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RESEARCH ARTICLE

REVISED A Fast-Track Training Program for Living Lab Methodologies: program components, acceptability, and participant perceptions

[version 3; peer review: 3 approved, 3 approved with reservations]
Previously titled: "Accelerating Expertise: A Fast-Track Training Program for Living Lab Methodologies"

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v3 **First published:** 10 Nov 2025, **5**:343
https://doi.org/10.12688/openreseurope.21200.1
Second version: 21 Apr 2026, **5**:343
https://doi.org/10.12688/openreseurope.21200.2
Latest published: 13 Jun 2026, **5**:343
https://doi.org/10.12688/openreseurope.21200.3

Abstract

Background

Living Labs have proven to be valuable environments for fostering innovation through user-centred approaches. However, many researchers and companies still face challenges in implementing these methodologies sustainably. Addressing these challenges requires not only structural solutions within Living Labs, but also the cultivation of expertise among researchers and practitioners. It is crucial to educate researchers and innovators in practices aligned with user-centred research, Living Lab practices and co-design, emphasizing societal relevance and Responsible Research and Innovation (RRI) within the research community.

Method

This paper presents and evaluates a novel training program developed within the VITALISE project, aimed at onboarding external researchers and familiarizing them with Living Lab Research

Open Peer Review

Approval Status ? ✓ ✓ ? ✓ ?

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version 3 (revision) 13 Jun 2026		✓ view	✓ view			
version 2 (revision) 21 Apr 2026			✓ view		✓ view	? view
version 1 10 Nov 2025	? view	? view	? view	? view		

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Infrastructures through transnational visits and collaborations. Results The program features a modular design covering key topics such as Living Lab methodology, harmonisation of research practices, and participant recruitment and panel management. A total of 49 participants completed an evaluation questionnaire, with results indicating high satisfaction and perceived usefulness across all training modules. Post-training, most participants reported feeling confident in applying Living Lab methodologies after the training. Notably, individual differences in interest across training blocks highlighted the need for flexible, tailored programs that accommodate varying levels of prior knowledge and specific research needs.

Conclusion

This study suggests that targeted, adaptable training initiatives are acceptable. Self-reported feedback suggests that it could help to enable researchers to integrate Living Lab methodologies into their work. However, further formal evaluation of learning gains is needed. Continued development of structured, scalable, and context-sensitive training programs, supported by international collaborations and standardized approaches, will be essential for fostering sustainable and impactful Living Lab research across disciplines and borders.

Plain Language Summary

Living Labs are environments where researchers, companies, and citizens work together to test and improve new ideas and technologies in real-life settings. Although these labs can help create better and more useful innovations, many researchers still struggle to use such environments (or the methods they use) effectively. To help with this, a European project called VITALISE created a training program to teach researchers about living labs and the methods they use. The training included different topics like how to involve people in research, how to manage participants, and how to make research methods more consistent across labs. Forty-nine researchers took part in an evaluation of the training and gave feedback. Most of them were very satisfied and felt more confident using Living Lab methods afterward. The training was designed to be flexible, so people with different backgrounds and needs could benefit from it. This study shows that well-designed training programs can help researchers use Living Labs more successfully, which could lead to better innovations that are more connected to society's needs.

Keywords

Training, user-centred design, Living Lab, participatory design, education, harmonisation, methodology

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H2020 This article is included in the Horizon 2020 gateway.

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Author roles: Helsen K: Conceptualization, Data Curation, Formal Analysis, Investigation, Methodology, Visualization, Writing – Original Draft Preparation; **Van der Auwera V**: Conceptualization, Funding Acquisition, Methodology, Project Administration, Supervision, Writing – Review & Editing; **Drijkoningen F**: Formal Analysis, Visualization, Writing – Original Draft Preparation; **Petsani D**: Conceptualization, Investigation, Writing – Review & Editing; **Santonen T**: Formal Analysis, Writing – Review & Editing; **Bamidis P**: Funding Acquisition, Supervision, Writing – Review & Editing; **Konstantinidis E**: Conceptualization, Funding Acquisition, Project Administration, Supervision, Writing – Review & Editing; **De Witte NAJ**: Supervision, Visualization, Writing – Original Draft Preparation, Writing – Review & Editing

Competing interests: No competing interests were disclosed.

Grant information: This project has received funding from the Horizon 2020 Call H2020-INFRAIA-2018-2020 (Integrating and opening research infrastructures of European interest) Topic: INFRAIA-02-2020 under grant agreement No 101007990-(VIrtual healTh And weLlbeing Living Lab InftraStructurE (VITALISE).
The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.

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How to cite this article: Helsen K, Van der Auwera V, Drijkoningen F *et al.* **A Fast-Track Training Program for Living Lab Methodologies: program components, acceptability, and participant perceptions [version 3; peer review: 3 approved, 3 approved with reservations]** Open Research Europe 2026, **5**:343 https://doi.org/10.12688/openreseurope.21200.3

First published: 10 Nov 2025, **5**:343 https://doi.org/10.12688/openreseurope.21200.1

REVISED **Amendments from Version 2**

The new version includes an updated version of figure one (detailing that training delivery could be online or in-person) and implements consistent capitalization for the term Living Lab.

Any further responses from the reviewers can be found at the end of the article

Introduction

Over the last decades, Living Labs have emerged as resilient research infrastructures and facilitate the transition from research outcomes to market implementation (Fauth *et al.*, 2024; Leminen & Westerlund, 2016). Living Labs can be defined as open innovation ecosystems in real-life operational environments which put citizens and/or end-users at the centre of the innovation process (European Network of Living Labs, 2025). They promote a systematic user co-creation approach that integrates research and innovation activities in communities and/or multi-stakeholder environments. Beyond their role as co-creation environments, Living Labs act as orchestrators within regional innovation ecosystems, facilitating collaboration across stakeholders and aligning innovation activities with societal challenges (Fauth *et al.*, 2024). These ecosystems reflect the principles of the Quadruple Helix innovation model, where collaboration between academia, industry, government, and civil society drives knowledge creation and sustainable innovation (Carayannis & Campbell, 2010). In the Health and Wellbeing domain, where the needs of people such as young individuals, older adults, and patients are central, this approach is particularly valuable for creating meaningful, context-sensitive solutions.

Living Labs aim not only to explore users' contexts, behaviours, and preferences but also to foster co-creation processes that generate societal value and engage diverse stakeholders (Westerlund *et al.*, 2018). Co-creation, however, extends beyond a methodological approach; it represents a mindset rooted in participatory design, emphasizing the belief that all individuals can meaningfully and creatively contribute to innovation processes when equipped with the right tools and frameworks (Sanders & Stappers, 2008). This vision aligns closely with broader movements in participatory health research and human-centered innovation, where collaborative design with stakeholders is key to achieving sustainable impact.

Despite their potential, Living Labs face significant challenges. These include navigating complex governance structures, engaging and retaining stakeholders, and addressing obstacles in executing co-creation activities and real-world pilot testing. Barriers range from designing appropriate study protocols and ensuring user engagement to tackling ethical dilemmas and technical implementation issues (Fauth *et al.*, 2024). Furthermore, the field is hindered by issues of sustainability (Fauth *et al.*, 2024; Paskaleva & Cooper, 2021) and a lack of harmonized services, methods, and terminology (Santonen *et al.*, 2024b). Particularly in the Health and Wellbeing domain, the diversity of digital data collection and intervention tools, ranging from wearables to mobile applications and sensor-based platforms, reflects the methodological heterogeneity that characterizes many Living Lab activities (Petsani *et al.*, 2024). This methodological diversity and complexity also impede the systematic documentation of effectiveness and the transparent reporting of outcomes (Paskaleva & Cooper, 2021).

Addressing these challenges requires not only structural solutions within Living Labs, but also the cultivation of expertise among researchers and practitioners. Establishing and conducting high-quality co-creative processes requires specialized expertise and considerable effort from both academic researchers (De Silva *et al.*, 2023) and small and medium-sized enterprises (SMEs). Access to Living Lab infrastructures alone is insufficient; researchers and organizations must also develop the necessary skills and understanding to apply Living Lab methodologies effectively and consistently.

Education plays a critical role in building these competencies. To this end, it is essential to educate new generations of researchers in user-centered approaches, fostering a strong societal orientation in line with the principles of Responsible Research and Innovation (RRI). RRI emphasizes the need for inclusive, anticipatory, and reflexive innovation practices that align research activities with societal values and needs (Owen & Pansera, 2019). In the context of Living Labs, this implies embedding societal stakeholders meaningfully into research and innovation processes, not only as users but as co-creators of knowledge (Van Geenhuizen, 2019). A study by Konstantinidis *et al.* (2021) demonstrated that even brief training interventions (e.g., an 8-hour program) can significantly enhance participants' understanding of co-creative methods, as evidenced in the case of engineering students. User experience (UX) and participatory design have for some years been integrated into the curricula of students in fields such as engineering, product development, and human-computer interaction, and can go beyond theory to include experiential learning (Hecht & Maass, 2008; Kang *et al.*, 2022). Experiential learning is characterized by exposing students to new experiences, using guided reflection to connect learnings to prior understanding, supporting knowledge through reflection, and helping students apply the knowledge (Kang *et al.*, 2022).

However, trainee profile can influence learning. Students and practicing professionals differ in baseline competence, motivation, and opportunities to apply skills, which affects both learning and transfer to practice (Blume *et al.*, 2009). Additionally, as (digital) innovations become embedded in routine healthcare, there is growing recognition that healthcare professionals need competencies that go beyond adoption, including co-design and participatory approaches that account for workflows and organisational context (WHO, 2021; Greenhalgh *et al.*, 2017).

However, students in healthcare disciplines (e.g., nursing, healthcare management, occupational therapy) are rarely exposed to participatory design methodologies during their education. Therefore, training initiatives must extend beyond student education to include active researchers and practitioners from diverse academic and commercial backgrounds.

One initiative that sought to address this need for capacity building and harmonisation in the Living Lab community is the European Horizon 2020 project VITALISE. This project aimed to enhance and promote research in the Health and Wellbeing domain by opening access to Living Lab infrastructures and services across Europe and beyond. Through VITALISE, researchers could obtain in-person Transnational Access to 17 Living Lab research infrastructures, supporting studies in areas such as rehabilitation, transitional care, and everyday life environments. In these collaborative settings involving Living Labs, incorporating a training component on Living Lab methodologies can be highly beneficial. Integrating training with active research collaboration not only enhances learning through experiential engagement (Kang *et al.*, 2022), but also supports the harmonisation and interoperability of Living Lab practices across diverse initiatives and ecosystems (Santonen *et al.*, 2024b).

This paper presents a new fast-track-training program which aimed to broaden the understanding and valorisation of Living Lab methodologies within the research community. Specifically, this study presents the content of this training program and how it was designed and implemented within the VITALISE project. Additionally, we want to present the first self-reported experiences with this program, collected through a participant survey.

Method

Research design framework

Figure 1 presents the six sequential phases of the study. An iterative, consensus-seeking approach, conducted in collaboration with a group of experts, was employed to develop the Fast Track Training (FTT) programme for Living Lab research, which comprises five core elements and one flexible component. The term fast-track was used to indicate that it was a short, intense, and focused program. An open call for participation in transnational access, including the training, was organised. Eligibility criteria were applied to select participants, who were then invited to complete a pre-training survey. At the beginning of the transnational visit, participants received training (and were introduced to the optional use of a self-reflection diary). An intermediate analysis, conducted after the visits of the first 11 researchers, was undertaken to evaluate and refine the FTT programme based on real-life experiences. A post-training evaluation questionnaire was administered upon completion of the programme. Finally, quantitative and qualitative analyses were carried out using data from the pre- and post-training surveys. The following sections describe each phase in more detail.

Fast Track Training (FTT) program development

The training program was constructed under the lead of LiCalab Living and Care Lab of Thomas More University of Applied Sciences, a Belgian Living Lab with over 10 years of experience in Living Lab methodology in the field of health and care. Four senior Living Lab consultants codesigned a program to immerse researchers in Living Lab methodology during a 2-day training. Next, feedback from all VITALISE project partners on the outline of the program was collected. After consensus was achieved for the topics, the content was built. Five main program elements were selected in addition to one flexible training block in which each hosting Living Lab was free to add and share an additional topic within their expertise. Once again, input and feedback from all project partners was sought. An intermediate analysis after the visits of the first 11 researchers to varying Living Labs showed that the need existed to implement the training in a more flexible and tailored way. Additionally, it was suggested to focus most on the topics that were of greatest relevance for the planned studies or the topics in which researchers lacked knowledge.

Throughout training and transnational access activities, a self-reflection diary (NoteTheBook) was made available to participants (https://vitalise.trebag.hu/). This was an optional tool and use of the tool was not documented.

