Article

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Enhancing Social Inclusion Among Older Adults in Côte-des-Neiges: Protocol Paper of the Living Lab Quartier Innovant

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Abstract

The Living Lab Quartier Innovant (Innovative Neighborhood) engages a diverse range of stakeholders, primarily community organization representatives and older adults, alongside researchers, with the primary goal of supporting the social inclusion of older adults within Côte-des-Neiges, a neighborhood in Montreal, Canada. This protocol paper aims to present the key characteristics and research agenda of the Quartier Innovant. It delineates its governance structure as well as its main research components, including a logic model and an evaluation matrix. By doing so, we strive to improve the field of Living Lab research by encouraging transparency, open criticism, and grounded methodological choices for enhanced conceptualization, operationalization, and evaluation of Living Labs.

Keywords: research method, designs and models, population ageing, partnership, social integration.

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1 Introduction

For several years, there has been a recognition of the challenges - both scientific and political - pertaining to an aging population and the need to support older adults in their desire to age in the community of their choice. In response to this complexity, Living Labs (also known as Living Laboratories) seem to be gaining in popularity, particularly in the scientific field, but also in the political arena. This increased interest is reflected by the Quebec (Canada) government's implementation of a substantial grant program launched in 2019, aimed at financing numerous Living Labs in aging (Fonds de recherche du Québec, 2020). Our team is fortunate enough to be among the Living Labs that have received this funding. Extensive funding has also been allocated to Living Labs across Canada and worldwide over the past decades, and a significant growth in their number has given rise to several fundamental scientific questions regarding optimal approaches within the field. These questions primarily revolve around the comparability of Living Labs, their design and methods, as well as their impact on a broader scale, including which evaluation frameworks should be used (Ballon et al., 2018; Bouwma et al., 2022; Bronson et al., 2021). As far as we know, there is still little published literature on the topic and little consensus in the field (Bronson et al., 2021), including on the actual definition of a Living Lab (Ballon et al., 2018; Galway et al., 2022), although initiatives such as the VITALISE project (https://vitalise-project.eu/) may help in fostering better standardization of practices in the future. According to Ballon et al. (2018), this lack of consensus in the field and the great heterogeneity between Living Labs and their practices diminish the credibility of Living Labs and limit their future development. With the aim of contributing to this reflection, we want to share through this protocol paper the methodological choices and distinctive features of our Living Lab, which specifically focuses on promoting social inclusion among older adults. By doing so, we wish to make a meaningful contribution to the ongoing reflection and open discussion about best practices within the realm of Living Labs.

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2 Context of the Living Lab *Quartier Innovant*

Social isolation and loneliness are major problems with high prevalence among older adults (Fakoya et al., 2020; Su et al., 2023). Half of the population aged over 60 is at risk of social isolation and one-third will experience varying degrees of loneliness (Fakoya et al., 2020). Social isolation in older adults is a concern as it is associated with cognitive decline, falls, institutionalization, mortality (Nicholson, 2012) and depression (Taylor et al., 2016). Moreover, social isolation is higher among older adults living in low socioeconomic situations (Patterson, 2016) and those with low health literacy (Bennett et al., 2009), increasing the impact of social inequalities in health among this population.

Promoting the social inclusion of older adults and supporting their social participation can help to reduce or prevent social isolation (Cotterell et al., 2018; Fakoya et al., 2020). Social inclusion is important as it promotes older adults' overall well-being, fosters a sense of belonging, and enhances their quality of life. The relationship between social participation and social inclusion among older adults is closely intertwined (Raymond & Lantagne Lopez, 2020). Older adults' active engagement in social activities fosters active aging, strengthens social connections, and recognizes the value of their contributions (Levasseur et al., 2022), which, in turn, can help break the cycle of social isolation (Raymond et al., 2013).

Aiming to prevent social isolation among older adults, the Montreal Regional Public Health Department developed an analytical framework for the social participation of older adults (Lemieux et al., 2018). This framework highlights that the social participation of this population is influenced, on the one hand, by predisposing factors specific to each person, including personal factors (e.g., knowledge, beliefs, self-confidence) and health factors (e.g., depression, physical and cognitive limitations, pain) and, on the other hand, by structural factors specific to the environments in which the older adults live. These structural factors can facilitate or hinder older adults' social participation. They include: 1) organizational factors (e.g., neighborhoods and community resources); 2) physical environment factors (e.g., architectural barriers and neighborhood design); and 3) social factors (e.g., attitudes toward aging and older adults, social norms, socio-economic issues, and government priorities and policies).

With this framework in mind, a team of researchers from the Research Centre of the Institut universitaire de gériatrie de Montréal had a strong desire to work with community partners and citizens from the surrounding neighborhood to strengthen its research capacities, disseminate knowledge, and codevelop initiatives with and for the neighborhood and its residents. The Research Centre of the Institut universitaire de gériatrie de Montréal is in the Côte-des-Neiges (CDN) neighborhood in Montreal, Canada. CDN has a significant proportion of older adults living alone or in vulnerable situations, as well as a large number of older adults from different ethno-cultural communities, including newcomers (Corporation de développement communautaire de Côte-des-Neiges, 2017). Since more than 45% of older adults in CDN live alone, they are particularly vulnerable to social isolation (Corporation de développement communautaire de Côte-des-Neiges, 2017). The CDN neighborhood can, however, count on the action and involvement of many dynamic community organizations and municipal institutions whose mission is to provide support, services, and/or meaningful social participation opportunities for older adults. The Research Centre of the Institut universitaire de gériatrie de Montréal therefore hoped to contribute to this ecosystem, through its scientific and knowledge transfer mission, by supporting the social participation of older adults.

