The development of the OIS Impact Model

Process documentation

Ludwig Boltzmann Gesellschaft

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https://ois.lbg.ac.at/impact

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ABOUT THE LBG

The Ludwig Boltzmann Gesellschaft (LBG) is an independent research organization with a focus on the health and life sciences, as well as social sciences and humanities. The LBG has a budget of 31.3 Million Euro (2018), out of which 31% are from the budget of the Austrian Federal Ministry for Education, Science and Research.

The LBG, with approximately 550 employees, operates 20 research institutes and clusters and 2 research groups. The LBG regularly experiments and tests new ways of cooperation between academia and non-scientific actors, such as businesses, the public sector and civil society. In 2016, the LBG Career Center, providing services to 200 Pre- and Postdocs and the LBG Open Innovation in Science Center, exploring the potential of Open Innovation for the scientific context, were established.

The LBG Open Innovation in Science initiative

The LBG conducts world-class research with the aim of addressing challenges of high societal relevance and generating societal impact that will lead to societally relevant innovations. The LBG is convinced that societal impact can be achieved through openness, interdisciplinarity, internationality, and a clear focus on quality. Therefore, the LBG started the 'Open Innovation in Science' initiative with the aim of systematically opening up processes of scientific discovery in an effort to enrich research through new knowledge drawn from beyond traditional disciplinary boundaries. The goal of the Open Innovation in Science initiative is to enable scientists and scientific organizations to generate more novel solutions for societal challenges by:

- re-defining research and innovation processes through a cultural shift to work more openly and collaboratively
- creating a culture of sharing, making the entire scientific process more interactive and permeable
- establishing new forms of stakeholder interaction and collaboration
- disseminating and translating scientific knowledge into real-world innovations

Intensifying research that benefits society directly - this is the goal of the initiative of the LBG, which is unique in Europe. Science enters into a dialogue with the population and research processes are redesigned.

- Individuals become experts
- Science acquires new insights
- Research develops solutions

For further information on the 'Open Innovation in Science' initiative visit www.ois.lbg.ac.at/.

The purpose of this process documentation is to provide a detailed description of the development of the OIS Impact Model.

THE OIS IMPACT MODEL

Background

Motivation

Open Innovation in Science (OIS) aims to strategically turn scientific methods into open, collaborative and participatory processes with the goal of generating more societally relevant research. The LBG is pioneer in the European field and strategically experiments with open methods in scientific practice, develops new methods and models and provides citizens a platform to engage in research. However, the question on how to make these contributions visible and showcase their impact remains.

Therefore, the LBG OIS Center set out to identify the societal impact of its actions and their contribution to the goal of more societally relevant research. It aimed to capture the effect of its OIS initiatives and to make the pathways leading to societal impact explicit, tangible and measurable.

In the future, this will allow the LBG OIS Center to more strategically and systemically plan and steer OIS initiatives according to their societal impact, to evaluate existing OIS initiatives and to provide all those applying open and collaborative methods ideas on how to plan, steer and reflect on their work.

Theoretical grounds

Due to its long-term and complex nature, societal impact of research proves difficult to be attributed and assessed. Impact does not unfold in a linear and predictable manner, but rather in an iterative process of interactions between scientific domains and external stakeholders (*Productive Interactions*). Societal impact is thus best understood of the outcome of these creative interactions. Rather than emphasizing on a specific outcome or end product in the late future, the actions undertaken to achieve this outcome can be used as proxy (*Pathways to Impact*). Here, the process of relationship-building and dialogue with different research audiences throughout the research process are key indicators for impact. Societal impact of research does not unfold in a research vacuum, but through knowledge mobilization beyond academia. Research results rely on practical application to be impactful. Therefore, societal impact of research is most visible when scientific expertise moves into practice and policy settings where it can progress towards impact (*Research Uptake*). By co-producing scientific expertise with external stakeholders, partners' readiness to take up findings increases.[1]

On the grounds of the theoretical background, the broad impact goal was defined to be (a) research of high societal relevance and (b) uptake of research results.