Participant recruitment and selection

The study took place in the context of the VITALISE Transnational Access activities. These activities provided international researchers with the opportunity to access Living Lab infrastructure and receive support in conducting research. The open call to participate in the VITALISE TA activities was spread through websites, social media channels and newsletters of VITALISE and the VITALISE project partners, including the European Network for Living Labs (ENoLL). Researchers were eligible to participate in the transnational access if they were employed by institutions in EU

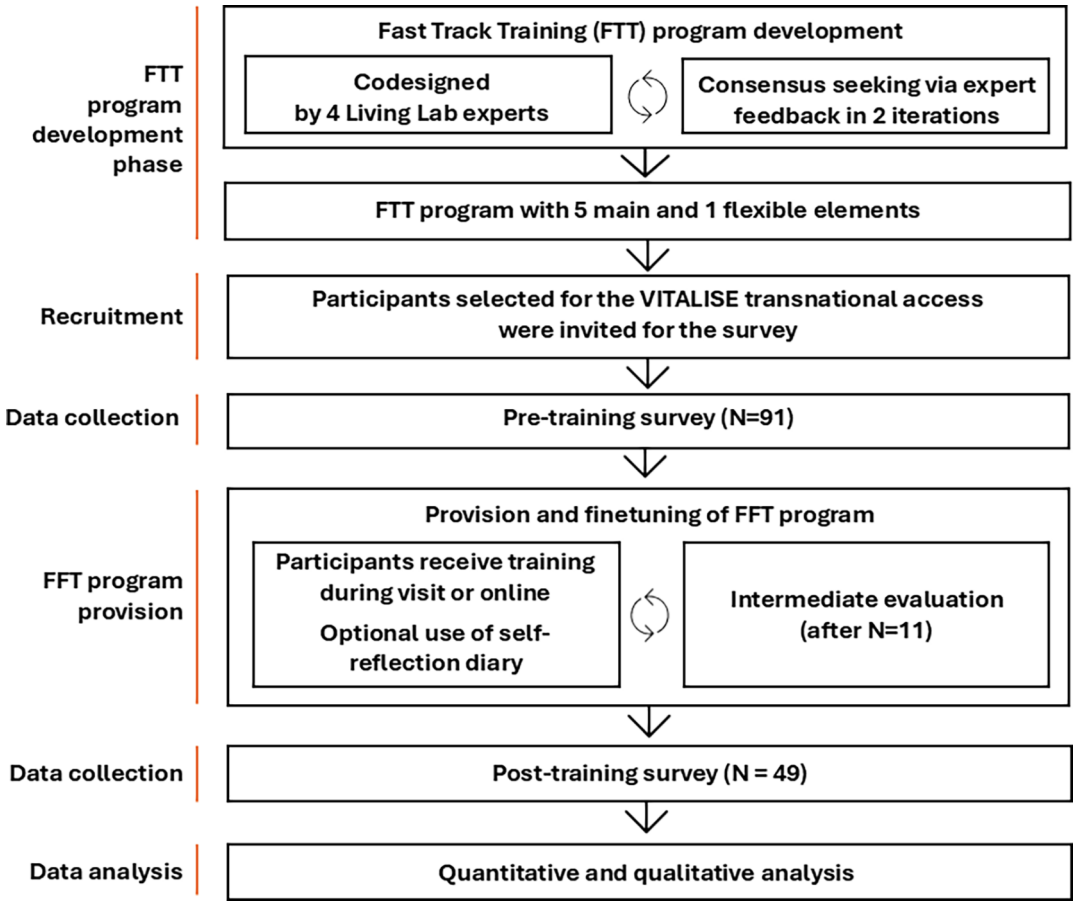

Figure 1. Overview of research phases.

Member States or countries associated with the H2020 Programme (but these could not exceed 20% of the total sample). Exclusion criteria were (1) Russian or Belarusian origin of researchers, (2) employment in the same country as the selected Living Lab, (3) lack of English proficiency (necessary for effective communication with the Living Labs), (4) master student application without a team member with a master's degree, (5) undergraduate student without the supervision of a professor or postdoc researcher. Research teams could apply to visit multiple Living Labs, submitting separate applications for each and providing justification for their choices. The Living Labs participants could visit were Austrian Institute of Technology (AIT), Aristotle University of Thessaloniki (AUTH), Association of Electronic and Information Technologies in the Basque Country (GAIA), INTRAS Foundation (INTRAS), Laurea University of Applied Sciences (Laurea), LiCalab - Living & Care lab at Thomas More University of Applied Sciences (LiCalab), McGill University (McGill), TREBAG Intellectual Property and Project Manager (TREBAG), and Universidad Politécnica de Madrid (UPM). All participants whose application for the call was accepted, were offered the Fast Track Training (FTT). These participants were invited to complete an FTT expectations and FTT evaluation questionnaire. Prior to the Transnational Access (including the training and questionnaires), all participants were presented with a service agreement detailing the expectations from project partners and visitors. The agreement was signed by the project lead and the visiting researchers, hereby providing active written informed consent for participation in the FTT questionnaires.

Pre- and post-survey questionnaires

Before participating in the Transnational Access and the FTT, participants were asked to indicate which of the 5 topics of the FTT they considered most relevant for them or their team ("During Transnational Access, a 2-day Fast Track Training program is provided comprising the following topics. Which topics do you consider most relevant to you/your team (Multiple answers possible)?"). A second survey was conducted after completing the FTT to evaluate its content. The survey questions can be consulted at Helsen *et al.* (2025). Surveys consisted of multiple choice questions, rating scales, and open-ended questions. The topics of the evaluation questionnaire included self-reported satisfaction with the training as a whole, perceived quality and usefulness evaluation for the fixed training components, and perceived confidence in

applying the Living Lab concepts and methodologies in the researcher's context after the training. To extend beyond addressing desirable features and allow to assess relative preferences, participants were also asked which topic they would not attend again. Multiple answers could be indicated, but they were forced to choose at least one topic to avoid the socially desirable answer 'none of the above'. The questionnaire also included open question on topics they would like to add and the most appreciated elements of the training.

Training and data collection procedure

After (teams of) researchers were selected for the transnational access for one of the Living Labs of the VITALISE project, they signed a service agreement including written informed consent for completing the questionnaires. Next, a short questionnaire was sent to the researchers to monitor expectations and help prepare the agenda for the research stay. The schedule of their visit to the Living Lab infrastructure was prepared. The training was planned and prepared by the local Living Labs, based on the materials provided by the lead program developer. The program could include a welcoming session, five main blocks and one optional block. However, an abbreviated program could also be provided if some elements were not deemed necessary based on the profile, interests and expectations of the visiting researchers. The training was offered during the transnational access visit or online. An evaluation questionnaire was provided after completion of the program. Some participants only completed the expectations survey. Potential reasons were not attending the transnational access or training and not responding to the survey invitations.

Data analysis

SPSS 28.0 was used for calculating averages for the ratings provided by the participants. A Friedman Test (with follow-up Wilcoxon Signed Ranks Test) was used to investigate differences between the rating for the training components. Bonferroni adjustment was used to correct for multiple tests. Since not all training blocks were provided to all participants, some responses were based on a subsample of respondents. Open ended questions with qualitative data were organised and grouped using thematic and content analyses. The initial thematic analysis was conducted by the first author. After gaining familiarity with the data through a thorough review of the responses to understand their context and tone, the recurring responses were identified, tagged, and grouped where possible. A second researcher subsequently assessed the alignment of the responses with the identified themes and proposed modifications or additional themes where appropriate to reduce potential bias.

Results

The Fast-Track Training program (FTT)

The full FTT program was structured into six blocks (Figure 2). The introductory segment lasted approximately one hour. The methodology block was divided into two parts with a combined duration of 2 hours and 30 minutes. The remaining blocks were completed in roughly 1 hour and 30 minutes. The program could be tailored to the needs of the visiting researcher, which implies that not all blocks were presented to all participants.

In the **welcoming part**, both the visiting researchers and the hosting Living Labs introduced themselves. An icebreaker exercise helped to set the tone. The icebreaker is an animation technique that makes participants more conducive to creativity and sharing. Typically carried out at the start of a meeting, it is an exercise that aims to relax the atmosphere and put the participants in a state of mind of openness necessary for the creative posture.



Figure 2. Overview of the training elements.

The second block aimed to provide a broad **introduction in the world of Living Labs**. The participants discovered for example what defines a Living Lab, which roles and actors can be found in the Living Lab context, and which services could be provided. Another important topic in this block was the ethical framework which had proven to be increasingly important in an innovation context where products, contexts and legislation can change at a quick pace. The block concluded with the discussion of ethical challenges and how to tackle them. Learning objectives consisted of getting familiar with Living Lab terminology and operations. Moreover, we aimed to encourage participants to reflect on ethical questions that might be relevant for their own research.

The third block was about the **importance of harmonisation**, which is the core business of the VITALISE project. Living Labs can use a variety of procedures operationalised in different ways. A harmonisation of the implemented services, infrastructures and language can help to achieve more cost efficiency, optimal use of time and resources and wider exploitation of research results from local communities to offer their valuable services in the Research and Development community. Therefore, the instructors guided the researchers through the objectives, challenges and different work packages of the VITALISE project, putting the focus on the different joint research activities to be conducted throughout the project. By the end of this training block, participants were able to explain the importance of harmonisation in Living Labs and describe how the VITALISE project's objectives, work packages, and joint research activities contribute to more efficient use of resources and broader exploitation of research results.

The second training day started with a **theoretical block on methodologies**, followed by a methodology workshop. Starting from a design thinking perspective, different methods and tools were discussed. In the sixth block, theory was put into practice with a methodology workshop. Three options were possible: 1) The hosting Living Lab supported the visiting researchers with further elaboration of their study to be conducted during the visit, 2) the hosting Living Lab demonstrated a method or tool of their choice, or 3) The UX design speed testing template, provided by one of the consortium partners, was used as an example. Learning objectives consisted of getting acquainted with different phases in design thinking and methods and tools suitable to be used across the process.

The fifth block comprised the issue of **panel management** and how to engage target groups. Recruitment strategies were examined as well as the motivators and barriers to participate for users. The benefit of having a panel database was explained. Trainers elaborated on how to start building up a panel and how to engage users on a long term. Finally, it also included how to monitor your panel activities. Learning objectives consisted of being able to recruit, engage, and manage user panels effectively, including monitoring participation over time.

The **final block** is a free block with content depending on the hosting Living Lab's own expertise or best practices. As an example, a training block on how to work with companies and business model preparation was included in Belgium.

The complete set of educational materials prepared for the VITALISE Fast Track Training is also publicly available in the project website: https://vitalise-project.eu/fast-track-training/.

FTT survey results

Expectations

A total of 102 researchers who intended to visit the Living Labs were invited to complete the survey before the visit and 91 participants could be included in the expectations questionnaire. These 91 researchers who planned to visit nine different Living Labs (AIT, *N* = 5; AUTH, *N* = 17; GAIA, *N* = 9; INTRAS, *N* = 14; Laurea, *N* = 11; LiCalab, *N* = 18; McGill, *N* = 4; TREBAG, *N* = 8; and UPM, *N* = 6). Table 1 presents the number and proportion of participants who deemed a proposed training block relevant. The most frequently selected topic was the introduction and ethical framework, followed by target groups and panel management. The harmonisation block was selected least often.

Table 1. Overview of the frequency and proportion of participants who indicated a certain training block as relevant before receiving the training (multiple blocks could be selected; N = 91).

Topic	N	Proportion (%)
Introduction to Living Labs – Living Lab services – Ethical framework	66	72.53%
Target groups – panel management	47	51.65%
Methodologies workshop	42	46.15%
Methodologies (theoretical framework)	40	43.96%
The importance of harmonisation – VITALISE project	36	39.56%

Table 2. Researchers' background.

Domain	N	Proportion (%)
Academia	41	83.67
Entrepreneur	2	4.08
Government researcher	3	6.12
Industrial researcher	2	4.08
Other	1	2.04
Total	**49**	

Satisfaction and quality of the training

In total, 49 participants from 17 countries and four professional domains completed the FTT evaluation survey following their visits to seven different Living Labs (AIT, $N = 1$; AUTH, $N = 14$; GAIA, $N = 7$; INTRAS, $N = 8$; LiCalab, $N = 7$; TREBAG, $N = 7$; and UPM, $N = 5$). More female (N = 31) than male (N = 18) participants responded to the questionnaire and participants originated from many different countries, specifically from the UK (N = 7), Albania (N = 6), Poland (N = 6), Italy (N = 5), Romania (N = 5), France (N = 3), Slovenia (N = 3), Portugal (N = 2), Cyprus (N = 2), Ireland (N = 2), Israël (N = 2), the Netherlands (N = 1), Argentina (N = 1), Norway (N = 1), Belgium (N = 1), Colombia (N = 1), and Spain (N = 1). The majority of participants were from the academic field (Table 2). The relative proportions in gender and researcher's background showed a similar distribution in the participants of the evaluation questionnaire as compared to those in the expectations questionnaire.

The **overall satisfaction score** regarding the FTT was 9.11 out of a possible 10 ($SD = 1.07$, Range 5–10; $N = 47$). Almost half of the participants indicated the maximum score ($N = 22$). Furthermore, we asked researchers to what extent the FTT met their expectations. On a scale from −2 (much worse than expected) to +2 (much better than expected), the mean score was 1.29 ($SD = 0.74$; $N = 49$). All participants indicated that the FTT was as expected or (much) better.

Researchers rated all **training blocks in terms of perceived quality and usefulness** on a scale of 1 (very low to none) to 5 (very high) (Table 3). The training blocks were generally deemed of high quality. A Friedman test indicated a significant difference in quality rating between blocks, χ^2 (4, N = 39) = 9.495, $p = 0.05$. A Wilcoxon signed-rank test indicated that there was only a significant difference between the Methodology – Theory block and the Harmonisation block, $z = -2.829$, $p = .005$; however, after Bonferroni adjustment for multiple comparisons, no statistically significant differences were observed between any of the five program blocks. The average perceived usefulness of all training blocks was also high, with minor differences indicating the highest usefulness of *Panel management* and lowest for *The Vitalise project and the importance of harmonisation*, although opinions on this topic varied widely. The Friedman test showed that the differences between the usefulness of the blocks did not reach significance, χ^2 (4, N = 39) = 8.642, $p = 0.07$, and additional post hoc pairwise comparisons with Bonferroni adjustment confirmed this result. The result of the analysis (presented in Table 3) can also be found at (Konstantinidis *et al.*, 2025).