In the fall of 2018, the research team organized a networking meeting that brought together nine researchers from the Research Centre of the Institut universitaire de gériatrie de Montréal,

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three older adults and more than 20 community partners. The purpose of the meeting was to forge a link with members of the CDN community and explore with them the role that the Research Centre of the Institut universitaire de gériatrie de Montréal could play in the CDN ecosystem, as well as their interest in welcoming the research center into their network. The meeting also aimed to consider the partners' opinions concerning older adults' social isolation and inclusion in the neighborhood and to benefit from their personal and/or professional experience. The meeting prompted conversations concerning the relevance of setting up an innovative neighborhood in CDN, responding to the needs of older adults, community organizations, and the scientific community by developing, evaluating, and implementing innovative initiatives in a highly collaborative manner. This group of collaborators met on two occasions in 2018 and 2019, and several other individual meetings with representatives from community organizations were also arranged to establish the boundaries of the collaboration and its main objectives. An intermediation committee was put in place to coordinate these meetings, comprising the main lead researcher, a research coordinator, older adults, community organization representatives, and a social innovation specialist.

After conducting meetings and reviewing documents pertaining to numerous citizen consultations organized at the neighborhood, borough, and municipal levels, the intermediation (operational) committee reached a conclusion on the priority needs for older adults in CDN: 1) fostering social participation, civic engagement, and the acknowledgment of their significant role in society; 2) ensuring home care, autonomy, health, and overall quality of life; 3) educating and raising awareness about the diverse realities experienced by older adults; and 4) promoting mobility within the neighborhood as a means to foster social participation. Then, the committee averred that the way to address these priority needs in a collaborative manner between research and the CDN community had not yet been established. Since the research center has specific expertise in health conditions related to aging as well as to predisposing and structural factors, it was suggested that a collaboration be based on themes related to priorities 2 to 4, while actively engaging older adults in the process (priority 1).

The overall objective of this research program was therefore to develop an innovative neighborhood to promote the social inclusion of older adults by focusing on the health, predisposing, and structural factors in CDN that contribute to their social participation. To allow for optimal collaboration between all community stakeholders, a Living Lab was considered as the optimal way to build the foundations of a social research infrastructure within the CDN neighborhood that could be sustainable over time. We defined our Living Lab according to the ENoLL definition, i.e. as an open innovation ecosystem that operates in real-life environments (European Network of Living Labs, n.d.).

To our knowledge, no such collaboration had previously taken place in CDN, or in the research field. Several Living Labs oriented towards aging and health have been set up over the years (Kim et al., 2019), but none have specifically addressed the social isolation and inclusion of older adults with health issues. Several studies have, however, shown the benefits of implementing programs in the community to reduce the social isolation of older adults and increase their health and well-being (Fakoya et al., 2020; Turcotte et al., 2018). For example, in Quebec, Levasseur et al. (2018) demonstrated the feasibility of implementing a personalized community integration program to help older adults participate in social activities in the community with the support of non-professional attendants trained for this purpose. The results of this action research showed that it is possible to co-create initiatives for and with older adults and their communities. The added advantage of the Living Lab approach is to ground these solutions in the needs of all stakeholders within a systemic approach to problem resolution.

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Although the Living Lab ecosystem offered numerous advantages for our research program, we discovered early on that its implementation and management lacked formal rules or guidelines. This observation is supported by existing research literature, which also highlights the issue (Ballon et al., 2018; Bronson et al., 2021; Hossain et al., 2019; Vervoort et al., 2022). Hence, few empirical resources were available to guide Living Lab methodological choices pertaining to appropriate governance strategies, day-to-day functioning, and the roles and mobilization of community partners, in order to design approaches to be used to generate innovative solutions and evaluation practices, both for the specific innovations/services to be developed and for the Living Labs as a whole. Moreover, Living Labs are reported in heterogeneous (and often incomplete) ways in the scientific literature (Lazzarotti & Manzini, 2009; Schuurman et al., 2015), making it difficult to compare their impacts or underlying methods, or to determine Living Labs' added value (Ballon et al., 2018) in comparison to a more traditional research approach.

Our team therefore tried to conceptualize and operationalize the Living Lab *Quartier innovant* as transparently and rigorously as possible, taking into account our particular context and the needs of our partners. The main objective of this protocol paper is to present the key characteristics and the research agenda of the Living Lab *Quartier Innovant*. By sharing this information, we aim to contribute to the Living Lab field of research by making our methodological choices transparent, thus open to review and continuous improvement.

Protocol papers are very important from an open science perspective. It allows the academic community to evaluate whether our future results are in line with what we had planned (a mark of scientific rigor) (Journal of Medical Internet Research (JMIR), 2023; Ohtake & Childs, 2014). It informs the academic community on ongoing research and help avoiding duplication of work (Ohtake & Childs, 2014). In the specific context of Living Labs, publishing a protocol aims to improve the general methodological quality in the research field since transparency and reproducibility are fundamental tenets of science. To our knowledge, very few Living Labs have been fully transparent and precise about their research processes, governance structure, and evaluation frameworks, which limits the possibility to assess the scientific rigor of Living Labs studies as well as the assurance of generalizability (Bronson et al., 2021). Furthermore, protocol papers are recognized as creative work and have potential contribution in methods development (JMIR, 2023), which is one of the contributions we wish to have with this present paper. We will not report on results of the Living Lab or lessons learned in this paper, as these will be shared in the near future.

More specifically, this paper details

- the research objectives of the Living Lab *Quartier Innovant*.
- the governance structure.
- the logic model.
- the general research approach used in the Living Lab.
- the specific issues addressed by our research team and corresponding research methods used.
- the key characteristics of the Living Lab.
- the funding sources.

3 The Living Lab *Quartier Innovant*

3.1 Research objectives of the Living Lab *Quartier Innovant*

The *Quartier innovant* comprises many research projects with similar overall aim, and therefore is grounded in a research program. The general objective of the research program is to develop an

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innovative neighborhood to promote the social inclusion of older adults. The inclusive neighborhood focuses on health factors, predisposing factors, and structural factors that could serve to improve the social inclusion of older adults in the CDN neighborhood and reduce their social isolation. The specific objectives of the research program are (1) To build a social infrastructure consisting of a close network that includes neighborhood organizations, the research community, and older adults; (2) To identify the specific needs of the community to support social inclusion of older adults; (3) To co-develop pilot innovations; (4) To evaluate each pilot innovation, both in terms of effects and implementation; and (5) To identify the leverage for and obstacles to the implementation of the projects, to make the necessary changes to ensure their sustainability in the neighborhood, and ultimately to replicate the initiatives in other neighborhoods.