To best display the complexity of unfolding societal impact of co-produced research, the core structure of the *Logic Model* was used. The Logic Model is used in program evaluation to identify clear goals. It depicts the components of a program by structuring it along the inputs provided, the activities conducted, the outputs generated, the intermediate outcomes that outputs lead to and the long-term impacts on society.

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[1]LERU position paper (2017), "Poductive interactions: societal impact of academic research in the knowledge society".

Muhonen, R., Benneworth, P., Olmos-Penuela, J. (2019) "From productive interactions to impact pathways: Understanding the key dimensions in developing SSH research societal impact", in Research Evaluation 1-14.

Phipps, D. Cummings, J., Pebler, D., Craig, W., Cardinal, S., (2016), "The Co-produced Pathway to Impact Describes Knowledge Mobilization Processes", Journal of Community Engagement and Scholarship, Vol.9, No. 1.

With support of the organization *Measury*, the LBG coupled the Logic Model with aspects from the *Theory of Change*. The Theory of Change perspective of explaining how and why goals come to be served as the basis to split up outcomes further into (a) change on awareness and/or competencies, (b) change on behavior and (c) change on life circumstances.

The development process

The LBG placed high priority in co-developing the OIS Impact Model. By involving a variety of stakeholders in the process, the LBG aimed to combine a diversity of viewpoints, avoid blind spots and generate shared value and commitment across its stakeholders. Together with the social research organization Measury, who specializes in impact planning and measurement, the process was set up. First, the theoretical groundwork for impact planning and measurement in research settings was explored (see previous chapter) and decisions about the underlying framework (the *Logic Model*, coupled with aspects from the *Theory of Change*, see previous chapter) were laid.

Then, a co-creation concept was drawn up, centering around two workshops. To reflect on the effect of OIS initiatives, four initiatives were chosen as examples to guide the process: (a) CRIS, the crowdsourcing of research ideas to generate more novel research questions (b) Ideas Lab, an interactive workshop format to generate diverse research groups (c) LOIS and SCIENCE4YOUTH, two capacity building programs for researchers and the public and (d) the governance structures applied to research groups working with OIS initiatives. All four initiatives had been applied by the LBG in the field of mental health in the past:

(a) **Crowdsourcing**: In 2015, the LBG conducted a crowdsourcing initiative to ask "What questions about mental health does research need to answer?" More than 400 contributions from patients, health care professionals, family members, psychologists, psychotherapists, neurologists and more were received. The answers were clustered and analyzed for their potential by an expert panel. After a community voting, the most important fields to work on further were selected: the challenges children of mentally ill parents face.

(b) **Ideas Lab**: In 2017, within a five-day interactive workshop format, young researchers came together from different countries and different disciplines to approach the challenges for children of mentally ill parents together. They formed interdisciplinary research groups around solution approaches. Two research groups received funding for four years: the groups D.O.T. – The Open Door and Village are implementing their research concepts between 2018 and 2021.

(c) **Capacity building programs LOIS and SCIENCE4YOUTH**: In LOIS, research groups working with OIS methods received a one-week tailored training program with relevant expertise to apply Open Innovation methods in a scientific context in 2018. Meanwhile, interested young adults, the main stakeholders of the mental health research groups, received the SCIENCE4YOUTH training to understand academic processes to empower and enable them to have their voices heard in research.

(d) **Open governance structures**: To support the work of the two research groups working with open methods, the groups underlie unique governance structures: for example, the Advisory Board of the two groups does not only consist of experts in the field, but also includes an Open Innovation expert and several experts by experience: adolescents who experienced childhood and youth with a mentally ill parent. A competence group consisting of several experts by experience regularly meets with research group members to provide feedback on their work. Finally, a research group

and relationship manager helps build up and facilitate the networks necessary to involve diverse stakeholders.

In a next step, relevant stakeholders to involve in the creation of the OIS Impact Model were defined. These stakeholders participate at different stages along open research processes and are, at the same time, affected by open research activities conducted. Due to the large amount of interested parties identified, the co-creation process was split into two parts: the first workshop held a micro-perspective with a focus on operations within a single research project. Meanwhile, the second workshop held a macro-perspective with a focus on the research landscape overall.

The first co-creative workshop

The first workshop with 10 attendants was held in German in November 2018 at the LBG in Vienna. It was supported by two moderators from the organization *Measury* to include external expertise and ensure dialogue at an eye-level between internal and external participants.