Participants were asked to rate their experience with the NoteTheBook diary on a scale from 0 ("not useful") to 10 ("very useful"). Overall, participants were positive about the diary, with a mean perceived usefulness score of 7.49 ($SD = 2.77$; N = 43).

Forty-six participants (46) responded to the question how confident they felt after the FTT in applying the Living Lab concepts and methodology in their own specific context, on a scale from 0 (not at all) to 10 (very confident). Most participants were positive with a mean of score 8.54 ($SD = 1.86$) (Figure 3).

Relative preferences: least appreciated training block

Participants were asked to select the training blocks that they would not like to attend again in the case where they would have to cut one (forced choice). Relative preferences showed that almost 40% of the participants (N = 18) selected the introduction session. The main reasons provided for this were that participants indicated that they already had sufficient prior knowledge on the topic or that the topic was quite general in comparison to the other more specific training blocks. Twelve respondents selected the block Harmonisation in the framework of the VITALISE project. They evaluated this topic as less relevant to their own research and, consequently, not a priority in an already tight schedule. Respectively six

Table 3. Perceived quality and usefulness rating of the Fast Track Training blocks.

		Quality[1]					Usefulness[2]			
Training block	**N**	**Mean**	**SD**	**Min**	**Max**	**N**	**Mean**	**SD**	**Min**	**Max**
Living Lab introduction	48	4.63	.64	3	5	48	4.50	.77	3	5
Harmonisation in the VITALISE project	48	4.46	.65	3	5	47	4.21	.93	2	5
Living Lab methodology - Theory	46	4.76	.43	4	5	45	4.58	.66	3	5
Living Lab methodology - Workshop	41	4.71	.60	2	5	42	4.55	.63	3	5
Panel management	44	4.61	.69	2	5	44	4.68	.52	3	5

[1]Quality rating scale: 1 very low quality, 2 low quality, 3 medium quality, 4 high quality, 5 very high quality – not applicable.
[2]Usefulness rating scale: 1 no usefulness, 2 low usefulness, 3 medium usefulness, 4 high usefulness, 5 very high usefulness, not applicable.

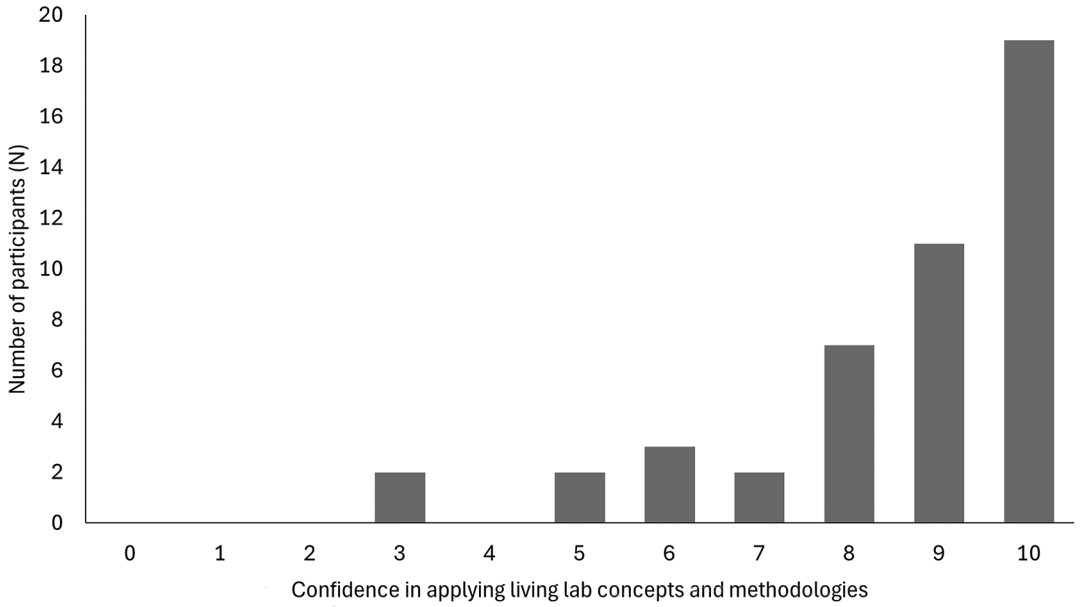

Figure 3. Perceived confidence in applying the Living Lab concepts and methodology in their specific context after training (0 not at all - 10 very confident).

and four researchers would not attend the methodology theoretical session or methodology workshop again. Provided reasons were the presence of prior knowledge on these topics or already having a clear idea about the protocol and methodologies that were suitable for their own research. Two participants indicated that a methodology workshop was not provided by their hosting Living Lab so they chose this option. Some participants indicated that they found it useful, but because they had to pick one they would opt for the methodology theory training. Finally, only three participants would skip the panel management session.

Strengths of the training

When asked what they appreciated most regarding the training, four categories of responses were identified. The exchange and interactions with the hosting Living Lab experts were mostly valued ($N = 21$). Especially the open and interactive discussions, elicited by the presentations, made it possible to dig deeper into certain themes, methods, or struggles. Additionally, nineteen participants referred to specific content of the FTT training blocks. A wide variety of FTT topics was mentioned in this respect, which reflects the diversity of the interests of external researchers. The third category concerned the acquisition of new knowledge and insights in an efficient way ($N = 14$). Finally, seven researchers mentioned the flexible, on demand approach of the FTT, with even the opportunity to have the training (partly) online.

Some additional strengths were mentioned in the general remarks section. Twenty-one participants were positive and thankful for the training and the opportunity to follow this training and to work with the VITALISE consortium. As one participant phrased it: "It was great to know the objectives of the Living Lab and how I can support them, and how they can support me." Another participant declared that this initial training was necessary to be able to understand the VITALISE project as a whole as well as the specific Living Labs they were working with.

Suggestions for additional topics

Participants had the possibility to make suggestions for additional topics to include in the training. Several researchers indicated that they liked the program in the current state (N = 17), for example since it covered enough diverse topics already. Another thirteen participants responded that the question was not applicable or that they didn't know. Suggestions that were provided by other participants were firstly to make the FTT even more interactive by adding not only small exercises but also more extensive workshops showcasing for instance the use of specific tools throughout the different training blocks. Topics could also be expanded with more descriptions of use cases conducted by the hosting Living Lab. Some specific topics that were deemed relevant to add, were (international) communication and collaboration, measuring impact, how researchers make use of Living Labs, to collaborate in research projects, how to write academic publications or reports, and technological as well as social innovations. Finally, finance and funding were also deemed important, as well as how to scale-up and commercialise projects or a section on cross-border data collection and data analysis.

Some additional suggestions were provided in the general remarks section. One participant wished for longer sessions with more in-depth discussions on their specific research project. Another participant suggested to add more case studies of the hosting Living Lab into the methodology section. This opinion was supported by the suggestion of another participant who had a preference for an even more interactive training. Some participants mentioned the need to gain insight into what kind of collaboration could be expected from Living Labs in future, referring to networking collaborations, opportunities to collaborate in future (EU-)projects or in shared value models.

Discussion

Living Labs have demonstrated their potential for providing added value for innovation development (Hossain *et al.*, 2019; Santonen *et al.*, 2024a; Ståhlbröst, 2013). However, many researchers and companies lack the knowledge to implement such methodologies in a sustainable way. This work presents and evaluates a novel Living Lab training program designed to onboard external researchers and familiarize them with Living Lab Research Infrastructures in the context of transnational visits and collaborations.

The current study introduces a flexible, short-term approach targeting more experienced audiences with existing expertise in research. This study proposes five fixed training blocks focused on introducing the participants to Living Labs, panel management, methodologies in theory and methodologies in practice and adding the element of harmonisation that is considered important for research infrastructure users (Santonen *et al.*, 2024b). The training was evaluated positively in a post-training participant survey. Participants were very satisfied with the training and the perceived quality and usefulness of all fixed blocks was high. After the training, most participants reported high perceived confidence levels in applying Living Lab methodologies. The training was rated to be at least as they expected but mostly better than expected.

Moreover, experiential learning has demonstrated great potential in learning and training (Hecht & Maass, 2008; Kang *et al.*, 2022). Many participants reported that the interactions with the trainers were a strength of the program. Suggestions for improvement mainly concerned making the training even more interactive, with workshops showcasing tools and instruments concerning all training themes. Some (more junior) researchers expressed the wish to have extra sessions with in-depth discussions on their own research project, whereas for other (senior) researchers this was less relevant.

Participants also differed in which specific training blocks they appreciated most, which illustrates that not all participants had the same needs in terms of training. These findings underscore the importance of offering flexible and tailored training programs that address both fundamental knowledge and practical application, ensuring relevance to the diverse needs of researchers in Living Lab environments. For example, while the introduction to Living Labs received the highest relevance scores before the training, it received a lower relative preference post-training since it was also the block that most participants selected to remove when they had to. This appears to relate to the fact that this is the most general block and other blocks will extend insights from this block hereby potentially making it somewhat redundant when the complete training is provided. This 'on demand' choice of training blocks based on the researcher's needs was very much appreciated. To enhance the training flexibility, the inclusion of one open block was also proposed that can be

personalized to the user needs and adapted to the Living Lab expertise. As the need for assistance and the time required to process new information differ between novices and experts (Persky & Robinson, 2017), the importance of tailoring the content and delivery of the program to learners' levels of expertise is acknowledged.

Given that Living Labs have faced challenges in economic sustainability (Fauth *et al.*, 2024; Paskaleva & Cooper, 2021), careful attention must be paid to the cost-effectiveness of the FTT program. Having the current open-access training materials available already increases the feasibility of offering training since it reduces preparation times (and according costs), which are now limited to familiarizing oneself to program slides and content and reflecting on previous experiences that a trainer might share. Implementing the current training program itself, is expected to take around 2 days (with around 8 hours of lecture materials without the free block). Due to its modular and flexible approach, abbreviated formats are also possible.

A significant challenge in the effective implementation of Living Labs lies in the lack of unified evaluation frameworks, which has been widely recognized in the literature (Chen & Chou, 2010; Kovács, 2015). A set of harmonized criteria for Living Lab evaluation have been recently proposed and put into practice by ENoLL (Vervoort *et al.*, 2022). Aligning the training aspects and modules with these criteria is crucial for the systematic advancement of Living Lab research. The FTT program presented in this study incorporates training components that emphasize not only the theoretical foundations but also practical aspects such as governance, participant engagement, and methodological adaptability; dimensions identified as critical for Living Lab evaluation (Berberi *et al.*, 2023; Hossain *et al.*, 2019). The modular design of the training program aligns with recommendations to adapt evaluation models to diverse contexts and participant needs, ensuring relevance and applicability. However, this flexibility does complicate measurement of learning gains and impact assessment. Developing practical toolkits for Living Labs and their evaluation can provide valuable resources for establishing new Living Labs and projects, supporting wider uptake and standardized best practices (Berberi *et al.*, 2023).

Some other recent initiatives have also started to address the gap in training, such as the international training school on "Knowledge transfer in and through Living Labs" which emphasized peer learning and methodological exchange across Living Lab practitioners (Rohde *et al.*, 2024). Recently ENoLL has also launched the ENoLL Living Labbers Academy aiming at expanding the knowledge base of interested parties at a newcomer, intermediate, advanced, and expert level. Such a training offered by an international non-profit network organization can be an important step towards developing a systematic training approach for Living Lab methodologies that still remain scarce. A study by Diamantis *et al.* (2024) has also proposed the design of a master course curriculum targeting innovation through Living Labs. In alignment with the proposed FTT structure, the curriculum included sections like panel management and the Living Lab methodology, including co-creation sessions, focus groups, experimentation and validation techniques. Konstantinidis *et al.* (2021) focused on the introduction of Living Lab concepts such as co-creation to undergraduate students with promising results from the evaluation from the students' perspective, focusing again on co-creation aspects but adapting to a less experienced audience.

There are also some limitations to this study. The training could be adapted to the needs of the participants and was provided by local Living Lab staff. While all trainers had been informed about the training protocol and used the same training materials, there will have been differences in the exact operationalization of the training and blocks. Such a flexible tailor-made approach can be a strength for participants but also reduces standardization and can complicate training evaluation. While variation in implementation limited precise assessment of exposure, it reflects real-world practice, and positive perceptions across sites suggest the program's acceptability across diverse conditions. The study did not employ a formal pre–post design and relied on self-reported post-training perceptions, limiting conclusions about learning gains. Consequently, the findings should be interpreted as evidence of perceived usefulness, acceptability, and feasibility rather than validation of accelerating expertise or increasing confidence. The study used a small sample (not including all training participants which implies vulnerability for self-selection) and was situated within the healthcare domain. To ensure generalizability, It would be beneficial to continue training initiatives and continuously evaluate and improve the content, especially when transferring to different contexts. The current training was offered free of charge in the context of subsidised collaborative research activities. This could have biased results. Finally, the survey responses reflected participants' perceptions at a single time point, and thus, the long-term impact and usefulness of applying the knowledge in practice could not be measured. A follow-up study is recommended to assess sustained effects and to identify potential new Living Lab projects initiated by FTT program participants.

This study contributes to the growing body of work aimed at promoting user-centred approaches in research and innovation management. A flexible, modular training program was designed to help cater to the diverse needs of researchers. The positive self-reported evaluation results and high perceived confidence levels support the potential added value of experiential and customizable learning formats. However, further research is needed to establish formal

learning gains and long-term impacts of the training, as well as explore learning gains in diverse samples. By aligning training content with emerging harmonisation efforts and evaluation frameworks, such as those proposed by ENoLL, the program could contribute to the systematic advancement of Living Lab methodologies. Continued development of structured, scalable, and context-sensitive training programs, supported by international collaborations and standardized approaches, could play a role in fostering sustainable and impactful Living Lab research across disciplines and borders, although more research is needed.