3.2 Main and cross-cutting themes addressed in the Living Lab *Quartier Innovant*

The Living Lab focus on fostering an innovative and collaborative neighborhood to promote the social participation and social inclusion of older adults. Other issues will be integrated as the Living Lab takes shape and the network (community, associative, municipal, and scientific) grows. The research program emphasizes three key themes: (1) cognition, (2) communication, and (3) mobility, recognizing their critical role in promoting and fostering social participation and inclusion among older adults (Corrigan et al., 2009; Lamanna et al., 2020; Mousa Garmabi et al., 2023; Palmer et al., 2019). In addition, the research program includes three cross-cutting themes: (1) life trajectories and loneliness; (2) social inclusion; and (3) the impact of socio-economic status on social inclusion. The cross-cutting themes are integrated into each of the three main themes and provide a complementary social and economic perspective on the social inclusion of older adults. Figure 1 illustrates the themes addressed in the Living Lab *Quartier Innovant* and their interactions.

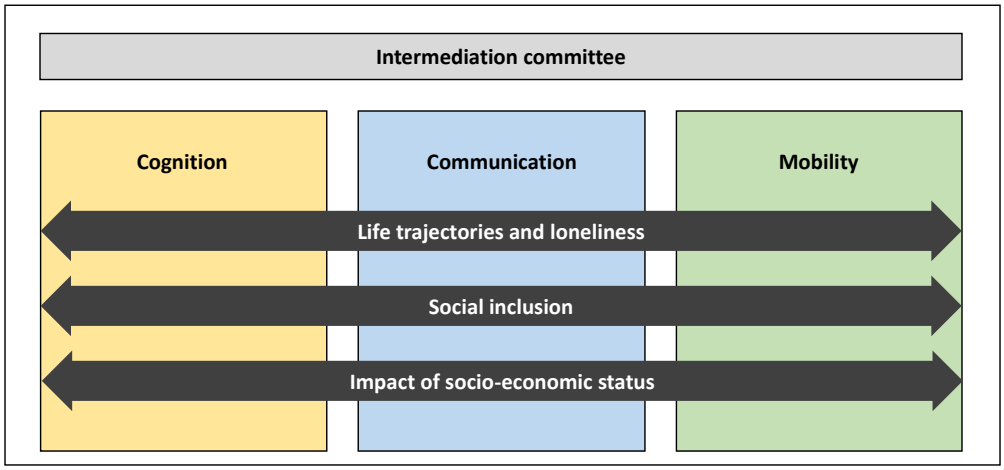

Figure 1. Main and cross-cutting themes addressed in the Living Lab *Quartier Innovant* in order to foster older adults' social inclusion, and their interactions.

3.3 The Living Lab *Quartier Innovant* governance structure

In accordance with our first specific objective, which was to build a social infrastructure, we have set up a governance structure to clarify who does what and how in the Living Lab. Figure 2 illustrates the stakeholders' ecosystem of the Living Lab *Quartier Innovant* and their interrelation

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dynamics. This ecosystem is a combination of stakeholders from the CDN neighborhood (i.e., older adults living in CDN, along with representatives of community organizations, private companies, researchers, and the municipal and associative sectors). In this ecosystem, six working groups contribute to the governance of the Living Lab: a steering committee; an intermediation committee; a scientific committee; and one team for each main theme of the Living Lab (cognition, communication, and mobility). Table 1 shows the composition of these working groups and the level of governance to which they contribute.

Table 1. Governance levels and composition of the Living Lab working groups.

Working group	Composition	Governance levels
Steering committee	2 older adults, 4 community organization representatives, 3 non-profit organization representatives, 3 municipal service representatives, 1 health system representative, 1 corporate representative, 1 representative of a foundation, 1 PhD student, 1 postdoctoral researcher, principal investigator.	Strategic
Scientific committee	Principal investigator, 12 researchers, 1 co-investigator from a non-profit organization with a provincial scope, 1 postdoctoral researcher, 3 PhD students, 4 research professionals	Strategic
Intermediation committee	Principal investigator, 1 postdoctoral researcher, 1 PhD student, 2 research professionals	Tactical
Cognition team	2 researchers, 1 co-investigator from a non-profit organization with a provincial scope, 2 research professionals	Operational
Communication team	4 researchers, 1 research professional, 4 research interns	Operational
Mobility team	2 researchers, 1 postdoctoral researcher, 1 PhD student, 6 MSc students, 4 research interns, 2 research professionals, 5 older adults, 2 representatives from community organizations in CDN	Operational

The governance structure is designed to involve the stakeholders in a way that respects and recognizes their skill sets, resources, availability, and willingness to contribute to the decision-making processes in the Living Lab. Specifically, this governance takes place at three levels: 1) strategic; 2) tactical; 3) and operational. The **strategic level** includes, among other things, setting up the governance model; handling (and securing) funding; creating a Living Lab charter that reflects the values put forward in this research ecosystem; establishing general orientations for the future projects to be developed in the Living Lab; and setting guidelines for business and commercial partnerships (i.e., for public-private collaborations) including intellectual property management. The **tactical level** refers to practices aimed at operationalizing decisions made at the strategic level (e.g., developing model agreements for the management of intellectual property). The tactical level is also mandated to directly support the research and development activities taking place within the three main themes of the Living Lab (e.g., finding design support resources, building relationships with Living Lab partners, representing the Living Lab on the district's older adults roundtable), as well as harmonizing these activities so that they remain in line with the Living Lab's logic model, values, and objectives and ensuring that the timelines are respected. Finally, the **operational level** refers to the decisions that are reached within the

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teams directing the three main themes of the Living Lab (project level) and the cross-cutting themes. These decisions concern, for example, the team composition (e.g., community partners to mobilize, recruitment of research staff or graduate students); the management of an annual budget allocated to them; the most appropriate activities to carry out the codesign workshops; and the knowledge transfer activities to be prioritized. Moreover, since they have the scientific (i.e., researchers) and experiential (i.e., older adults, representatives of community organizations) expertise concerning their focal themes, these teams have full decision-making latitude as to the angle from which they wish to foster social inclusion of older adults in the neighborhood.