The workshop aimed to bring three stakeholder groups to the table:

- **Researchers,** who work with or are affected by OIS methods,
- **practitioners**, experts from practice who are affected by OIS methods (e.g. professionals who apply research results in practice)
- the **community**, such as patients or the public affected by OIS methods (e.g. by providing expert knowledge)

To simplify the application process of a complex topic, the activity of the research groups D.O.T. and Village were used as a basis, as they exemplify the application and use of OIS methods in open research practice. Stakeholders from within and outside the LBG, within and outside these two research groups were identified and invited to participate.

The aim of the workshop was to tackle the question "'What effect should the LBG OIS initiatives have" and provide the pathway to impact from the view of each stakeholder group. Within the workshop, an introduction to the topic was given. Then, effects and chains of effects of the four OIS initiatives displayed above (Crowdsourcing, Ideas Lab, Capacity building programs and Open governance structures) were identified and laid out in small groups split up according to the three stakeholder groups. This activity was based on the work of the two research groups. The effects were clustered using the following reflection questions:

- How should knowledge and mindset among the stakeholder group change?
- How should decisions and actions among the stakeholder group change?
- What benefits result for the stakeholder group?

In a next step, the most important effects were prioritized by the group and mapped out in a logic chain. This was followed by a feedback round by the other participants. At the end, the final chain of main effects on the stakeholder group was presented.

The second co- creative workshop

The second workshop with 12 national and international attendants was held in English in February 2019 at the LBG in Vienna. It was supported by two moderators from the organization *Measury* to include external expertise and ensure dialogue at an eye-level between internal and external participants.

The workshop aimed to bring three stakeholder groups to the table:

- **Policy-makers**, government actors who formulate policies and thus influence the use of OIS methods (e.g. by passing laws),
- **funders**, who provide funding and thus influence the use of OIS methods (e.g. by defining funding criteria), and
- the **media and thought leaders**, non-governmental organizations, journalists or other activists representing civil society at large and thus influence the use of OIS methods (e.g. by promoting their value).

Due to the broader focus of stakeholder groups, no specific research project was required as basis for application. Stakeholders from both within Austria and outside Austria were identified and invited to participate.

To reflect on the macro-perspective brought in by the second set of stakeholders, the OIS initiatives reflected on were slightly altered in comparison to the first workshop. Rather than using the four specific OIS initiatives outlined above (Crowdsourcing, Ideas Lab, Capacity Building programs, Open governance structures), the group reflected more broadly on different steps of involving the public along the research process, namely: (a) on the involvement of the public in the development of research questions (b) on forming interdisciplinary research groups (c) on open governance and steering processes of a research group and (d) on open dissemination of research.

The aim of the workshop was to tackle the question "What effect should the LBG OIS initiatives have?" and provide the pathway to impact from the view of each stakeholder group. Similar to the set-up of the first workshop, the workshop first set out to provide an introduction to the topic. Then, effects and chains of effects of the four steps along the research process were identified and laid out. The effects were clustered using the following reflection questions:

- How should knowledge and mindset among the stakeholder group change?
- How should decisions and actions among the stakeholder group change?
- What benefits result for the stakeholder group?

In a next step, the most important effects were prioritized by the group and mapped out in a logic chain. This was followed by a feedback round by the other participants. At the end, the final chain of main effects on the stakeholder group was presented.

Follow-up

After each workshop, participants were encouraged to send in follow-up reflections on their work, stimulated by a detailed workshop documentation sent out a week later. The effects identified in both workshops were synthesized with strong support of the social researchers at *Measury* and laid out in a unified OIS Impact Model. The first draft underwent several feedback cycles with workshop participants and further internal and external experts. Title and wording of definitions of the impact elements were continuously refined and sharpened for understandability and poignancy, as well as translated to both English and German. The Impact Model was then transferred to a playful illustration with symbols for each element. The illustration, accompanied with a meaningful symbol for each of the different elements, corresponding definitions and affected stakeholders, encourages a deepened discourse with the different pathways to impact of research involvement methods.