Ethics statement

The current procedures and materials were presented to the VITALISE internal ethical board and the data controller. Further ethical approval was not sought for the present study because it was an observational study collecting non-medical and non-sensitive data (feedback on training) from adult participants who voluntarily applied to take part in the VITALISE Horizon Europe project to participate in Transnational Access activities. All participants were informed about Transnational Access, the training, and the evaluation questionnaire in a service agreement which was signed by both the Horizon project lead and the visiting researcher. All participants provided informed consent in this service agreement. During data collection and analysis, the researchers complied to these guidelines from the internal ethical board and hereby to ethical standards from the Declaration of Helsinki and national and international guidelines for research.

Data and software availability

Underlying data

Repository: Accelerating Expertise: A Fast-Track Training Program for Living Lab Methodologies - supplementary materials. https://doi.org/10.17605/OSF.IO/N2DZB. Helsen *et al.* (2025).

This project contains the following underlying data: Training evaluation dataset (csv file containing the responses from the participants on the training evaluation questionnaire).

Data are available under the terms of the Creative Commons Zero "No rights reserved" data waiver (CC0 1.0 Public domain dedication).

Extended data

Repository: A Fast-Track Training Program for Living Lab Methodologies - supplementary materials. https://doi.org/10.17605/OSF.IO/N2DZB. Helsen *et al.* (2025).

In accordance with the FAIR principles of open science, the processing of the results presented in Table 3 have been done through EOSC-RAISE platform, The Research Analysis Identifier (RAI) https://doi.org/21.T15999/raise/126 contains the results and the processing script applied on the dataset. This project contains the following extended data: Description_questions_and_response_options (word file describing the survey questions, response options, and variable names).

Data are available under the terms of the Creative Commons Zero "No rights reserved" data waiver (CC0 1.0 Public domain dedication).

Acknowledgements

We would like to thank the researchers who provided the training at the Austrian Institute of Technology (AIT), Aristotle University of Thessaloniki (AUTH), Association of Electronic and Information Technologies in the Basque Country (GAIA), INTRAS Foundation (INTRAS), Thomas More University of Applied Sciences (LiCalab), McGill University (McGill), TREBAG Intellectual Property and Project Manager (TREBAG), and Universidad Politécnica de Madrid (UPM).

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Open Peer Review

Current Peer Review Status: ? ✓ ✓ ? ✓ ?

Version 3

Reviewer Report 07 July 2026

https://doi.org/10.21956/openreseurope.26221.r75846

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✓ **Sonia Massari**
University of Pisa, Pisa, Italy

I have carefully reviewed the revised version of the manuscript and the changes made by the authors in response to the previous comments and recommendations.

I am satisfied with the improvements introduced. The authors have adequately addressed the main issues raised during the review process (my requests), and the manuscript has been strengthened accordingly.

I therefore recommend accepting the paper in its current form, with no further requests for revision.

Competing Interests: No competing interests were disclosed.

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.

Reviewer Report 02 July 2026

https://doi.org/10.21956/openreseurope.26221.r75851

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✓ **Phoebe Koundouri**
Athens University of Economics and Business, Athens, Greece

The authors have addressed my feedback. The article is ready for indexing.

Competing Interests: No competing interests were disclosed.

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.

Version 2

Reviewer Report 11 May 2026

https://doi.org/10.21956/openreseurope.25592.r73762

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Stephen Gilbert
TUD Dresden University of Technology, Dresden, Germany
Anett Schönfelder
EKFZ, Technische Universitat Dresden Medizinische Fakultat Carl Gustav Carus, Dresden, Saxony, Germany

Dear editors and authors,

Thank you for the opportunity to review your revised manuscript, which presents and evaluates the Fast-Track Training (FTT) programme developed within the VITALISE Horizon 2020 project, designed to onboard external researchers to Living Lab methodologies in the context of transnational access visits and collaborations. This is a timely and relevant contribution to a field that remains underserved in terms of structured, replicable training initiatives for researchers engaging with Living Lab infrastructures.

While the authors clearly have made an effort to address the concerns raised during the first review round, a number of issues remain. I outline these below, organised by major and minor concerns.

Major Comments:

1. Length and focus of the introduction

The introduction is considerably lengthy and contains material that does not directly contribute to positioning this study. Several paragraphs elaborate on general Living Lab challenges and educational approaches at a level of detail that exceeds what is needed to motivate a training evaluation study. I would recommend reducing the introduction by approximately one third, retaining only content that directly leads to the rationale for the FTT program and the specific research questions.

2. Participant numbers and training exposure 102 researchers were invited to complete the pre-survey, of whom 91 responded, and 49 subsequently completed the post-training evaluation. Do

these 91 pre-survey respondents represent the total population of researchers who participated the FTT? Since the program was modular and tailored, not all participants received every training block. It would be useful to have a training exposure table with a total number of participants for each FTT block and information whether any block was entirely omitted at one or more sites. This would substantially improve the interpretability of the results.

3. Inconsistency regarding online delivery Figure 1 states that "Participants receive training during transnational access", which implies exclusively in-person delivery. However, the training and data collection procedure section states that "the training was offered during the transnational access visit or online", and the strengths section refers to participants valuing "the opportunity to have the training (partly) online". The authors should engage with this discrepancy (e.g., revise Figure 1 to reflect that delivery could be in-person or online), and should clarify in the text which specific blocks or proportions of the training were delivered online versus on-site, and whether this varied systematically across hosting Living Labs.

4. Discussion The discussion appropriately references a number of recent initiatives that address a similar gap in Living Lab training, including the international training school on “Knowledge transfer in and through Living Labs” and the ENoLL Living Labbers Academy. However, the manuscript does not engage analytically with how the FTT program differs from, improves upon, or complements these efforts. Additionally, although the limitations section has been meaningfully expanded throughout the review process, it does not substantively interrogate how the small and largely academic sample, the self-selection bias, the absence of a pre-training baseline, and the variability in program delivery constrain the scope and transferability of these conclusions.

Minor Comments:

1. Missing information about participant background

Table 2 reports participants' professional domain and the text reports gender, but no information is provided on career level (e.g., PhD student, postdoctoral researcher), educational degree, or age. This is particularly relevant given that the authors themselves note that trainee profile influences learning outcomes, and to assess whether the heterogeneity of the sample may have influenced the results.

2. Insufficient description of the free block The free block is described as content determined by the hosting Living Lab's own expertise or best practices, with only a single example provided (a training block on working with companies and business model preparation, as delivered in Belgium (a Living Lab for which only one FTT evaluation survey was completed, with the total number of participants being unclear, as highlighted in point 2)). Given that this block was offered across several Living Lab sites, the reader has no way to understand what the range of content actually looked like across the program. I therefore encourage to add a brief summary or table of the free block topics delivered at each hosting Living Lab.

3. Capitalisation of “Living Lab” Throughout the manuscript, capitalisation of the term "Living Lab" remains inconsistent. In some instances, it is capitalised (e.g., "Living Lab methodology," "Living Lab infrastructure"), while in others it appears in lowercase (e.g., "living lab staff," "hosting living lab," "living lab research"). Given that "Living Lab" functions as a proper noun and established concept within this community, consistent capitalisation should be applied throughout the manuscript.

Is the work clearly and accurately presented and does it engage with the current literature?
Partly

Is the study design appropriate and is the work technically sound?
Partly

Are sufficient details of methods and analysis provided to allow replication by others?
Partly

Are all the source data and materials underlying the results available?
Yes

If applicable, is the statistical analysis and its interpretation appropriate?
Partly

Are the conclusions drawn adequately supported by the results?
Partly

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Living Labs in the Health domain

We confirm that we have read this submission and believe that we have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however we have significant reservations, as outlined above.

Author Response 02 Jun 2026

Nele De Witte

Dear Prof. Gilbert, Dear Ms. Schönfelder,
Thank you for your thorough reading of the manuscript and allowing us to further clarify certain elements of the study. We have tried to limit the extent of additional changes to the manuscript after approval of other reviewers, but have published a new version of the manuscript and have carefully addressed all concerns in this reviewer response.
Reviewer: Length and focus of the introduction The introduction is considerably lengthy and contains material that does not directly contribute to positioning this study. Several paragraphs elaborate on general Living Lab challenges and educational approaches at a level of detail that exceeds what is needed to motivate a training evaluation study. I would recommend reducing the introduction by approximately one third, retaining only content that directly leads to the rationale for the FTT program and the specific research questions.
Response: *Since the other 5 reviewer did not advise for abbreviating the introduction, we have decided to not abbreviate it at this time (to avoid removing sections that were informative for other researchers). The length does not seem excessive and we prefer not too many too many substantial changes at this stage.*

Reviewer: Participant numbers and training exposure 102 researchers were invited to complete the pre-survey, of whom 91 responded, and 49 subsequently completed the post-training evaluation. Do these 91 pre-survey respondents represent the total population of researchers who participated the FTT? Since the program was modular and tailored, not all participants received every training block. It would be useful to have a training exposure table with a total number of participants for each FTT block and information whether any block was entirely omitted at one or more sites. This would substantially improve the interpretability of the results.
Response: *All individuals who were selected for transnational access were invited to participate but not all completed the survey. Adding such an exposure table was also suggested by reviewer 1 but, it is no possible to provide this. As mentioned in our response to reviewer 1: No rigorous implementation documentation framework was adopted to document training exposure so we do not have exact statistics on program content presented to each participant. We acknowledge that this is a limitation: " However, while variation in implementation limited precise assessment of exposure, it reflects real-world practice, and positive perceptions across sites suggest the program's acceptability across diverse conditions."*

Reviewer: 3. Inconsistency regarding online delivery Figure 1 states that "Participants receive training during transnational access", which implies exclusively in-person delivery. However, the training and data collection procedure section states that "the training was offered during the transnational access visit or online", and the strengths section refers to participants valuing "the opportunity to have the training (partly) online". The authors should engage with this discrepancy (e.g., revise Figure 1 to reflect that delivery could be in-person or online), and should clarify in the text which specific blocks or proportions of the training were delivered online versus on-site, and whether this varied systematically across hosting Living Labs. ***Response:*** *We have now updated figure 1 to clarify that delivery was either in-person or online.*

Reviewer: 4. Discussion The discussion appropriately references a number of recent initiatives that address a similar gap in Living Lab training, including the international training school on "Knowledge transfer in and through Living Labs" and the ENoLL Living Labbers Academy. However, the manuscript does not engage analytically with how the FTT program differs from, improves upon, or complements these efforts. Additionally, although the limitations section has been meaningfully expanded throughout the review process, it does not substantively interrogate how the small and largely academic sample, the self-selection bias, the absence of a pre-training baseline, and the variability in program delivery constrain the scope and transferability of these conclusions.
Response: *The program was designed to operate within the context of the Vitalise pogram, it was co-created with project partners to fit the Transnational Access program. It was not designed to replace or compete with existing programs (which do not always have their content published openly, making it hard to compare approaches exactly). By making our materials and processes entirely open, comparisons can be made with future programs and materials can be used by others. In the limitations section we indeed acknowledge challenges relating to generalization and mention elements such as self-selection bias and limitations of the design and implementation. Since it is not possible to assess the extent to which such factors actually changed results and there is no one solution to solving this in future research, we hope that readers can use the current data, interpretations, and future perspectives to build new and*

improved versions of such training programs in the future.

Minor Comments: Reviewer: Missing information about participant background Table 2 reports participants' professional domain and the text reports gender, but no information is provided on career level (e.g., PhD student, postdoctoral researcher), educational degree, or age. This is particularly relevant given that the authors themselves note that trainee profile influences learning outcomes, and to assess whether the heterogeneity of the sample may have influenced the results.
Response: *We indeed noted in the introduction that trainee profile can influence learning. This was the reason why we decided to allow for flexibility in delivery of the training program. We did not collect data on participants' academic or practice experience. Given the small sample size, sample heterogeneity, and flexibility in training implementation, subgroup analyses were not foreseen (or advised) and the study is accordingly framed around acceptability and perceptions.*

Reviewer: 2. Insufficient description of the free block The free block is described as content determined by the hosting Living Lab's own expertise or best practices, with only a single example provided (a training block on working with companies and business model preparation, as delivered in Belgium (a Living Lab for which only one FTT evaluation survey was completed, with the total number of participants being unclear, as highlighted in point 2)). Given that this block was offered across several Living Lab sites, the reader has no way to understand what the range of content actually looked like across the program. I therefore encourage to add a brief summary or table of the free block topics delivered at each hosting Living Lab.
Response: *Thank you for your suggestions. As mentioned in the limitations, we do not have exact statistics on program content presented to each participant and we, therefore, cannot deliver an exhaustive list of exposure to block topics. We, therefore, decided to limit ourselves to providing an example for a block that was included in the available open access training materials.*

Reviewer: 3. Capitalisation of "Living Lab" Throughout the manuscript, capitalisation of the term "Living Lab" remains inconsistent. In some instances, it is capitalised (e.g., "Living Lab methodology," "Living Lab infrastructure"), while in others it appears in lowercase (e.g., "living lab staff," "hosting living lab," "living lab research"). Given that "Living Lab" functions as a proper noun and established concept within this community, consistent capitalisation should be applied throughout the manuscript.
Response: *We have now consistently capitalized the word in the manuscript. Thank you for your suggestions and we hope we have been able to answer your questions in a satisfactory way.*

Competing Interests: No competing interests were disclosed.