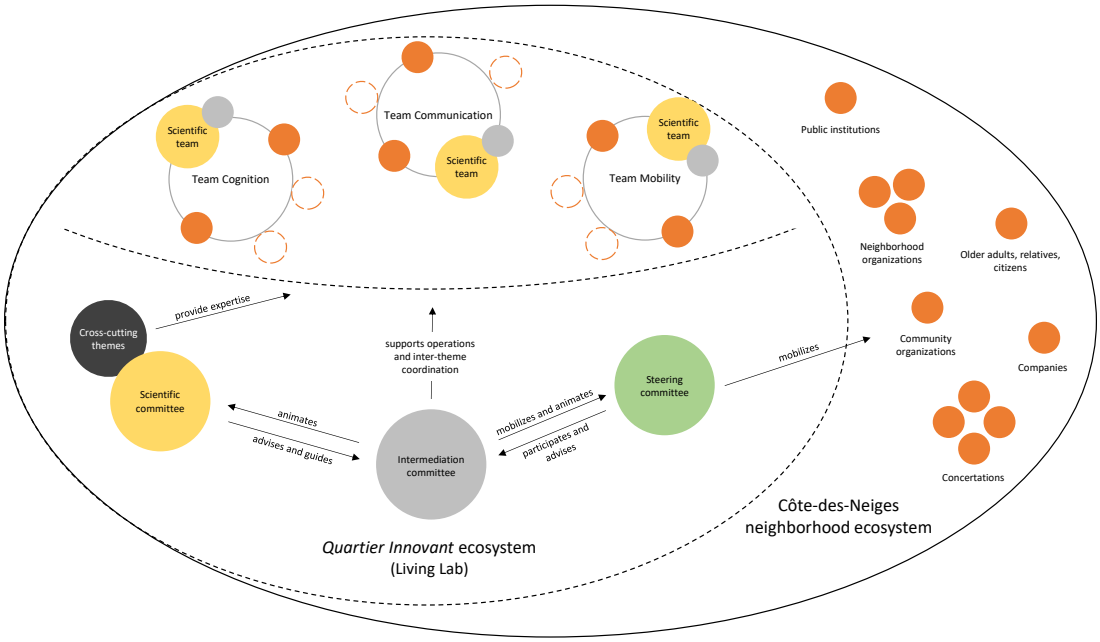

Figure 2. Living Lab *Quartier Innovant* ecosystem and governance model.

The Living Lab ecosystem (dotted circle) is part of the larger ecosystem of the Côte-des-Neiges neighborhood (larger circle with solid line). The Living Lab involves representatives of different categories of stakeholders (in orange in the dotted circle), who participate in Côte-des-Neiges neighborhood life (in orange in the larger circle). Neighborhood stakeholders involved in the Living Lab are integrated into various committees, working groups, and decision-making levels that also include members from academia and service providers. Colors: orange = stakeholders from the neighborhood; light gray = intermediation committee; yellow = academia-scientific committee; dark gray = cross-cutting themes; green = steering committee.

3.4 Living Lab *Quartier Innovant* logic model

To formalize the Living Lab's main activities and outcomes, we developed a logic model (see Figure 3). The creation of a logic model is an important step in evaluating the impacts of a Living Lab (Vervoort et al., 2022). In fact, the logic model illustrates the chains of effects between the activities carried out in the Living Lab to meet the objectives, the outputs, and the effects (intended or achieved) at different points in time (Vervoort et al., 2022). Creating a logic model also helps the team to share and cultivate a common vision of the Living Lab.

The logic model consists of five main levels: 1) research objectives; 2) activities carried out within the Living Lab to meet research objectives; 3) outputs produced in relation to the activities carried out; 4) short-term effects expected for the community partners of the Living Lab, the

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scientific community, and older adults and their relatives according to their involvement/roles in this ecosystem (e.g., short-term effects for older adults codesigning innovations, for those using the innovations developed, and for those contributing to the decision-making processes); and 5) impacts expected for the CDN community and neighborhood.

This logic model is the work product of a three-step process. First, a team consisting of the principal investigator, an expert in the evaluation of service innovations working in a non-profit organization with an innovation capacity-building mission, a PhD candidate, and a postdoctoral researcher involved in the governance of the Living Lab developed a first draft, building on recommendations from the scientific literature on the evaluation of Living Labs (Ballon et al., 2018; Vervoort et al., 2022) and guidance from consultants with expertise in open innovation. Secondly, the draft was presented, discussed, enriched, and refined during a 90-minute online workshop with all Living Lab *Quartier Innovant* researchers. Following this workshop, a third iteration incorporating the comments and ideas received was sent to the researchers for a final validation of the model.

The process of developing the logic model served as a valuable opportunity for the team to align conceptually and make informed choices regarding the definitions of key concepts within our Living Lab. In this regard, Table 2 presents the definitions adopted by our team for social participation, social isolation, social inclusion, and loneliness.

Although the logic model gave a general frame of reference for the Living Lab activities in general, it did not include the specific effects expected for each innovation developed within the themes project and activities. Each theme will develop its own logic model.