The results

The result of the co-creative development process is an Impact Model that demonstrates how LBG OIS initiatives should be designed and what change processes research involvement should trigger in order to achieve the two main goals: research of higher societal relevance and research uptake. The model is embodied in both a tabular overview with definitions in an Excel-format and an illustration. For broader accessibility, it is available in both English and German.

The Impact Model illustration (see Figure 1) shows the gradual unfolding of societal impact using images of a scenic trail: At the bottom of the figure, quality criteria demonstrate how OIS initiatives should be designed to allow for effective involvement (Output/Level 2): for example, if participation is well-designed, participants are addressed at an eye-level and needs of participants considered. Together, the quality criteria ensure that stakeholders are identified and addressed in line with their interests and knowledge. These quality criteria, represented in the form of light blue rivers feed into the dark blue lake, which demonstrates effective involvement: one-time or continuous participation (Output/Level 3). Once involvement takes place, change processes are set in motion in all people involved in the research process. The first step to increased societal impact is a change in personal awareness and competencies (light green area) of all participants of the process (Outcome/Level 4): researchers may find out more about needs of the public, while the public may find out more about research and all involved parties may experience motivational boosts. This change in personal awareness may then lead to adapted behavior (Outcome/Level 5): through involvement, participants and researchers may, for example, start to develop goals and visions together (green area). Finally, the change in behavior leads to a change in life circumstances of all participants (blue green area): for example, researchers are able to add new quality to their research. Participants experience an emotional and practical use of involvement (Outcome/Level 6). Together, these effects help research reach new heights, demonstrated by the hot-air balloon aiming for the sky: research results are of higher societal relevance through the engagement of societal actors. They address real societal needs and societal actors are more likely to take up research results (Impact/Level 7).
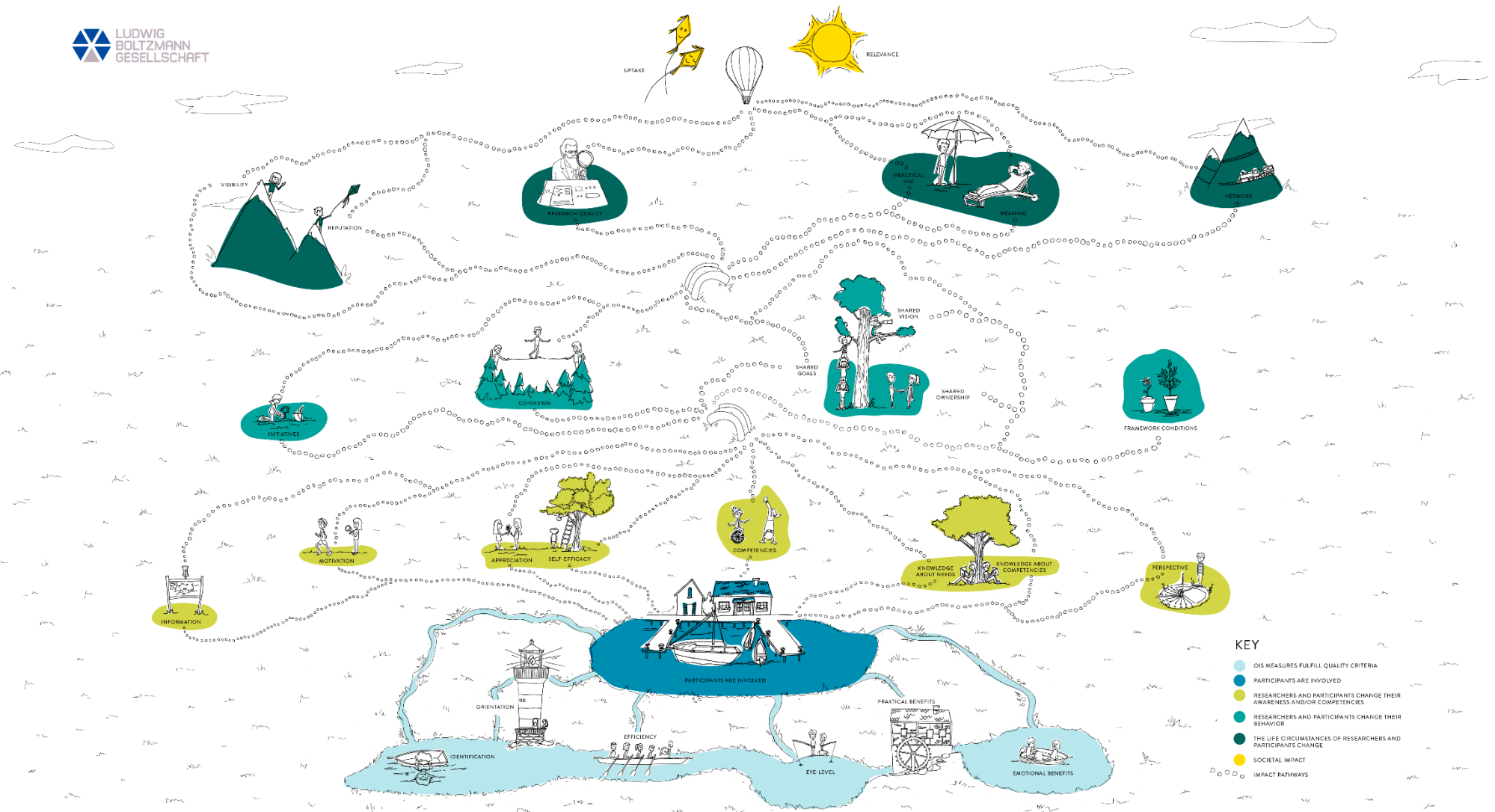
Figure 1: The OIS Impact Model: Illustration