Reviewer Report 06 May 2026

https://doi.org/10.21956/openreseurope.25592.r72970

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Juan Pablo Centeno
KU Leuven, Public Governance Institute (PGI), Leuven, Belgium

Dear editors and authors, thank you for the invitation to review this paper. I have read it with great interest and I believe it is a key contribution to capacity-building process in the implementation and operation of Living Labs.

The paper presents an assessment of a training programme aimed at Living Lab researchers and practitioners in order to build capacities in key aspects of Living Labs, such as user-centred research, living lab practices and co-design. This is a relevant topic, particularly in the context of a fats growing Living Lab community in Europe.

As such, the paper responds to both practical and research-related issues: on the one hand, there is a need to further build capacities and skills among individuals and organisations in order to implement successful Living Lab initiatives. On the other hand, there is a growing body of literature on Living Labs suggesting that skills such as facilitation, co-creation, panel management and user-engagement are key factors shaping the success of Living Labs. The paper explicitly and clearly engages with this scholarship, while acknowledging the many challenges faced by Living Labs face and by researchers/managers/practitioners, according to literature.

The study builds empirically on self-reported data from the assessment of a fast-track training programme on Living Labs. This comprises several rounds of survey (pre and post training), mid-term evaluation, among other instruments that provide qualitative and quantitative data. It covers a broad range of Living Lab organisations and participants, which enhances the potential scalability of results.

Further reflection on potential generalisability and scalability of results could further enhance the discussion of the paper. While the authors acknowledge that “To ensure generalizability, It would be beneficial to continue training initiatives and continuously evaluate and improve the content, especially when transferring to different contexts”, further detail could be provided on ‘how’ these training initiatives should be continued and evaluated in order to consider diversity of organisational, country, and sectoral contexts.

The procedures and methods are clearly detailed in the methods section. Further reflection on response rates could guide the reader in interpreting the scope of the results.

Finally, the discussion and conclusions section provide comprehensive reflection based on the results from the surveys. I recommend further engaging with the implications related to the aspects and themes identified by participants as lacking from the training. I wonder how such topics (e.g. “communication and collaboration, measuring impact, how researchers make use of living labs, to collaborate in research projects, how to write academic publications or reports, and technological as well as social innovations”) relate to current challenges in the implementation and management of Living Labs. The paper could provide additional reflection on this matter, as well as on the strengths identified by participants in the programme and how such strengths reflect key success factors identified by literature in relation to Living Labs.

Is the work clearly and accurately presented and does it engage with the current literature?

Yes

Is the study design appropriate and is the work technically sound?
Yes

Are sufficient details of methods and analysis provided to allow replication by others?
Yes

Are all the source data and materials underlying the results available?
No source data required

If applicable, is the statistical analysis and its interpretation appropriate?
Yes

Are the conclusions drawn adequately supported by the results?
Yes

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Living Labs; knowledge management; collaborative governance

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.

Author Response 01 Jun 2026

Nele De Witte

Dear Mr. Centeno,
Thank you for reading the revised manuscript and providing your reflections. To further clarify the further question you had, the training was conducted in the context of Vitalise, a Horizon consortium included the European network of Living Labs (ENoLL). They will be able to use the current insights into their training programs and are positioned well to evaluate such training initiatives. However, we would like to invite everybody with an interest in this field to use the materials do provide further training to the field. This also includes the feedback we received. For new implementations, training priorities can be determined based on the feedback of the current participants, including both the strengths and the missing themes. Since the Vitalise project is now finished, we are not able to implement a new version of the training materials taking into account the feedback from the participants, but we hope that others can build on the work to help implement living lab training programs and link training outcomes to living lab success factors.

Competing Interests: No competing interests were disclosed.

Reviewer Report 29 April 2026

https://doi.org/10.21956/openreseurope.25592.r72806

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Phoebe Koundouri
Athens University of Economics and Business, Athens, Greece

The paper is ready to be indexing now, after the indicated changes.

Competing Interests: No competing interests were disclosed.

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.

Version 1

Reviewer Report 20 January 2026

https://doi.org/10.21956/openreseurope.22933.r65183

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Francesca Torlone
Universita degli Studi di Firenze, Florence, Tuscany, Italy

The manuscript presents the design, implementation, and evaluation of a fast-track training programme developed within the Horizon 2020 VITALISE project, aimed at enhancing researchers' competencies in Living Lab methodologies. The topic is relevant and timely, particularly in the context of European research infrastructures, user-centred innovation, and Responsible Research and Innovation (RRI).

However, while the paper is clearly written and well documented, its contribution remains largely *descriptive.*

The manuscript addresses a genuine gap in the Living Lab ecosystem, namely the lack of structured training initiatives for researchers accessing Living Lab infrastructures that may improve the link between research, innovation, labour, civil society. This is an important issue and one that the paper stresses.

Nonetheless, the original scientific contribution of the paper is currently limited. The manuscript mainly documents (i) the structure of the training programme, (ii) participants satisfaction, (iii) and self-reported confidence outcomes. What is missing is a clearer articulation of what new analytical insights this study offers to the existing literature on Living Labs, co-creation, and research

capacity building.

A major limitation of the paper is its predominantly descriptive nature. While the authors report extensive quantitative and qualitative feedback from participants, the analysis remains largely at the level of satisfaction scores and thematic summaries.

In particular, the paper does not sufficiently analyse *why* the training appears to work, nor does it explore and analyse the learning processes that are being developed (and related positive and negative learning outcomes), or skill acquisition beyond participants' perceptions. The reliance on self-reported confidence measures, without triangulation or longitudinal follow-up, further limits the analytical strength of the conclusions.As a result, the findings confirm that participants appreciated the programme, but they do not convincingly demonstrate how or under which conditions the training contributes to sustained methodological competence and to ameliorate the cooperation and capacity building of actors involved.

A key conceptual issue concerns the use of the term **"***fast-track training programme***"**.

In the broader international literature, *fast-track training* and *fast-track integration* are widely used concepts, particularly in relation to education and training programmes addressed to asylum seekers, refugees, migrants for their fast integration into the labour market. In this sense, fast track integration implies deep theoretical and epistemological considerations affecting the learning quality of professional settings these targets are involved in.

The unqualified use of the term "fast-track" risks being conceptually misleading for readers and creates ambiguity regarding the intended meaning and scope of the concept. It might be considered to announce to this terminology to make clear the field of investigation.

The methodological approach is generally appropriate for an exploratory evaluation. Nevertheless, some aspects deserve more critical reflection: (i) Sample size and composition: The evaluation is based on a relatively small and predominantly academic sample, which limits the generalisability of the findings. (ii) Variability in programme delivery: While flexibility is presented as a strength, differences in how the training was delivered across Living Labs reduce standardisation and complicate comparative evaluation. (iii) Short-term perspective: The absence of follow-up data makes it impossible to assess longer-term impacts, such as actual application of Living Lab methodologies or the initiation of new collaborations.These limitations are partially acknowledged but should be more explicitly discussed in relation to the claims made in the conclusion.

The manuscript is suitable for indexing provided that the authors: (i) Strengthen the analytical framing of the study; (ii) Clarify the conceptual use of "fast-track" in relation to existing literature; (iii) More critically discuss methodological limitations and their implications for the conclusions

Is the work clearly and accurately presented and does it engage with the current literature?
Partly

Is the study design appropriate and is the work technically sound?
Yes

Are sufficient details of methods and analysis provided to allow replication by others?
Partly

Are all the source data and materials underlying the results available?
Yes

If applicable, is the statistical analysis and its interpretation appropriate?
Partly

Are the conclusions drawn adequately supported by the results?
Partly

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: My areas of research are adult education public policies, fast-track policies and practices in the labour market, adult education in professional settings, higher education systems and adult education, skills framework development

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Author Response 08 Apr 2026

Nele De Witte

Dear Prof. Torlone, Thank you very much for your thorough reading of the manuscript and your suggestions. We have made the necessary changes to the manuscript and have provided a point-by-reply below.

Reviewer: The manuscript presents the design, implementation, and evaluation of a fast-track training programme developed within the Horizon 2020 VITALISE project, aimed at enhancing researchers' competencies in Living Lab methodologies. The topic is relevant and timely, particularly in the context of European research infrastructures, user-centred innovation, and Responsible Research and Innovation (RRI).

However, while the paper is clearly written and well documented, its contribution remains largely *descriptive.*

The manuscript addresses a genuine gap in the Living Lab ecosystem, namely the lack of structured training initiatives for researchers accessing Living Lab infrastructures that may improve the link between research, innovation, labour, civil society. This is an important issue and one that the paper stresses.

Nonetheless, the original scientific contribution of the paper is currently limited. The manuscript mainly documents (i) the structure of the training programme, (ii) participants satisfaction, (iii) and self-reported confidence outcomes. What is missing is a clearer

articulation of what new analytical insights this study offers to the existing literature on Living Labs, co-creation, and research capacity building.

Response: Thank you very much for your thorough reading and indication of relevance. We will address the suggestions below.

Reviewer: A major limitation of the paper is its predominantly descriptive nature. While the authors report extensive quantitative and qualitative feedback from participants, the analysis remains largely at the level of satisfaction scores and thematic summaries.

Response: As you mentioned above, not that many training programs are available in the field of living lab methodology. Therefore, the current paper aimed to present a training approach and its content which is flexible and accessible. A main goal of this contribution was therefore to describe a the content and development of a training . The second purpose of the study was to present self-reported experiences with the program. We have now updated the study aims in the introduction and the manuscript title to better reflect this.

Reviewer: In particular, the paper does not sufficiently analyse *why* the training appears to work, nor does it explore and analyse the learning processes that are being developed (and related positive and negative learning outcomes), or skill acquisition beyond participants' perceptions. The reliance on self-reported confidence measures, without triangulation or longitudinal follow-up, further limits the analytical strength of the conclusions.As a result, the findings confirm that participants appreciated the programme, but they do not convincingly demonstrate how or under which conditions the training contributes to sustained methodological competence and to ameliorate the cooperation and capacity building of actors involved.
Response: Based on the analyses that were performed, it is indeed not possible inform on gains in sustained methodological competence and underlying mechanisms of such gains. In the introduction, we have now provided more background on the concept of experiential learning and aspects that influence learning outcomes, e.g., trainee profile. While the training was built on these principles, it was designed to allow for flexible adoption (in terms of content and target population), which limits opportunities for formal evaluation. We have, therefore, added to the limitations that: "The study did not employ a formal pre–post design and relied on self-reported post-training perceptions, limiting conclusions about learning gains. Consequently, the findings should be interpreted as evidence of perceived usefulness, acceptability, and feasibility rather than validation of accelerating expertise or increasing confidence."

Reviewer: A key conceptual issue concerns the use of the term **"***fast-track training programme***"**.
In the broader international literature, *fast-track training* and *fast-track integration* are widely used concepts, particularly in relation to education and training programmes addressed to asylum seekers, refugees, migrants for their fast integration into the labour market. In this sense, fast track integration implies deep theoretical and epistemological considerations affecting the learning quality of professional settings these targets are involved in.

The unqualified use of the term “fast-track” risks being conceptually misleading for readers and creates ambiguity regarding the intended meaning and scope of the concept. It might be considered to announce to this terminology to make clear the field of investigation.
Response: Thank you for this remark. This name was chosen to contrast this intense focused program with other extended educational approaches (e.g., the ENoLL virtual learning lab). We understand that this term has been used for other purposes as well and that this could cause some confusion in some readers. However, the term was consistently used in the Vitalise project and in the available document and believe therefore that changing it in this publication will only cause more confusion. We have now added to the methods that “The term fast-track was used to indicate that it was a short, intense, and focused program.”.

Reviewer: The methodological approach is generally appropriate for an exploratory evaluation. Nevertheless, some aspects deserve more critical reflection: (i) Sample size and composition: The evaluation is based on a relatively small and predominantly academic sample, which limits the generalisability of the findings. (ii) Variability in programme delivery: While flexibility is presented as a strength, differences in how the training was delivered across Living Labs reduce standardisation and complicate comparative evaluation. (iii) Short-term perspective: The absence of follow-up data makes it impossible to assess longer-term impacts, such as actual application of Living Lab methodologies or the initiation of new collaborations. These limitations are partially acknowledged but should be more explicitly discussed in relation to the claims made in the conclusion.

Response: Thank you for these suggestions. We have expanded the limitations section, and it now includes more details on the sample and its limitations, implementation variations, and long-term impact. However, we acknowledge that these critical reflections should also be included in the conclusions, and this is now the case in the discussion (“However, further research is needed to establish formal learning gains and long-term impacts of the training, as well as explore learning gains in diverse samples.”) as well as the abstract (“However, further formal evaluation of learning gains is needed.”)

Reviewer: The manuscript is suitable for indexing provided that the authors: (i) Strengthen the analytical framing of the study; (ii) Clarify the conceptual use of “fast-track” in relation to existing literature; (iii) More critically discuss methodological limitations and their implications for the conclusions
Response: Thank you for your careful reading of the manuscript. We have improved the presentation of the study and discussion of the findings to make it clearer what the goals and limitations of the approach were. We have also generally improved the writing to guarantee that it is clear that we are discussing self-report outcomes. We believe that the manuscript has substantially improved and could help to inform the field about training content and experiences and hope it can inspire other researchers to develop and publish on their training initiatives.

Competing Interests: No competing interests were disclosed.

Reviewer Report 10 January 2026

https://doi.org/10.21956/openreseurope.22933.r64101

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Phoebe Koundouri
Athens University of Economics and Business, Athens, Greece

Training on LL methodologies and relevant capacity building are not sufficiently addressed until now. Thus, the paper deals with a very timely topic. The study has been part of a H2020 project, in this respect design and evaluation are appropriate.