Table 2. Definitions of concepts adopted in the Living Lab

Concepts	Definitions and authors
Social participation	Social participation can be defined as a person's involvement in activities providing interactions with others in community life and in important shared spaces, evolving according to available time and resources, and based on the societal context and what individuals want and is meaningful to them. (Levasseur et al., 2022)
Social isolation	Social isolation can be defined as 'a state in which an individual lacks a sense of belonging socially, lacks engagement with others, and has a minimal number of social contacts which are deficient in fulfilling and quality relationships.' (Nicholson, 2009; Fakoya et al., 2020)
Social inclusion	Social inclusion is understood as a process by which efforts are made to ensure equal opportunities for all, regardless of their background, so that they can achieve their full potential in life. (Department of Economic and Social Affairs, 2023)
Loneliness	Loneliness can be defined as a "subjective state based on a person's emotional perception of the number and/or quality of social connections needed in comparison to what is being experienced at the time." (Fakoya et al., 2020)

3.5 General research approach used in the Living Lab *Quartier Innovant*

As the methodological aspects of Living Labs are still poorly documented, there is no consensus to date concerning the "best research methods" to use to evaluate these ecosystems (Hossain et al., 2019; Vervoort et al., 2022). In our Living lab, we use multiple research methods, framed

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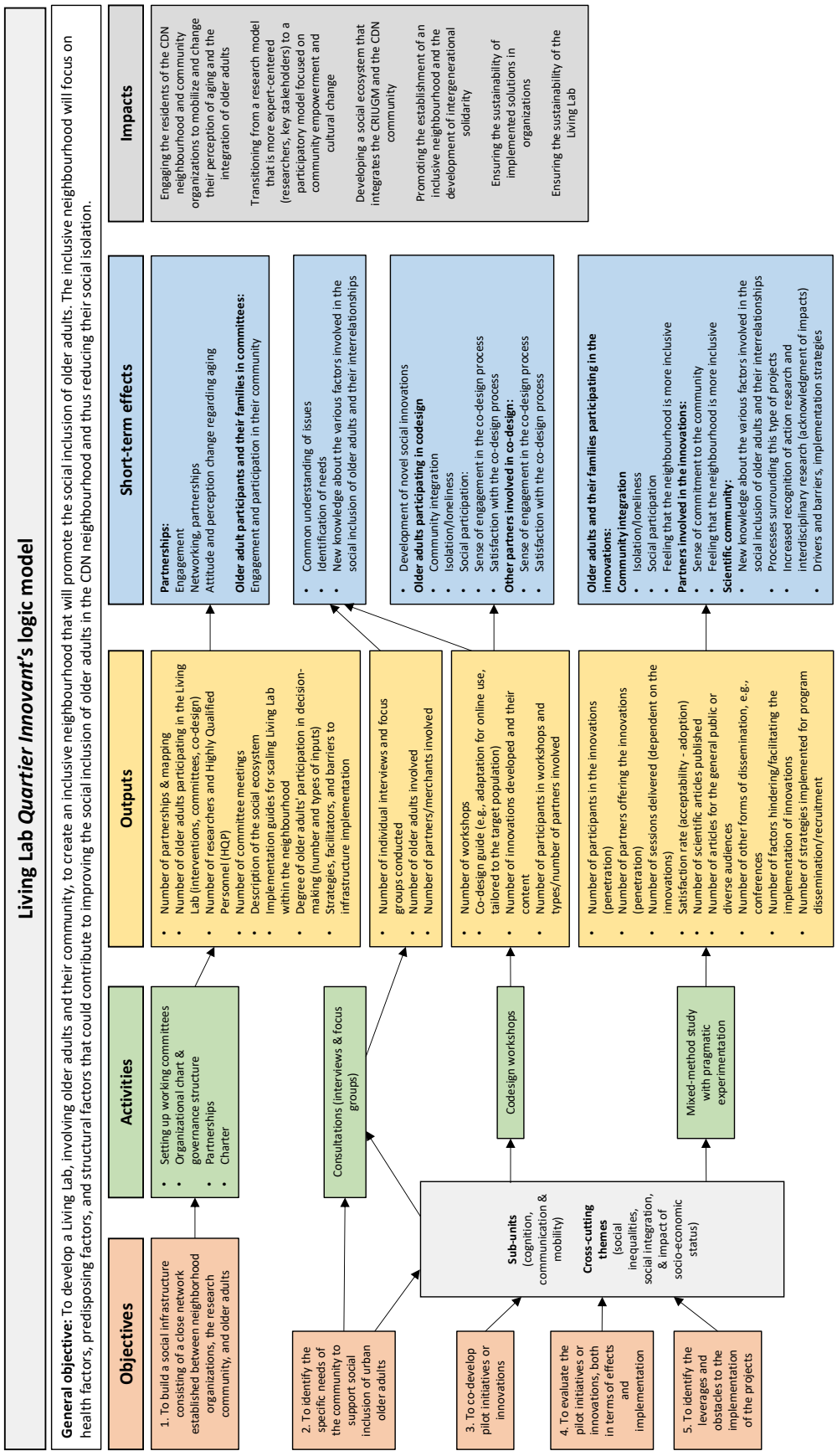

Figure 3. Living Lab *Quartier Innovant* logic model.

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under the larger umbrella of an embedded case study (Yin, 2018). According to Yin (2018, p.15), a case study is "an empirical method that investigates a contemporary phenomenon (the "case") in-depth and within its real-world context, especially when the boundaries between phenomenon and context may not be clearly evident". Considering that our Living Lab is conceptualized as a social infrastructure taking place in a specific neighborhood, encompassing different projects and collaborative knowledge construction, the case study method best suited our specific context. In the context of the CDN neighborhood, our case is the Living Lab ecosystem and its cross-cutting themes. Sub-units of analysis, represented by each main theme, are embedded within the main case (Yin, 2018) (see Figure 4). Each theme is addressed by a working group through one or several research projects (second embedded level). Therefore, we will study the Living Lab as a whole (the case), based on evaluations related to the case and on specific evaluations related to the themes (sub-units 1, 2 & 3) and their respective projects.

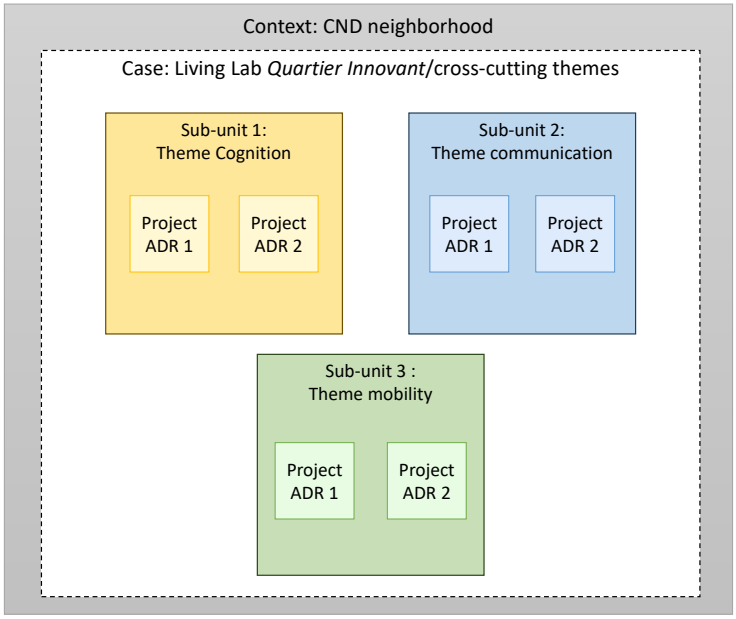

Figure 4. The Living Lab *Quartier Innovant* embedded case study. ADR = action design research.