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	IMPACT		DESCRIPTION	THE PUBLIC	PRACTICIONERS	RESEARCHERS	POLICYMAKERS
IMPACT	**Level 7** Societal impact	Uptake	Societal actors recognize the benefits of the research and are more likely to take up the research results.				
		Relevance	The research yields usable, actionable, and relevant results.				
OUTCOME	**Level 6** The life circumstances of researchers and participants change	Practical use	Participants experience involvement in research as a supportive for their life and work.	✓	✓		✓
		Meaning	Participants experience increased emotional benefits (self-realization, altruism, fun, meaningfulness, a sense of belonging).	✓	✓	✓	✓
		Network	Participants are connected beyond their individual spheres of influence.	✓	✓	✓	✓
		Research quality	New qualities of research are established (multi-perspectives, democratization, transparency, representativeness).			✓	✓
		Reputation	Reputation of researchers are improved (perception as experts).			✓	
		Visibility	Relevant, surprising, or locally relevant results are more thoroughly covered by the media. Participants increase their visibility.	✓	✓	✓	✓
	Level 5 Researchers and participants change their behavior	Initiatives	Participants start their own research initiatives (proactivity).	✓			
		Shared goals	Goals of the research are determined collectively with participants (outcome measures).	✓	✓	✓	✓
		Shared vision	Research priorities are discussed and identified collectively together with participants.	✓	✓	✓	✓
		Co-design	Participants contribute to research activities beyond their original roles and co-produce the research design.	✓	✓		✓
		Framework conditions	Political decisions to create better framework conditions for research oriented towards societal relevance are taken.				✓
	Level 4 Researchers and participants change their awareness and/or competencies	Self-efficacy	Participants experience encouragement and self-efficacy to start initiatives.	✓	✓		
		Appreciation	Participants experience appreciation and reduce reservations towards research.	✓	✓		
		Competencies	Participants expand their knowledge and skills.	✓	✓	✓	✓
		Motivation	Participants are interested and motivated to participate in research.	✓	✓		✓
		Information	Participants receive first-hand access to (interim) research results.	✓	✓		✓
		Perspective	Researchers and policymakers change their perspectives and engage with participants as equals.			✓	✓
		Knowledge about competencies	Researchers have increased knowledge about participants' competencies.			✓	
		Knowledge about needs	Researchers and policymakers have increased knowledge about participants' true needs.			✓	✓
OUTPUT	**Level 3** Participants are involved	Continuous involvement	Participants are involved continuously.	✓	✓		✓
		One-time involvement	Participants are involved once.	✓	✓		✓
	Level 2 OIS measures fulfill quality criteria	Eye-level	Researchers involve participants as equals and enable participation, co-design, and balance of interests among all participants.			✓	
		Efficiency	Researchers consider efforts and barriers during the involvement of participants.			✓	
		Orientation	Researchers communicate with participants in understandable language for the specific interest group.			✓	
		Emotional benefits	Researchers consider the emotional benefits for the participants.			✓	
		Practical benefits	Researchers consider the practical benefits for the participants.			✓	
		Identification	Relevant interest groups are identified and invited to participate.			✓	
ACTIVITIES	**Level 1** OIS measures are designed	OIS measures are designed	OIS measures are developed: * Involvement in research agenda setting * Involvement in the research process * Involvement in governance * Involvement in the dissemination of research results			✓	