Following aspects require, however, attention:

1. The manuscript is rather descriptive. It provides information about the various aspects (the questionnaires, the modular training approach, the analysis of replies). But it lacks a more in depth methodological and theoretical analysis in relation to the challenges identified and why training on user-centred approaches can help overcoming them. This is even more important, as the manuscript implies that there are major differences between the various disciplines (healthcare vs a number of others).
2. The study is based on a very small sample, and it seems that only limited follow-up and evaluation activities took place. Again, sample and methodology are appropriate for H2020 project of this type, but it makes it difficult to claim that “This study shows that well-designed training programs can help researchers use Living Labs more successful, which could lead to better innovations that are more connected to society’s needs.”, as a general statement as this one would require more evidence, both in terms of participants and time.
3. Similarly to the point above, drawing broader conclusions (such as the statement in the Conclusion paragraph) would require not only a more systemic approach but also the provision of baseline figures and benchmarks. Moreover, if the study focussed only on the healthcare domain, how can we ensure that the outcomes are replicable and generalisable? This requires justification.
4. The positive replies in relation to increased confident by participants in applying Living Lab methodologies post-training, do not necessarily correspond to built capacity. The analysis should differentiate between self-claimed confidence and actual knowledge and capacity gained.
5. More information should be provided on how the participants have been recruited. The eligibility and exclusion criteria are clearly mentioned and are appropriate, but there is no information on demographics or on any previous LL knowledge and experience of the participants.

It is not clear what has been the added value in the whole process and the contribution by using a self-reflection diary. It seems that the participants have been asked to evaluate the Note: The Book diary from an end-user perspective (evaluate the application). But this doesn’t’ necessarily say something about the knowledge acquiring process.

Is the work clearly and accurately presented and does it engage with the current literature?
Yes

Is the study design appropriate and is the work technically sound?
Partly

Are sufficient details of methods and analysis provided to allow replication by others?
Partly

Are all the source data and materials underlying the results available?
Yes

If applicable, is the statistical analysis and its interpretation appropriate?
Not applicable

Are the conclusions drawn adequately supported by the results?
Partly

Competing Interests: No competing interests were disclosed.

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Author Response 08 Apr 2026

Nele De Witte

Dear Prof. Koundouri, Thank you very much for your thorough reading of the manuscript and your suggestions. We have made the necessary changes to the manuscript and have provided a point-by-reply below.

Reviewer: Training on LL methodologies and relevant capacity building are not sufficiently addressed until now. Thus, the paper deals with a very timely topic. The study has been part of a H2020 project, in this respect design and evaluation are appropriate.

Following aspects require, however, attention:

The manuscript is rather descriptive. It provides information about the various aspects (the questionnaires, the modular training approach, the analysis of replies). But it lacks a more in depth methodological and theoretical analysis in relation to the challenges identified and why training on user-centred approaches can help overcoming them. This is even more important, as the manuscript implies that there are major differences between the various disciplines (healthcare vs a number of others).

Response: Thank you for your invitation to elaborate more on the challenges related to training on living methodologies. We have now extended the introduction to better frame

the need for training, especially in the healthcare field.

Reviewer:
The study is based on a very small sample, and it seems that only limited follow-up and evaluation activities took place. Again, sample and methodology are appropriate for H2020 project of this type, but it makes it difficult to claim that "This study shows that well-designed training programs can help researchers use Living Labs more successful, which could lead to better innovations that are more connected to society's needs.", as a general statement as this one would require more evidence, both in terms of participants and time.

Response: We have now adjusted this claim in the Plain Language summary to more accurately represent study outcomes: "This study suggests that researchers find a carefully designed and modular training programs useful to provide more insight into Living Lab methodologies." The title has also been changed, and the limitations were expanded so as to not to overstate results.

Reviewer:

Similarly to the point above, drawing broader conclusions (such as the statement in the Conclusion paragraph) would require not only a more systemic approach but also the provision of baseline figures and benchmarks. Moreover, if the study focussed only on the healthcare domain, how can we ensure that the outcomes are replicable and generalisable? This requires justification.

Response: We have adjusted the language in the manuscript to better reflect the nature of our findings. We have also added to the limitations that: "The study used a small sample (not including all training participants which implies vulnerability for self-selection) and was situated within the healthcare domain. It would be beneficial to continue training initiatives and continuously evaluate and improve the content, especially when transferring to different contexts.". In the newly added section on economic sustainability, we have also briefly indicated that some time might be needed to familiarize oneself with the content and reflect on experience within the trainer's own field.

Reviewer:
The positive replies in relation to increased confident by participants in applying Living Lab methodologies post-training, do not necessarily correspond to built capacity. The analysis should differentiate between self-claimed confidence and actual knowledge and capacity gained.
Response: We have now adjusted our wording to make it clearer that the results are self-reported outcomes and that we did not measure actual knowledge and capacity gained. The limitations section now also reads: "The current study did not use formal assessment of learning gains but relied on a self-report post-training survey to evaluate the training."

Reviewer:
More information should be provided on how the participants have been recruited. The eligibility and exclusion criteria are clearly mentioned and are appropriate, but there is no information on demographics or on any previous LL knowledge and experience of the

participants.
Response: Unfortunately, we did not collect data on previous LL knowledge and experience. We did not include all demographics for the participants in the expectations survey (since the main focus of the manuscript concerns the FTT evaluation. We have, however, now assessed and reported that the full sample of invited researchers matches the FTT evaluation participants in gender and background.

Reviewer: It is not clear what has been the added value in the whole process and the contribution by using a self-reflection diary. It seems that the participants have been asked to evaluate the Note: The Book diary from an end-user perspective (evaluate the application). But this doesn't' necessarily say something about the knowledge acquiring process. **Response:** Previous research has suggested that a self-reflection diary can be an effective technique for learning. However, in the current study NoteTheBook was an optional tool which was provided to participants. Since we did not monitor use, we disclosed it here for transparency rather than to provide elaborate insights into its use and effectiveness. We have now removed some details and included in the general usefulness section of the results as opposed to a separate section . Thank you for these suggestions, we believe that the integration of your feedback has significantly improved the manuscript.

Competing Interests: No competing interests were disclosed.

Reviewer Report 10 January 2026

https://doi.org/10.21956/openreseurope.22933.r65564

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Sonia Massari
University of Pisa, Pisa, Italy

The manuscript presents and evaluates a modular training programme, defined as *fast-track* due to its limited duration, developed within the H2020 VITALISE project to support external researchers in accessing transnational Living Lab (LL) infrastructures in the *Health & Wellbeing* domain.

The contribution is practical, well contextualised, and provides useful documentation of a capacity-building initiative aimed at methodological harmonisation and adoption across Living Labs. However, the evaluation framework is largely perceptual in nature (satisfaction, perceived usefulness, post-training self-efficacy) and does not fully support some of the implicit inferences present in the framing of the paper (e.g. "accelerating expertise", "increased confidence"), which should be more carefully aligned with the limits of the available evidence.

At the same time, it is important to underline that the paper addresses a relevant and

underexplored gap in the literature, namely the training and capacity building of professionals—particularly researchers—working within Living Lab contexts. From this perspective, the manuscript represents an interesting milestone in the emerging body of literature concerned with methodologies and methods in Living Lab research and practice.

The paper effectively highlights a real and well-recognised issue: the gap between the increasing availability of Living Lab infrastructures and the competencies required to use them in a robust, reflective, and sustainable manner. The conceptual framing that links Living Labs, co-creation, Responsible Research and Innovation (RRI), and the need for dedicated training is convincing and well grounded.

The structure of the programme is presented through a clear sequential logic (Figure 1) and a detailed description of the training blocks (Figure 2), including welcoming and icebreaker activities, an introduction to Living Labs and ethics, VITALISE and harmonisation, methodology (theory), a methodology workshop, panel management, and an optional open block. The modular and adaptable nature of the programme represents a clear strength, particularly in relation to heterogeneous contexts and hosting Living Labs.

The open orientation of the initiative is also commendable. The availability of public training materials, datasets, and extended resources enhances the replicability and transferability of the programme.

Quantitative results report very high levels of satisfaction (mean 9.11/10), high perceived quality and usefulness across training blocks (approximately 4.2–4.8/5), and high post-training confidence (8.54/10). Qualitative feedback further emphasises strengths such as interaction with experts, learning efficiency, and flexibility of the format.

Critical issues and recommended improvements:

The manuscript is supported by a rich and generally well-organised body of literature that provides a clear introduction to Living Labs, wicked problems, and the adaptability of the Living Lab model to contemporary societal challenges characterised by situated, real-life, and multi-actor conditions. This framing effectively prepares the reader for the proposed intervention.

However, I would expect a more substantial engagement with the scientific literature on competencies and capacity building, particularly with regard to the evolution of roles, skills, and professional profiles required within Living Labs. This discussion could usefully address capacity building from the perspective of the different actors involved (e.g. researchers, facilitators, managers, institutional partners), rather than remaining primarily implicit.

The title and several passages in the manuscript suggest an effect in terms of *"accelerating expertise"* and/or increasing confidence or competence. However, the evaluation relies primarily on:

- satisfaction measures,
- perceived quality and usefulness,
- post-training confidence only (without a pre-training baseline),
- open-ended qualitative feedback.

In its current form, the evaluation design allows the authors to state that the training is well accepted, perceived as useful, and associated with high self-reported confidence after completion. It does not, however, support causal claims regarding an *increase* in competence, nor does it justify references to *expertise* in a strong sense (i.e. skill acquisition or demonstrable capability development).

For this reason, a systematic revision of the language used across the title, abstract, and discussion is recommended. Alternative formulations such as *onboarding effectiveness*, *acceptability*, *perceived readiness*, *perceived competence*, or *self-reported post-training confidence* would more accurately reflect what is empirically measured.

The programme is explicitly designed to be adaptable: not all participants receive all training blocks, and some modules may be abbreviated or delivered online. While this flexibility is a clear operational strength, it introduces methodological challenges that are not sufficiently addressed in the current reporting.
Key details that are currently missing include:

- which training blocks were delivered to which participants or sites,
- actual duration of each block in practice,
- delivery mode (in-person vs online),
- number of responses per block and overlap among respondents.

To improve interpretability, I strongly recommend the inclusion of a summary table (for instance organised by site or participant profile) detailing training exposure, delivery mode, approximate duration, and corresponding sample sizes.

There is a substantial difference between the number of respondents to the expectations survey (N = 91) and the post-training evaluation (N = 49). It is both plausible and methodologically relevant that more satisfied participants are more likely to complete the evaluation (self-selection), and that the free-of-charge nature of transnational access may further amplify positive responses.

While the manuscript partially acknowledges this issue, it would benefit from a more explicit treatment. I suggest including a participant flow diagram or structured graphical presentation of the participation pathway (invited → pre-survey respondents → training participants → post-survey respondents). Where possible, a minimal comparison between respondents and non-respondents (e.g. by domain, site, country, or seniority) would further strengthen transparency and allow readers to better assess potential biases.

At a narrative level, the manuscript appears to oscillate between two objectives:

1. describing a replicable modular training model, and
2. demonstrating its effectiveness in building expertise.

The second objective is not fully supported by the current evaluation design. I therefore recommend making explicit that the primary contribution lies in the design and acceptability / readiness evaluation of a multi-site modular training programme, rather than in demonstrating learning outcomes or expertise development.
Relatedly, the description of the training model remains partial. Beyond directing readers to online tools, the paper does not clearly articulate explicit learning outcomes for each module. Making these outcomes explicit would significantly enhance transferability and would also enable future,

more objective forms of evaluation (e.g. rubrics, protocol assessment, or other forms of structured assessment).

In addition, the diary component is conceptually interesting but remains marginal in the current manuscript. Its evaluation focuses on perceived usefulness, without reporting even minimal indicators of actual adoption (e.g. frequency of use, extent of annotation). The authors should therefore make a clearer choice: either integrate the diary as a core component, supported by appropriate usage indicators, or reposition it as an additional element within the broader training toolkit.

As a final, non-essential but valuable improvement, the paper rightly raises the issue of the economic sustainability of Living Labs, yet provides no operational indicators related to the training itself (e.g. trainer hours, preparation effort, indicative costs). Even minimal data in this respect would lend greater credibility to the discussion of scalability and cost-effectiveness.

Overall, the manuscript represents a useful and publishable contribution as an *intervention description combined with an acceptability evaluation*, situated within a real transnational context. It demonstrates a good level of transparency and is supported by a convincing modular training structure. The work clearly offers added value to the field.

However, for the manuscript to be fully suitable for publication, a number of targeted revisions are required. In particular, these concern a clearer realignment between claims and evidence, greater detail regarding variability in programme delivery, and a more explicit handling of selected reporting aspects, as outlined above.

With these improvements, the paper would constitute a solid and methodologically sound contribution to the literature on Living Lab training and capacity building.

References

1. Massari S, Galli F, Mattioni D, Chiffoleau Y: Co-creativity in Living Labs: fostering creativity in co-creation processes to transform food systems. *Journal of Science Communication*. 2023; **22** (03). Publisher Full Text

Is the work clearly and accurately presented and does it engage with the current literature?

Yes

Is the study design appropriate and is the work technically sound?

Yes

Are sufficient details of methods and analysis provided to allow replication by others?

Partly

Are all the source data and materials underlying the results available?

Partly

If applicable, is the statistical analysis and its interpretation appropriate?

I cannot comment. A qualified statistician is required.