Each project is specifically based on an action design research methodology, which is a combination of action research and design science (Sein et al., 2011). Action design research is indicated and justified when the project's objectives require a major commitment from the main stakeholders, the co-development and co-planning of an innovation, and the need to follow an iterative process, i.e., improving the innovation as it is implemented in collaboration with all the stakeholders involved (Sein et al., 2011). In this method, field collaborators take an active part in decision-making, the power being shared between the stakeholders in the field and the research team. The aim is to develop innovations "with" people, not "for" people. This method was deemed the most appropriate for structuring the activities envisaged in the Living Lab and respecting our aim to co-construct all innovations.

Action design research includes four iterative steps: 1) formulation and clarification of the problem (answers objective 2); 2) building (co-development of the innovation), intervention (implementation of the innovation), and evaluation of the innovation (answers objectives 3-5); 3) reflection on the process and learning (answers objectives 4 and 5); and 4) formalization of learning (sharing of results with all stakeholders) (Sein et al., 2011).

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To conduct step 2, a human-centered design (HCD) approach was adopted. HCD is rooted in discovering human needs to design solutions (i.e. services, products, etc.) that meet those needs, while considering the complex system in which these solutions are developed (Melles et al., 2021). The system is defined as being composed of many components, namely the microsystem (the human), mesosystem (human in a team or group of people) and macrosystem (human in society) (Dul et al., 2012; Melles et al., 2021; Rasmussen, 2000). We considered that HCD was the best approach to meet our objectives related to codesigning solutions to answer the needs of the older adults and their community, also considering the multi-levels, complex system of the LL. HCD was applied by using a variety of codesign workshops and activities and based on mixed data collection methods such as – but not limited to – semi-structured interviews, focus groups, field observations, and standardized questionnaires.

3.6 Specific theme-related research methods in the Living Lab *Quartier Innovant*

Step 1: Formulation and clarification of the problem. To simplify the process, we conducted a single problem formulation stage for the three main themes combined. As mentioned above, our meeting with the community partners led us to highlight priority needs for older adults of CDN. However, we were unaware of the specific needs that could be targeted regarding the three issues. Therefore, this step was designed to help us better understand these needs and to make them explicit, through focused discussions with community partners, including older adults, representatives of community organizations working with older adults, and municipal services.

A total of seven focus groups were conducted: four groups comprising older adults, two groups with employees from community organizations, and one group with employees from the municipal services. Each group included between three and eight participants, for a total sample size of 37 participants.

Older adults were recruited primarily through CDN community organizations that work with older adults and were already members of the steering committee. A promotional handout poster was created to support committee members in recruiting participants. Relevant individuals to be invited as representatives of community organizations and municipal services were identified by the members of the operational committee. These individuals were then approached by a research coordinator to invite them to participate in the study.

The focus groups took place between November 2019 and March 2020, just before the beginning of the COVID-19 pandemic in Canada. Each group met on one occasion for approximately 2.5 hours, at the Research Centre of the Institut universitaire de gériatrie de Montréal or anywhere else in the neighborhood that was more convenient for the participants (e.g., a common room in a community center). Focus groups were based on a semi-structured interview guide, allowing all aspects of interest to be covered (i.e., social inclusion of older adults and its links to each of the main and cross-cutting themes) and all groups to express themselves freely. Data from each focus group was analyzed using a deductive approach (Miles et al., 2020) designed to highlight the themes to be identified and synthesized by way of a systematic identification process (Paillé & Mucchielli, 2012). Memos including reflections, questioning, synthesis, and team discussions were used throughout the analysis (Miles et al., 2020). The themes were useful to support step 2. Particular attention was devoted to the integration of cross-cutting components during this step. A peer-reviewed scientific article providing further details on the methods and presenting the key results of this stage of the process is available (DeBroux Leduc et al., 2023).

Step 2: Building, intervention, and evaluation: codesign activities within the three main themes. Step 2 aims to co-develop prototypes of services with older adults and community partners

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interested in becoming actively involved in the Living Lab *Quartier innovant*, to evaluate the prototypes of innovations, and to enrich them when necessary. Whenever possible, these prototypes are grounded in scientific evidence. Parallel co-development processes for these prototypes are currently being carried out by the teams focused on the three main components of the Living Lab, i.e., cognition, communication, and mobility. As mentioned, these teams use a HCD approach, featuring a plurality of co-creation activities and/or workshops (Chevalier et al., 2013; Lallemand & Gronier, 2016). Within the HCD approach, we have more specifically chosen Brown's (2008) Design Thinking framework to foster creativity, collaboration, and iterative development, as it is one of the most recognized frameworks in the field. It encompasses five stages: empathize, define, ideate, prototype, and test (Brown, 2008).

Meetings with partners or among members of the project teams are taking place in person or via a secure virtual application (e.g., Zoom). All these meetings were conducted after the start of the COVID-19 pandemic while adhering to the prevailing (and often shifting) public health guidelines. To develop the human-centered design capacities of the project teams, all researchers and team members of the main components of the Living Lab are receiving project-specific coaching and training by experts from the Maison de l'Innovation Sociale (MIS) and the Meilleur Monde design studio. This includes support in determining the best codesign activities to carry out according to the types of participants expected (e.g., older adults or representatives of a community organization) and the objectives to be achieved. The teams have also received support from these experts in the preparation of the activities and in their completion. As an example, Table 3 provides an overview the human-centered activities conducted in the Living Lab.

