products and technologies than commercial markets, which to some extent relativises the novelty criteria of the innovation definition. The value of a proposed solution to the peer community depends not so much on the originality of the design itself, but on the novelty of the contexts into which it can now be introduced. In this sense, whether a solution can be considered innovative depends on the whole process of sharing ideas, making technologies understandable, disseminating knowledge and methods, empowering actors, etc. In contrast to an objectifiable claim to novelty, a peer innovation must fulfil the condition that it can be replicated with community resources. According to the OECD definition of innovation, it must be "made available". Even if a similar design existed before (e.g., a plastic clamp), it can be considered as new when it enables the recreation of an object in different contexts.

It will be important to validate the measurement algorithm across different peer communities and test its transferability. It can be assumed that the dynamics of peer production depend decisively on the respective technological domain, especially whether it is hardware or software. If the designs of others cannot be easily copied, different rules apply. The documentation of hardware projects is more difficult, the replication of physical objects more complex and context-dependent than in the software sector. The quality of designs is more difficult to assess, and platforms for collaboration not yet developed. Open hardware communities have certainly learned from the organisation and culture of collaborative software development. There is also considerable overlap, for example
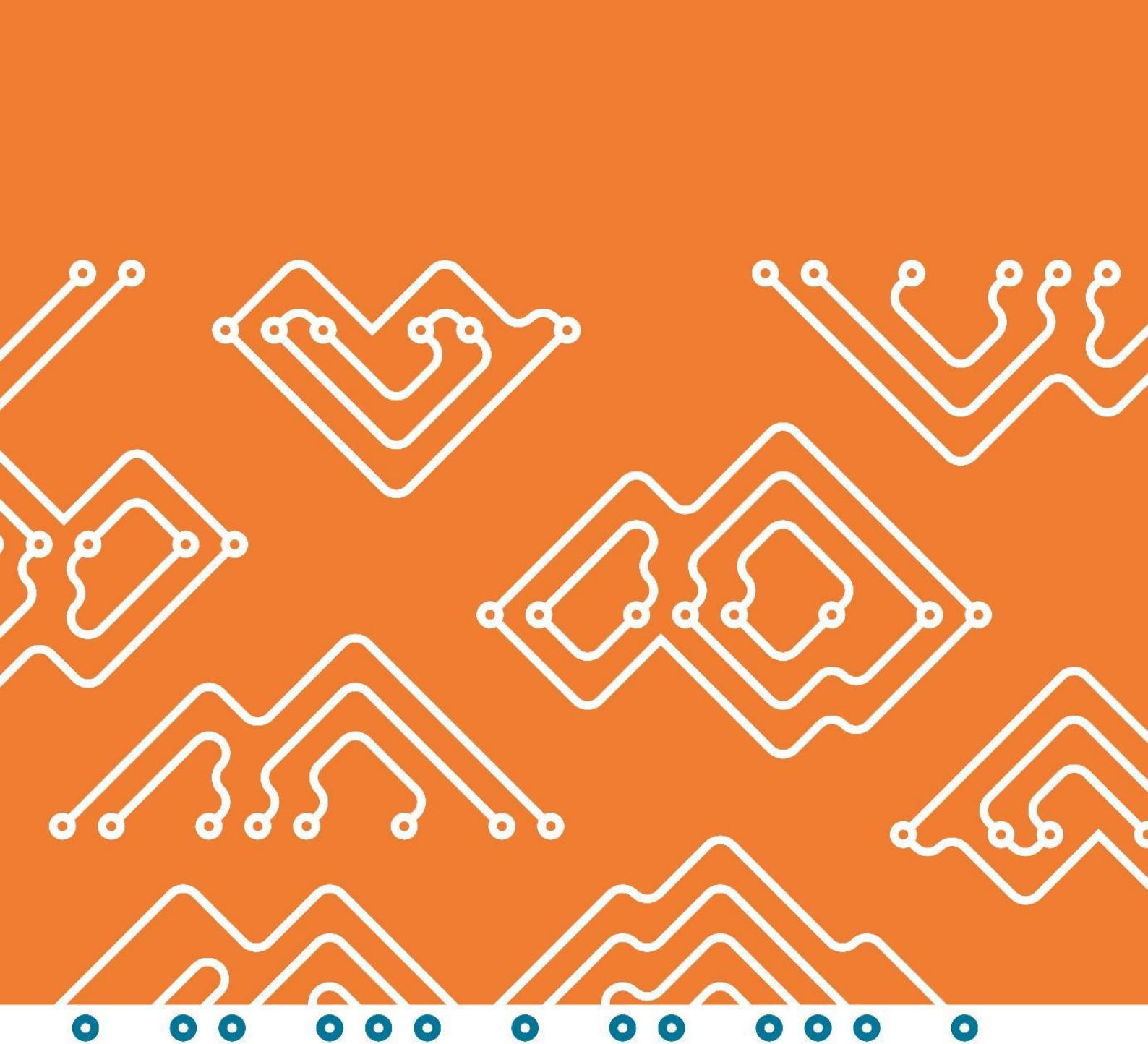
with regard to digital manufacturing, electronics, robotics or 3D printing. It therefore might be helpful to map the peer communities studied (OSM, OEM, PP) on a spectrum from software to hardware and analyse possible moderating effects on innovation events and indicators.

The workshop made also some policy recommendations that should be taken into account when developing practical guidelines in the further course of the project. With regard to funding a major question remains whom to fund and how. It has been pointed out that community management, in particular the moderation of online forums, is a decisive factor for the effectiveness of peer exchange and that physical and digital infrastructures need to be provided. Education has been identified as an important leverage point, as well as public funding for makerspaces and maker events. The organisation of contests and the support of spin-off start-ups was suggested as possible means to promote peer innovation.

The workshop demonstrated the rich extant work in the fields of open and user innovation and transition studies that the PeerInnovation project can build on. It has set important impulses for the project and should only have been the beginning of further exchanges of ideas with the experts. The project team will keep the workshop participants informed of its progress and findings and seek their further involvement in the project.

List of participants

Name	Surname	Affiliation	Working Group
Blind	Knut	Project Team	WG2
Brosius	Alexa	Workshop Support	
Gleu	Anna	Project Team	WG2
Häuer	Martin	Fraunhofer IPK	WG2
Heß	Philipp	Project Team	WG2
Hsing	Pen-Yuan	University of Bath	WG1
Hyysalo	Sampsa	Aalto University	WG1
Kern	Florian	Project Team	WG1
Korbel	Jakob J.	Technical University Berlin	WG2
Lehmkuhl	Florian	Hamburg University of Technology	WG1
Mesenbrock	Jan-Philipp	Project Team	WG1
Mies	Robert	Technical University Berlin	WG1
Pätsch	Sivan	OpenForumEurope	WG1
Peuckert	Jan	Project Team	WG1
Pohlisch	Jakob	Vienna university of Economics and Business	WG2
Weiß	Daniel	Free University Berlin	WG2
Wilhelmi	Gesa	Workshop Support	

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