Are the conclusions drawn adequately supported by the results?
Yes

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: food design, design, participatory approach, adult education, living labs, design thinking, facilitation & transdisciplinarity

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Author Response 08 Apr 2026

Nele De Witte

Dear Dr. Massari; Thank you very much for your thorough reading of the manuscript and your suggestions. We have made the necessary changes to the manuscript and have provided a point-by-reply below.

Reviewer: The manuscript presents and evaluates a modular training programme, defined as *fast-track* due to its limited duration, developed within the H2020 VITALISE project to support external researchers in accessing transnational Living Lab (LL) infrastructures in the *Health & Wellbeing* domain.
The contribution is practical, well contextualised, and provides useful documentation of a capacity-building initiative aimed at methodological harmonisation and adoption across Living Labs. However, the evaluation framework is largely perceptual in nature (satisfaction, perceived usefulness, post-training self-efficacy) and does not fully support some of the implicit inferences present in the framing of the paper (e.g. “accelerating expertise”, “increased confidence”), which should be more carefully aligned with the limits of the available evidence.
At the same time, it is important to underline that the paper addresses a relevant and underexplored gap in the literature, namely the training and capacity building of professionals—particularly researchers—working within Living Lab contexts. From this perspective, the manuscript represents an interesting milestone in the emerging body of literature concerned with methodologies and methods in Living Lab research and practice.
The paper effectively highlights a real and well-recognised issue: the gap between the increasing availability of Living Lab infrastructures and the competencies required to use them in a robust, reflective, and sustainable manner. The conceptual framing that links Living Labs, co-creation, Responsible Research and Innovation (RRI), and the need for dedicated training is convincing and well grounded.
The structure of the programme is presented through a clear sequential logic (Figure 1) and a detailed description of the training blocks (Figure 2), including welcoming and icebreaker activities, an introduction to Living Labs and ethics, VITALISE and harmonisation, methodology (theory), a methodology workshop, panel management, and an optional open block. The modular and adaptable nature of the programme represents a clear strength, particularly in relation to heterogeneous contexts and hosting Living Labs.

The open orientation of the initiative is also commendable. The availability of public training materials, datasets, and extended resources enhances the replicability and transferability of the programme.
Quantitative results report very high levels of satisfaction (mean 9.11/10), high perceived quality and usefulness across training blocks (approximately 4.2–4.8/5), and high post-training confidence (8.54/10). Qualitative feedback further emphasises strengths such as interaction with experts, learning efficiency, and flexibility of the format.

Response: Thank you for your kind words and appreciation for our endeavor to design and evaluate a training approach for living lab methodologies.

Reviewer: Critical issues and recommended improvements:
The manuscript is supported by a rich and generally well-organised body of literature that provides a clear introduction to Living Labs, wicked problems, and the adaptability of the Living Lab model to contemporary societal challenges characterised by situated, real-life, and multi-actor conditions. This framing effectively prepares the reader for the proposed intervention.
However, I would expect a more substantial engagement with the scientific literature on competencies and capacity building, particularly with regard to the evolution of roles, skills, and professional profiles required within Living Labs. This discussion could usefully address capacity building from the perspective of the different actors involved (e.g. researchers, facilitators, managers, institutional partners), rather than remaining primarily implicit.

Response: We have now elaborated the introduction to inform on experiential learning and to highlight more why capacity building is needed for professionals (since for many individuals operating in the healthcare field, this was insufficiently addressed in their education).

Reviewer: The title and several passages in the manuscript suggest an effect in terms of *"accelerating expertise"* and/or increasing confidence or competence. However, the evaluation relies primarily on:

- satisfaction measures,
- perceived quality and usefulness,
- post-training confidence only (without a pre-training baseline),
- open-ended qualitative feedback.

In its current form, the evaluation design allows the authors to state that the training is well accepted, perceived as useful, and associated with high self-reported confidence after completion. It does not, however, support causal claims regarding an *increase* in competence, nor does it justify references to *expertise* in a strong sense (i.e. skill acquisition or demonstrable capability development).
For this reason, a systematic revision of the language used across the title, abstract, and discussion is recommended. Alternative formulations such as *onboarding effectiveness*, *acceptability*, *perceived readiness*, *perceived competence*, or *self-reported post-training confidence* would more accurately reflect what is empirically measured.

Response: We have now added to the limitations section that: "The study did not employ a

formal pre–post design and relied on self-reported post-training perceptions, limiting conclusions about learning gains. Consequently, the findings should be interpreted as evidence of perceived usefulness, acceptability, and feasibility rather than validation of accelerating expertise or increasing confidence." Additionally, we have made changes to the title (now: A Fast-Track Training Program for Living Lab Methodologies: program components, acceptability, and participant perceptions) and in different manuscript sections to include terms such as 'perceived' and 'self-report'.

Reviewer: The programme is explicitly designed to be adaptable: not all participants receive all training blocks, and some modules may be abbreviated or delivered online. While this flexibility is a clear operational strength, it introduces methodological challenges that are not sufficiently addressed in the current reporting.
Key details that are currently missing include:

- which training blocks were delivered to which participants or sites,
- actual duration of each block in practice,
- delivery mode (in-person vs online),
- number of responses per block and overlap among respondents.

To improve interpretability, I strongly recommend the inclusion of a summary table (for instance organised by site or participant profile) detailing training exposure, delivery mode, approximate duration, and corresponding sample sizes.

Response: Study participants were not a homogenous group but had varying backgrounds and levels of previous exposure to living lab research. Therefore, we indeed allowed for flexibility in program administration to help tailor the program to participants' needs. This flexibility could range from small sections being skipped or provided online to providing new content in the free block (e.g., business model preparations). However, no rigorous implementation documentation framework was adopted so we do not have exact statistics on program content presented to each participant. We acknowledge that this is a limitation and have added: " However, while variation in implementation limited precise assessment of exposure, it reflects real-world practice, and positive perceptions across sites suggest the program's acceptability across diverse conditions."

Reviewer: There is a substantial difference between the number of respondents to the expectations survey (N = 91) and the post-training evaluation (N = 49). It is both plausible and methodologically relevant that more satisfied participants are more likely to complete the evaluation (self-selection), and that the free-of-charge nature of transnational access may further amplify positive responses.
While the manuscript partially acknowledges this issue, it would benefit from a more explicit treatment. I suggest including a participant flow diagram or structured graphical presentation of the participation pathway (invited → pre-survey respondents → training participants → post-survey respondents). Where possible, a minimal comparison between respondents and non-respondents (e.g. by domain, site, country, or seniority) would further strengthen transparency and allow readers to better assess potential biases.

Response: We have also updated the limitations section, which now reads: "The study used a small sample (not including all training participants which implies vulnerability for self-

selection) and was situated within the healthcare domain. To ensure generalizability, it would be beneficial to continue training initiatives and continuously evaluate and improve the content, especially when transferring to different contexts." Additionally, we have checked distributions between responders and non-responders and have provided a bit more context in the manuscript. In the FTT survey results – expectations section, you can now read: "A total of 102 researchers who intended to visit the living labs were invited to complete the survey before the visit and 91 participants could be included in the expectations questionnaire." In the description of the 49 respondents of the evaluation survey, we have now added: "The relative proportions in gender and researcher's background showed a similar distribution in the participants of the evaluation questionnaire as compared to those in the expectations questionnaire.".

Reviewer: At a narrative level, the manuscript appears to oscillate between two objectives:

1. describing a replicable modular training model, and
2. demonstrating its effectiveness in building expertise.

The second objective is not fully supported by the current evaluation design. I therefore recommend making explicit that the primary contribution lies in the design and acceptability / readiness evaluation of a multi-site modular training programme, rather than in demonstrating learning outcomes or expertise development.
Relatedly, the description of the training model remains partial. Beyond directing readers to online tools, the paper does not clearly articulate explicit learning outcomes for each module. Making these outcomes explicit would significantly enhance transferability and would also enable future, more objective forms of evaluation (e.g. rubrics, protocol assessment, or other forms of structured assessment).

Response: We have now updated the study aims: "This paper presents a new fast-track-training program which aimed to broaden the understanding and valorisation of Living Lab methodologies within the research community. Specifically, this study presents the content of this training program and how it was designed and implemented within the VITALISE project. Additionally, we want to present the first self-reported experiences with this program, collected through a participant survey. We have also added explicit learning objectives to the training blocks.

Reviewer: In addition, the diary component is conceptually interesting but remains marginal in the current manuscript. Its evaluation focuses on perceived usefulness, without reporting even minimal indicators of actual adoption (e.g. frequency of use, extent of annotation). The authors should therefore make a clearer choice: either integrate the diary as a core component, supported by appropriate usage indicators, or reposition it as an additional element within the broader training toolkit.

Response: NoteTheBook was an optional tool which was provided to participants. Since we did not monitor use, we disclosed it here for transparency rather than to provide elaborate insights into its use and effectiveness. We have now removed some details and included in the general usefulness section of the results as opposed to a separate section.

Reviewer: As a final, non-essential but valuable improvement, the paper rightly raises the

issue of the economic sustainability of Living Labs, yet provides no operational indicators related to the training itself (e.g. trainer hours, preparation effort, indicative costs). Even minimal data in this respect would lend greater credibility to the discussion of scalability and cost-effectiveness.

Response: We have now elaborated that section in the discussion: “Given that Living Labs have faced challenges in economic sustainability (Fauth et al., 2024; Paskaleva & Cooper, 2021), careful attention must be paid to the cost-effectiveness of the FTT program. Having the current open-access training materials available already increases the feasibility of offering training since it reduces preparation times (and according costs), which are now limited to familiarizing oneself to program slides and content and reflecting on previous experiences that a trainer might share. Implementing the current training program itself, es expected take around 2 days (with around 8 hours of lecture materials without the free block). Due to its modular and flexible approach, abbreviated formats are also possible.”

Reviewer: Overall, the manuscript represents a useful and publishable contribution as an *intervention description combined with an acceptability evaluation*, situated within a real transnational context. It demonstrates a good level of transparency and is supported by a convincing modular training structure. The work clearly offers added value to the field. However, for the manuscript to be fully suitable for publication, a number of targeted revisions are required. In particular, these concern a clearer realignment between claims and evidence, greater detail regarding variability in programme delivery, and a more explicit handling of selected reporting aspects, as outlined above.
With these improvements, the paper would constitute a solid and methodologically sound contribution to the literature on Living Lab training and capacity building.
Response: Thank you for these suggestions, we believe that the integration of your feedback has significantly improved the manuscript.

Competing Interests: No competing interests were disclosed.

Reviewer Report 06 January 2026

https://doi.org/10.21956/openreseurope.22933.r65565

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Francesco Santarsiero
LUM Giuseppe Degennaro University, Bari, Italy

The manuscript presents the design and initial evaluation of a two day Fast Track Training program developed within the VITALISE Transnational Access activities, aimed at onboarding external researchers into Living Lab Research Infrastructures and supporting harmonisation of Living Lab practices. The intervention is described as modular and adaptable and includes six main

training blocks, welcoming and icebreaker, introduction to Living Labs including services and an ethical framework, VITALISE and harmonisation, methodology theory, methodology workshop, and panel management, plus an optional open block depending on the hosting lab, delivered either during the transnational access visit or online, with the important nuance that not all blocks were delivered to all participants because of tailoring and abbreviated formats. The evaluation relies on two surveys, a pre training expectations questionnaire completed by 91 applicants that captures perceived relevance of various topics, and a post training evaluation questionnaire completed by 49 participants that measures satisfaction, perceived quality and usefulness of blocks, and self reported confidence to apply Living Lab concepts, complemented by open ended qualitative feedback. The manuscript also reports on the NoteTheBook self reflection diary platform and its perceived usefulness. The main quantitative findings show very high satisfaction around 9.11 out of 10, high perceived quality and usefulness across blocks around 4.2 to 4.8 out of 5, and high post training confidence around 8.54 out of 10, with limited differences between blocks, including one statistically significant pairwise difference suggesting that Methodology Theory was rated higher in quality than Harmonisation. Qualitative feedback highlights strengths such as interaction with trainers, efficiency, and flexibility, and suggests improvements such as more interactive tool based workshops, more practical use cases, and more time for project specific discussion.

Overall, the paper is practically valuable and relevant because it documents a structured onboarding training linked to a real transnational infrastructure initiative, provides a clear rationale grounded in the Living Lab, responsible research and innovation, and harmonisation context, and offers transparent access to materials and data repositories. However, several claims are currently stronger than what the evaluation design can support, and targeted revisions are necessary to ensure scientific soundness and interpretive robustness.
The most critical point is the alignment between claims and evidence. The paper's framing and wording, including accelerating expertise and statements implying increased confidence, are not fully supported by the outcomes as presented, because the evaluation is largely based on self reported satisfaction, perceived usefulness and quality, and post only confidence, without an explicit pre training baseline for confidence or objective measures of learning and skill acquisition. Without a pre post measure or comparator, one can report high post training confidence but cannot infer an increase attributable to the training, and similarly, accelerating expertise reads as a stronger competency claim than what satisfaction and confidence data can justify. The authors can address this in a scientifically sound way by revising wording consistently across title, abstract, results, and discussion to reflect what is actually measured, for example onboarding effectiveness, acceptability, perceived readiness, or perceived competence, and by replacing increased confidence with high confidence reported after the training unless pre confidence measures exist and can be reported. If the authors want to retain a stronger learning or competency claim, they should introduce and report pre post measures, even lightweight ones such as a short concept quiz, a self efficacy scale, or a rubric based assessment of a produced protocol, and ideally include a follow up assessment, for example three to six months, focused on adoption and quality of Living Lab application.