It is expected that the prototypes, once validated and tested, will become sustainable full-service programs implemented in CDN by one or several community partners. Hence, during the implementation stage, specific collaborations with potential partners will be put in place and concrete strategies to offer the services to CDN residents will be identified.

Step 3: Reflection and learning within the theme-based projects. After testing the prototypes, the teams reflect on the results and another iteration of the prototypes is piloted or the human-centered design process is terminated, depending on the results obtained. This process of reflection and learning is conducted in close collaboration with Living Lab partners from each of the main theme-based teams.

Step 4: Formalization of learning. The last stage of action design research aims to formalize what has been learned and progress made during the project implementation. This step will be conducted within each theme-based working group.

3.7 Postmortem on the Living Lab activities

At the end of the first cycle of funding for our activities (started in 2019; expected to terminate in May 2024), we aim to formalize the learning and progress of the Living Lab. More precisely, we will identify, with the steering committee, the facilitators for and obstacles to project realization and to the deployment of the *Quartier Innovant* as a whole; the strengths and limitations of the approach used; and the themes that could be addressed in the future. With the partner organizations, we would also like to plan a continuation of the projects, for example, by applying for funding to support the organizations in implementing larger scale, sustainable projects (Living Lab phase 2).

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Table 3. Example of codesign activities in the *Quartier Innovant*

Design Thinking phase	Goals	Activities
Empathize	- Identify the specific needs of older people with regard to cognition, communication, and mobility - Explore innovative ways to meet these needs	Semi-structured interviews with older adults (by phone) and benchmarking exercise of evidence-based solutions to promote older adults' social participation
Empathize	- Illustrate key findings from the semi-structured interviews	Observations and photography in the neighborhood
Define	- Data validation from the semi-structured interviews - Prioritize neighborhood issues	Virtual participatory workshop with older adults and representatives of community organizations (discussions, prioritization activities, and roundtables)
Ideate	- Ideation around potential solutions that integrate the needs of older adults and the community organizations supporting them	Virtual participatory workshop involving members of the research team: 1. Discussions and roundtables on potential solutions that would respond to the needs of older adults 2. Drafting of summary sheets that introduce these potential solutions to older adults
Ideate	- Specify the solution format preferred by older adults (i.e., thinking about the Who; Where; What; Why; How) - Think about the next workshop to ease the transition to the prototyping phase	Virtual participatory codesign workshop (discussions, prioritization activities, roundtables, and thinking out loud sessions)
Prototype	- Ensure that the purpose of the project is understood by all to help formulate common goals Discuss in depth the parameters of the innovation to be developed - Explore the operationalization of the proposed solution and deployment in the neighborhood	- Presential participatory workshop - Storytelling and discussions
Test	- Deploy the prototyped innovation in the neighborhood - Test and refine the material developed	- *Cognition*: online training workshops on neurocognitive disorders; a program of cultural and artistic activities to promote cognitive health - *Communication*: training workshops (coffee meetings) on hearing and communication disorders; intergenerational second-language learning program - *Mobility*: Mobility Fair for older adults; virtual falls prevention program for older adults living in low-income housing

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3.8 Evaluation practices within the Living Lab

The evaluation practices in the Living Lab are oriented toward four levels of activity, structured around our embedded case study framework and its complex system. In our formulation of activity levels, we were inspired by Schuurman's (2015) Living Lab three layer model, based on Bronfenbrenner's (1979) ecological model, to which we have added a fourth layer: 1) microsystem, the project's co-creation activity level; 2) mesosystem, the project's service level; 3) exosystem, the sub-unit thematic level; and 4) macrosystem, the case level, i.e. the Living Lab. The Bronfenbrenner's ecological model also fits with the HCD approach, that recognized the complex, multi-levels systems in which solutions are designed and implemented (Dul et al., 2012; Melles et al., 2021; Rasmussen, 2000). Although many evaluation frameworks have been suggested for evaluating Living Labs (see Bronson et al., 2021, for a recent review), we chose the one that best fitted our context.

Examples of the evaluation practices are presented in Table 4. For each level, we have focused on four evaluation goals, i.e. accountability, process quality improvement, benefices, and impacts (long-term, broader benefices). Clearly dividing up the evaluation objectives helped distinguish between what was part of the Living Lab's internal processes (accountability, process quality improvement) and what was part of its external outputs (benefices and impact) (Bronson et al., 2021). We will document each level with standardized questionnaires, surveys, and interviews. For the macrosystem level, we will also combine the evaluation results from the other levels (embedded sub-units), to identify common and divergent elements. Quality improvement, benefices and impact assessments are rooted in our logic model.

Table 4. Example of the Living Lab *Quartier Innovant* evaluation practices.

Levels	Components	Evaluative aims and outcomes examples			
		Accountability	Process quality improvement	Benefices	Impacts
Macrosystem Case level	Social infrastructure, *Quartier Innovant* governance practices	Number of partners in the Living Lab as a whole	Quality of the engagement processes as perceived by stakeholders involved in the Living Lab	Development of competences in action design research in the Living Lab	Change in perception of the neighborhood towards aging and social inclusion of older adults Recognition of the research center as a community partner
Exosystem Sub-units, themes level	Component governance practices	Number of meetings with partners in the theme	Quality of the engagement processes as perceived by stakeholders involved in a theme	Development of competences in HCD in each theme	

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Levels	Components	Evaluative aims and outcomes examples			
		Accountability	Process quality improvement	Benefices	Impacts
Mesosystem Sub-units, level of services developed by projects	Services or innovations developed	Number of persons receiving the innovative service	Relevance of the services, facilitators, and obstacles to implementation	Efficacy of the service to decrease fear of falling and improve social participation of older adults in the neighborhood, pre-post (Mobility theme)	
Microsystem Project level, in terms of methodology	Codesign process, collaborative methods	Number of codesign activities and stakeholders taking parts in it	Quality of the codesign processes as perceived by stakeholders involved in a project	Effect of engagement processes on stakeholders Example: Effect on the perceived level of engagement in one's community	

3.9 Key characteristics of the *Quartier Innovant*

When the Living Lab was initiated, emphasis was placed on defining its basic components to enable comparisons with other Living Labs. Based on different definitions of Living Labs (Ballon et al., 2018; Dubé et al., 2014; Leminen, 2013; Veeckman et al., 2013), the following paragraph lists the main elements that characterize our Living Lab.

