INPLASY

Beyond Participation: A Scoping Review Protocol on Living Labs Effectiveness Criteria

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INTRODUCTION

*R*eview question / Objective The aim of this scoping review was to identify and develop a set of indicators for assessing the effectiveness of participative and collaborative processes adopted in the context of Living Labs (LL). Accordingly, this scoping review addressed the following question: What are the indicators for assessing the effectiveness of participatory and collaborative processes used in Living Labs?

Background Climate change (IPCC, 2023), health related issues (Baker et al., 2021), and poverty (Castaneda Aguilar et al., 2024) challenge societies' sustainability. These issues translate into social inequalities that affect vulnerable groups, such as racialized people (e.g., Williams, Mohammed, Leavell, & Collins, 2010) and older adults (e.g., Rank & Hirschi, 2015).
Participatory and collaborative approaches may provide a response to these sustainability issues (Ramírez, Hoogwijk, Hendriks, & Faaij, 2008). More specifically, Living Labs are effective tools to set

and attain goals in the field of sustainability (Molnar, Lepenies, Borda, & Pedell, 2023). Living labs involve multiple public and private stakeholders, such as citizens, enterprises, and academics (Veeckman et al., 2013) and their essence lies in developing sustainable and contextual innovation through co-creation with users (Westerlund & Leminen, 2011). The implementation of Living Labs was found beneficial in upgrading social housing (Bridi et al., 2022), in integrating users into digital development (Ballon, Van Hoed, & Schuurman, 2018), and in improving mobile TV (Schuurman, De Moor, Marez, & Evens, 2011). Furthermore, Living Labs were also oriented towards supporting participants' health, such as that of the older adults. For instance, in the context of a Living Lab for seniors, Angelini and colleagues (2016) illustrated the emphasis of this participatory design on supporting healthy nutrition, autonomous mobility, and social connectivity amongst older citizens. Moreover, in a scoping review, Verloo and colleagues (2021) highlighted that Living Labs for people with dementia were focused on optimizing health, home care, and

quality of life. For these reasons, the Living Labs presence has grown around the world, both in terms of number of members and publications surrounding the phenomenon (Schuurman & Leminen, 2021).

Therefore, it is essential to understand the way Living Labs operate in multi-dimensional contexts, complex power distribution, and governance dynamics (Hossain et al., 2019). This involves determining indicators of the effectiveness, performance, and impact of setting up Living Labs (Ballon et al., 2021; Bronson et al., 2021).

Rationale The implementation of Living Lab projects has strongly and consistently demonstrated its added value (Ballon et al., 2018). Evaluating Living Lab effectiveness can be complicated due to their pragmatic and non-standardized nature. Accordingly, scholars from different fields have attempted to identify indicators for evaluating their effectiveness (e.g., Beaudoin et al., 2022). However, even though research focused on different levels (Schuurman & Leminen, 2021) and fields of application of Living Labs (e.g., Beaudoin et al., 2022), it has not yet identified a set of relevant criteria capable to assess the tangible and intangible impacts of Living Labs in a given context.

METHODS

Strategy of data synthesis Drawing on the methodological guidelines for scoping reviews outlined by the Johanna Briggs Institute (Peters et al., 2020), the first article selection was automatic. Firstly, a preliminary search was performed on Google Scholar to identify suitable indexing terms through articles found to be relevant to the purpose of this scoping review (i.e., concept and context). Secondly, the terms list was completed using the MeSH thesaurus. The search of peer reviewed research articles was conducted in the following electronic databases: Business Source Premier & CINAHL, Cairn, Proquest, Swisscovery, Web Of Science, and Google Scholar. Grey literature was also searched in the following electronic databases: Bibnet.org, LiSSa, SWISSBB, ArODES, UniGe Open Archives, DART Europe. We searched these electronic databases for research articles and reports including one or more of the following concepts (i.e., used as keywords): indicator*; evaluat*; assessment; metric*; measur*; impact. Moreover, we sought articles and reports including a participative and/or collaborative approach and Living Labs. The search was primarily undertaken on English-written literature and was later extended to French-written literature.

All the articles found during the automatic search were compiled in Rayyan (see https://www.rayyan.ai/), where duplicates were removed. The second article selection was performed manually by two separated researchers. Firstly, inclusion and exclusion criteria were applied by reading the title and abstract. Articles selected in this first round were then read entirely to identify compliance with the same inclusion and exclusion criteria.

Eligibility criteria Research articles and reports were considered eligible if (i.e., inclusion criteria): they involved a participatory and collaborative approach; the participatory approach embodied the structure of a Living Lab; they mentioned effectiveness indicators for the participatory approach; the long-term existence of the Living Lab was established.

Research articles and reports were not eligible if (i.e., exclusion criteria): they did not involve a participative and collaborative approach; the participative approach did not feature the setup of a Living Lab; they did not refer to indicators of effectiveness of the participative approach; the long-term viability of the Living Lab was not assumed; they focused on methodological aspects of the participative and collaborative approach.

Regarding publication language, only English- and French-written research articles and reports were eligible.

While studies and reports had to involve a human population to be eligible, no restrictions were imposed in terms of population characteristics. Furthermore, the year of publication and geographical location of the study were not considered as eligibility criteria.

The quality of the methodology used in the selected studies was not assessed and thus not considered as an eligibility criterion in our scoping review.

Source of evidence screening and selection
The source selection process followed the two-steps guideline for scoping reviews outlined by the Johanna Briggs Institute (Peters et al., 2020). After identifying potentially eligible research articles and reports, duplicates from different electronic databases were removed. Then, titles and abstracts of the identified articles were screened for inclusion and exclusion criteria. Finally, the full text of the selected studies was screened for eligibility criteria. Only studies meeting all eligibility criteria were included in the data extraction phase. The extraction and screening of research articles and reports was undertaken between July and November 2022. The screening process was independently performed by two authors. The

source selection process was then updated in May 2024, to optimize the completeness of the extracted data. This update was performed applying the same electronic database search equations, and the same eligibility criteria outlined above. Disagreements between authors concerning the identification and screening of research articles and reports were resolved through discussion. Cohen's Kappa for inter-rater reliabilities and percentage of agreement were calculated for the screening of research articles and for the overall study inclusion.

Data management Throughout the source selection process, the Rayyan system was used to facilitate a coordinated work of the authors involved in identifying eligible articles, and the justification of items exclusion (see https://www.rayyan.ai/). Once eligible articles had been identified, a Microsoft Excel document was created to support the extraction of data and information relating to the aims of this scoping review.

Reporting results / Analysis of the evidence
According to the research question and objectives underlying this scoping review, the following information was extracted from eligible studies: authors, year of publication, journal, study aim, description of the participatory and collaborative method deployed, indicator(s) of the effectiveness of the participatory method used, results of the intervention, date on which the source was consulted and internet link.

Presentation of the results Given the descriptive purposes of this scoping review, the results will be reported in a narrative format. The source selection process will be presented in a figure (i.e., diagram), in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) guidelines. Information on the included studies, and the indicators of effectiveness they used, will be presented in a table. Furthermore, depending on their characteristics (e.g., how the indicator measures effectiveness), the indicators of effectiveness will be presented in different tables, referenced to the articles including them, and enriched with examples.

Language restriction Only English- or French-written research articles and reports were considered.

Country(ies) involved Switzerland.

Keywords Living Labs; Participatory and collaborative approach; Effectiveness indicators.

Dissemination plans Publication of a scoping literature review article.

Contributions of each author
Author 1 - Paolo Martinelli updated the source selection process, submitted the protocol, and drafted the article reporting the results of this scoping review.
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