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Figure 2: The OIS Impact Model: Tabular overview

KEY TAKEAWAYS

The process of developing the OIS Impact Model provided us with a few important lessons:

- Splitting up the development process into two workshops allowed us keep a certain level of depth when converging diverse stakeholders to specific groups. It enabled similar stakeholder groups to find common ground: in the first workshop, common ground was found by using a research project that all stakeholders were (somewhat) familiar with, though through different lenses. Meanwhile, the second workshop allowed for a broader discussion and the consideration of national and international governance and policy reference points that all stakeholders shared a connection with.

- Splitting up the development process into two workshops also served as a quality indicator: although stakeholders came from quite different angles, brought different perspectives and examples into the workshop and based their contributions on different experiences and touchpoints with OIS methods, once language and wordings of the contributions were unified, the second workshop confirmed many aspects brought up by the stakeholders who participated in the first workshop.

- The success of the OIS Impact Model can be attributed to a large extent to high-quality moderation. The co-creative workshops to develop the model require experienced moderators with some expertise in the field. As the topic is quite complex, translating it to the context of the stakeholders participating is key to results of high quality. A detailed introduction to set a common ground provides the necessary basis for an effective workshop.

- The feedback process of compiling the two workshop results was more resource-intensive than expected: meticulous attention to detail has to be paid to the use and connotation of certain words when phrasing a certain impact element and its definition. This reflection process required some time to regularly step back, review and revisit the Impact Model to ensure a balanced view.

- Similarly, translations of the OIS Impact Model had to be conducted with care. We suggest to work with a native speaker fluent in both languages and at home in the open research system to truly convey underlying meaning and avoid misleading connotations non-native speaker are not familiar with.

- The display of the OIS Impact Model in a playful illustration allowed us to increase accessibility of a complex topic by translating it into an interesting and fun activity for all stakeholders. The figure reduces barriers for those less familiar with impact literature and jargon to become involved and enter the discourse. However, a structured layout (e.g. in the form of a tabular overview) is just as important for experts in the field who want to dive deeper.

NEXT STEPS AND OUTLOOK

The LBG considers the emergence of the OIS Impact Model as an ongoing, dynamic process and will, with increasing experience and feedback, continuously update, add to and revise the existing pathways and change elements.

In a next step, the LBG sets out to develop a research design with a set of impact metrics to provide the opportunity to assess the different elements of the OIS Impact Model: on the one hand, the LBG plans to create a participation check that can be used after every involvement activity. The participation check aims to provide feedback of the design of the involvement activity based on the quality criteria defined in the development process of the OIS Impact Model. It thus responds to the Output level.

On the other hand, the LBG sets out to fill the different outcome change factors in the OIS Impact Model with suggestions and ideas on how to assess for change in the Outcome level using different approaches and methods. These indicators will partly be co-created with existing research groups working with OIS methods and their stakeholders participating in research. In a pilot, the OIS Impact Model will be applied to and tested with the participation processes of OIS research groups in the field of mental health.

For the purpose of making the OIS Impact Model available for both planning and reflection to all research groups working with OIS methods, the LBG will create an interactive online tool using the illustration. Users can explore the individual change elements, their definitions and several suggestions on how to make the change visible. In time, good-practice-elements of research groups applying the Impact Model to their work in the form of hyperlinks to websites and publications or case studies can be added for further reference and visibility of OIS projects. In future, the illustration should be a useful guidance and planning tool that helps map potential OIS initiatives and research projects of the LBG and others who are initiating and working with open research groups.

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