A second scientifically important issue concerns heterogeneity in delivery and dose. The manuscript notes that not all participants received all blocks and that the program can be tailored by hosting Living Labs and or delivered online, but the current reporting does not fully quantify which participants received which blocks, how long each block lasted in practice, and how delivery mode varied. Because ratings are aggregated and some block level sample sizes differ, the

interpretation of block comparisons and overall evaluation can be confounded by site specific and format specific factors. This can be addressed by adding a training exposure table, in main text or appendix, that indicates which blocks were delivered per participant or per site, delivery mode, whether the program was full or abbreviated, approximate duration per block, and the resulting sample size for each block rating, together with a brief explanation of why sample sizes differ and what matching and overlap exists among respondents for the statistical tests.

A third issue that must be more explicitly handled is selection and attrition or non response bias. The expectations survey includes 91 respondents whereas the post training evaluation includes 49, and the manuscript acknowledges that some individuals completed the expectations survey but did not attend or did not complete the evaluation. Given the voluntary nature of transnational access and training participation and the fact that the training was free of charge, high satisfaction and favourable evaluations are plausible but also vulnerable to self selection and social desirability effects. To strengthen scientific credibility, the authors should provide a simple participant flow accounting, invited to expectations survey, completed expectations, attended training, invited to evaluation, completed evaluation, and if basic metadata are available, compare responders and non responders on a small set of variables such as domain, country, hosting lab, and seniority to gauge potential bias. At minimum, the generalisability statement should be tightened to specify that results reflect perceptions among evaluation respondents rather than all applicants.

A fourth issue concerns statistical reporting and interpretation. While the use of Friedman and Wilcoxon for comparing block ratings can be appropriate, the paper should clarify how missingness was handled given that not all participants rated all blocks, indicate whether multiple comparison corrections were applied in post hoc testing, and report effect sizes for the significant comparisons so readers can judge practical significance. The use of trend towards significance language for a p value of 0.07 should be treated cautiously and explicitly framed as exploratory or replaced with a descriptive interpretation.

Finally, the forced choice question asking participants to select the least appreciated block should be more carefully framed as a relative preference measure rather than evidence of dissatisfaction, because forcing a selection guarantees that some block will be chosen even if respondents found all blocks acceptable. Beyond these must fix points, several improvements would further strengthen contribution and reproducibility. Clarifying whether the primary contribution is the replicable modular training design or the evidence of acceptability and perceived readiness across multi country Living Labs would help align expectations. Adding explicit learning objectives per block would improve transferability.

Better integrating or de emphasising the NoteTheBook component depending on whether it is central to the intervention would improve coherence, and if it is central then providing basic adoption and usage indicators, not only perceived usefulness, would strengthen evidence. Supporting the discussion on sustainability and cost effectiveness with minimal operational indicators such as trainer hours, contact hours, and resources required would also be consistent with the paper’s stated aims and would help readers judge scalability.

With these revisions, especially the consistent alignment of claims to measured outcomes, clearer reporting of delivery heterogeneity and participant flow, and strengthened statistical transparency, the manuscript would provide a solid and scientifically defensible contribution as an intervention description and acceptability or perceived readiness evaluation for fast onboarding

into Living Lab methodologies.

References

1. Schiuma G, Santarsiero F: Open Innovation Labs. 2024. Publisher Full Text

Is the work clearly and accurately presented and does it engage with the current literature?
Yes

Is the study design appropriate and is the work technically sound?
Yes

Are sufficient details of methods and analysis provided to allow replication by others?
Partly

Are all the source data and materials underlying the results available?
Partly

If applicable, is the statistical analysis and its interpretation appropriate?
Partly

Are the conclusions drawn adequately supported by the results?
Yes

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: innovation management; open innovation labs; knowledge management; digital transformation

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Author Response 08 Apr 2026

Nele De Witte

Dear Dr., Santarsiero; Thank you very much for your thorough reading of the manuscript and your suggestions. We have made the necessary changes to the manuscript and have provided a point-by-reply below.

Reviewer: The manuscript presents the design and initial evaluation of a two day Fast Track Training program developed within the VITALISE Transnational Access activities, aimed at onboarding external researchers into Living Lab Research Infrastructures and supporting harmonisation of Living Lab practices. The intervention is described as modular and adaptable and includes six main training blocks, welcoming and icebreaker, introduction to Living Labs including services and an ethical framework, VITALISE and harmonisation, methodology theory, methodology workshop, and panel management, plus an optional

open block depending on the hosting lab, delivered either during the transnational access visit or online, with the important nuance that not all blocks were delivered to all participants because of tailoring and abbreviated formats. The evaluation relies on two surveys, a pre training expectations questionnaire completed by 91 applicants that captures perceived relevance of various topics, and a post training evaluation questionnaire completed by 49 participants that measures satisfaction, perceived quality and usefulness of blocks, and self reported confidence to apply Living Lab concepts, complemented by open ended qualitative feedback. The manuscript also reports on the NoteTheBook self reflection diary platform and its perceived usefulness. The main quantitative findings show very high satisfaction around 9.11 out of 10, high perceived quality and usefulness across blocks around 4.2 to 4.8 out of 5, and high post training confidence around 8.54 out of 10, with limited differences between blocks, including one statistically significant pairwise difference suggesting that Methodology Theory was rated higher in quality than Harmonisation. Qualitative feedback highlights strengths such as interaction with trainers, efficiency, and flexibility, and suggests improvements such as more interactive tool based workshops, more practical use cases, and more time for project specific discussion.

Overall, the paper is practically valuable and relevant because it documents a structured onboarding training linked to a real transnational infrastructure initiative, provides a clear rationale grounded in the Living Lab, responsible research and innovation, and harmonisation context, and offers transparent access to materials and data repositories.
Response: Thank you very much for your thorough reading and kind words

Reviewer: However, several claims are currently stronger than what the evaluation design can support, and targeted revisions are necessary to ensure scientific soundness and interpretive robustness.
The most critical point is the alignment between claims and evidence. The paper's framing and wording, including accelerating expertise and statements implying increased confidence, are not fully supported by the outcomes as presented, because the evaluation is largely based on **self reported satisfaction**, **perceived usefulness and quality**, and post only confidence, without **an explicit pre training baseline** for confidence or objective measures of learning and skill acquisition. Without a pre post measure or comparator, one can report high post training confidence but cannot infer an increase attributable to the training, and similarly, accelerating expertise reads as a stronger competency claim than what satisfaction and confidence data can justify. The authors can address this **in a scientifically sound way by revising wording consistently** across title, abstract, results, and discussion to reflect what is actually measured, for example onboarding effectiveness, acceptability, perceived readiness, or perceived competence, and by replacing increased confidence with high confidence reported after the training unless pre confidence measures exist and can be reported. If the authors want to retain a stronger learning or competency claim, they should introduce and report pre post measures, even lightweight ones such as a short concept quiz, a self efficacy scale, or a rubric based assessment of a produced protocol, and ideally include a follow up assessment, for example three to six months, focused on adoption and quality of Living Lab application.
Response: It is indeed correct that a pre-post measurement design would have provided stronger support for the effectiveness of the training program. Additionally, measuring formal learning gains can be complex and we have therefore indeed opted to rely on self-

report information. We have now added to the limitations section that: “The study did not employ a formal pre–post design and relied on self-reported post-training perceptions, limiting conclusions about learning gains. Consequently, the findings should be interpreted as evidence of perceived usefulness, acceptability, and feasibility rather than validation of accelerating expertise or increasing confidence.”. Additionally, we have made changes to the title (now: A Fast-Track Training Program for Living Lab Methodologies: program components, acceptability, and participant perceptions) and in different manuscript sections to include terms such as ‘perceived’ and ‘self-report’ to make sure that the results were not overstated.

Reviewer: A second scientifically important issue concerns heterogeneity in delivery and dose. The manuscript notes that not all participants received all blocks and that the program can be tailored by hosting Living Labs and or delivered online, but the current reporting does not fully quantify which participants received which blocks, how long each block lasted in practice, and how delivery mode varied. Because ratings are aggregated and some block level sample sizes differ, the interpretation of block comparisons and overall evaluation can be confounded by site specific and format specific factors. This can be addressed by adding a training exposure table, in main text or appendix, that indicates which blocks were delivered per participant or per site, delivery mode, whether the program was full or abbreviated, approximate duration per block, and the resulting sample size for each block rating, together with a brief explanation of why sample sizes differ and what matching and overlap exists among respondents for the statistical tests.
Response: Study participants were not a homogenous group but had varying backgrounds and levels of previous exposure to living lab research. Therefore, we indeed allowed for flexibility in program administration to help tailor the program to participants’ needs. This flexibility could range from small sections being skipped or provided online to providing new content in the free block (e.g., business model preparations). However, no rigorous implementation documentation framework was adopted so we do not have exact statistics on program content presented to each participant. We acknowledge that this is a limitation and have added: “ However, while variation in implementation limited precise assessment of exposure, it reflects real-world practice, and positive perceptions across sites suggest the program’s acceptability across diverse conditions.”

Reviewer: A third issue that must be more explicitly handled is selection and attrition or non response bias. The expectations survey includes 91 respondents whereas the post training evaluation includes 49, and the manuscript acknowledges that some individuals completed the expectations survey but did not attend or did not complete the evaluation. Given the voluntary nature of transnational access and training participation and the fact that the training was free of charge, high satisfaction and favourable evaluations are plausible but also vulnerable to self selection and social desirability effects. To strengthen scientific credibility, the authors should provide a simple participant flow accounting, invited to expectations survey, completed expectations, attended training, invited to evaluation, completed evaluation, and if basic metadata are available, compare responders and non responders on a small set of variables such as domain, country, hosting lab, and seniority to gauge potential bias. At minimum, the generalisability statement should be tightened to specify that results reflect perceptions among evaluation respondents rather than all applicants.

Response: We have now checked distributions between responders and non-responders and have provided a bit more context in the manuscript. In the FTT survey results – expectations section, you can now read: "A total of 102 researchers who intended to visit the living labs were invited to complete the survey before the visit and 91 participants could be included in the expectations questionnaire." In the description of the 49 respondents of the evaluation survey, we have now added: "The relative proportions in gender and researcher's background showed a similar distribution in the participants of the evaluation questionnaire as compared to those in the expectations questionnaire." We do not have data on seniority. Country and hosting lab are more dispersed categories so less relevant to compare. We have also updated the limitations section, which now reads: "The study used a small sample (not including all training participants which implies vulnerability for self-selection) and was situated within the healthcare domain. To ensure generalizability, it would be beneficial to continue training initiatives and continuously evaluate and improve the content, especially when transferring to different contexts."

Reviewer: A fourth issue concerns statistical reporting and interpretation. While the use of Friedman and Wilcoxon for comparing block ratings can be appropriate, the paper should clarify how missingness was handled given that not all participants rated all blocks, indicate whether multiple comparison corrections were applied in post hoc testing, and report effect sizes for the significant comparisons so readers can judge practical significance. The use of trend towards significance language for a p value of 0.07 should be treated cautiously and explicitly framed as exploratory or replaced with a descriptive interpretation.
Response: Thank you for this observation, we have now applied bonferroni adjustment to account for multiple testing. For each analysis the sample size is indicated in the results section. The results section has been updated and the trend interpretation has been removed.

Reviewer: Finally, the forced choice question asking participants to select the least appreciated block should be more carefully framed as a relative preference measure rather than evidence of dissatisfaction, because forcing a selection guarantee that some block will be chosen even if respondents found all blocks acceptable.
Response: We have now reframed the reporting of this question and its result to reflect relative preference.
Reviewer: Beyond these must fix points, several improvements would further strengthen contribution and reproducibility. Clarifying whether the primary contribution is the replicable modular training design or the evidence of acceptability and perceived readiness across multi country Living Labs would help align expectations. Adding explicit learning objectives per block would improve transferability.
Response: We have now updated the study aims: "This paper presents a new fast-track-training program which aimed to broaden the understanding and valorisation of Living Lab methodologies within the research community. Specifically, this study presents the content of this training program and how it was designed and implemented within the VITALISE project. Additionally, we want to present the first self-reported experiences with this program, collected through a participant survey. We have also added explicit learning objectives to the training blocks.

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on whether it is central to the intervention would improve coherence, and if it is central then providing basic adoption and usage indicators, not only perceived usefulness, would strengthen evidence.
Response: NoteTheBook was an optional tool which was provided to participants. Since we did not monitor use, we disclosed it here for transparency rather than to provide elaborate insights into its use and effectiveness. We have now removed some details and included in the general usefulness section of the results as opposed to a highlighting it in a separate section .
Reviewer: Supporting the discussion on sustainability and cost effectiveness with minimal operational indicators such as trainer hours, contact hours, and resources required would also be consistent with the paper's stated aims and would help readers judge scalability.
Response: We have now elaborated that section in the discussion: "Given that Living Labs have faced challenges in economic sustainability (Fauth et al., 2024; Paskaleva & Cooper, 2021), careful attention must be paid to the cost-effectiveness of the FTT program. Having the current open-access training materials available already increases the feasibility of offering training since it reduces preparation times (and according costs), which are now limited to familiarizing oneself to program slides and content and reflecting on previous experiences that a trainer might share. Implementing the current training program itself, is expected to take around 2 days (with around 8 hours of lecture materials without the free block). Due to its modular and flexible approach, abbreviated formats are also possible."

Reviewer: With these revisions, especially the consistent alignment of claims to measured outcomes, clearer reporting of delivery heterogeneity and participant flow, and strengthened statistical transparency, the manuscript would provide a solid and scientifically defensible contribution as an intervention description and acceptability or perceived readiness evaluation for fast onboarding into Living Lab methodologies.
Response: Thank you for these suggestions, we believe that the integration of your feedback has significantly improved the manuscript.

Competing Interests: No competing interests were disclosed.