- Living Lab *Quartier Innovant* is an ecosystem, not a "method." We consider it to be a platform and more specifically a form of social infrastructure.

- Living Lab *Quartier Innovant* includes several categories of partners:
  - Facilitators: research team
  - Users: community and municipal organizations
  - Final users: older adults
  - Service providers: social innovation experts; service design firm

- Living Lab *Quartier Innovant* does not involve a single physical location; it is decentralized, diffuse and situated on a territorial scale.

- It has a short-term (project and theme levels) and long-term (Living Lab level) focus and aims to conduct multiple cycles of codesign and infrastructure development.

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- Multiple research methods and conceptual frameworks are put forward to support its research activities.

- Living Lab *Quartier Innovant* is composed of multiple project cells designed to co-create services accessible to older CDN residents.

The identification of the key characteristics our Living Labs was done by using Hossain et al. (2019) literature review. This review identified the "required" characteristics of a Living Lab, i.e. the main components that should be found in Living Labs to be identified as so. Table 5 presents an overview of how our Living Lab aligns with or diverges from these various components. Certain components, notably concerning the business model and sustainability, are currently lacking in our Living Lab. However, as we approach the conclusion of phase one (2019-2024), our goal is to address these elements in an upcoming phase two of the Living Lab (2024-2029).

Table 5. Example of the Living Lab *Quartier Innovant* evaluation practices.

Key characteristics of a Living Lab	Living Lab *Quartier Innovant*
Real-life environments	Yes
Multiple stakeholders	Yes
Innovation activities	Yes
Methods, tools, and approaches	Yes
Challenges*	Yes
Outcomes	Yes
Business model and networks	No
Sustainability	Somewhat

* Temporality, governance, unforeseen outcomes, efficiency, recruitment of user group(s), and scalability

3.10 Funding sources

The Living Lab *Quartier Innovant* received funding for a preliminary phase, obtained in 2017 through an internal fund of the Research Centre of the Institut universitaire de gériatrie de Montréal. This funding facilitated deliberations concerning the cognition, mobility, and communication themes and triggered reflections on how to collaborate with the community on these topics through initial meetings with many community members (autumn 2018). A second internal grant from the Université de Montréal in 2019 allowed us to set up the research team and carry out the first stage of action design research (problem formulation). Subsequently, the Living Lab received funding for the other stages, spanning the 2019 to 2023 period, through a grant from the *Fonds de recherche du Québec – Santé*. During this phase, some sub-unit teams sought additional funding to develop unforeseen supplementary initiatives within the *Quartier Innovant*.

Numerous summer research interns and graduate students, along with a postdoctoral researcher, received training grants from local, provincial, and/or national funding agencies to contribute to projects within our Living Lab. They also received knowledge transfer grants to promote the dissemination of knowledge generated within the *Quartier Innovant*.

The quality and quantity of funding has enabled the Living Lab to become well established and to contemplate the next phase of activities.

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4 Discussion

The primary focus of this protocol paper was to outline the key characteristics and the research agenda of the Living Lab *Quartier Innovant*. Our Living Lab is an ecosystem viewed as a platform or a form of social infrastructure. It encompasses various partners, including facilitators (research team); users (community and municipal organizations); final users (older adults); and service providers (social innovation experts; service design firm). Operating on a territorial scale without a single physical location, the Living Lab has both short-term (projects and thematic levels) and long-term (Living Lab level) objectives, engaging in iterative cycles of codesign and infrastructure development. We apply multiple research methods and conceptual frameworks to support research activities that consist of multiple project cells dedicated to co-creating accessible services to meet the needs of older CDN residents.

By sharing these methodological details, our intention is to contribute to the field of Living Lab research by promoting transparency in our methodological choices, inviting reviews, and fostering a culture of continuous improvement in the Living Lab field of research. Specifically, this article provides a comprehensive overview of the research objectives, logic model, governance structure, general research approach, specific research methods, funding sources, and key characteristics that define the Living Lab *Quartier Innovant*.

Many of our methodological choices are in line with what is used in the field to date. For example, Bronson et al. (2021), in their review of evaluation methods employed in Living Labs, identified the case study as well as "action research" as the most commonly used methodologies. While these methods align closely with the conceptualization of a Living Lab as an ecosystem of partners that collaborate to co-develop innovative solutions in a specific context (Bronson et al., 2021; Schuurman et al., 2016), one drawback is their potential limitation on result generalizability (Bronson et al., 2021). However, even if there is a need in the field to compare Living Labs with each other to increase their credibility and impact (Ballon et al., 2018), it's crucial to acknowledge that the essence of a Living Lab lies in its integration within a specific ecosystem with particular needs. Generalization of results is rarely an expected goal. Scientific processes may however be generalized if explicitly reported, critically assessed and compared (Ballon et al., 2018). This protocol paper is a first step in that direction.

Another methodological choice in our Living Lab was to mainly rely on qualitative data collection. This is also the case for the majority of Living Labs reviewed in Bronson et al. (2021) study. One of the reasons for relying of qualitative data in our research program was the complexity of the different levels of our activities as well as a need to evaluate the Living Lab processes, benefices and impacts from the stakeholders' perspectives. In the future, we hope to increase the use of quantitative data to document our living lab in a more holistic way.

The present protocol paper also provides an opportunity to explore the application of various classification models and conceptual frameworks in describing our Living Lab characteristics and research agenda, such as main Living Lab characteristics review provided by Hossain et al. (2019). To our knowledge, very few Living Labs have described with such details the application of different models and conceptual frameworks to support their work. By using them to enhance the rigor and transparency, our goal is to enrich our understanding and representation of the unique characteristics of our Living Lab so as to allow for future comparison with others. Through our experience with these tools, we can gain insight into their applicability in capturing the diverse aspects of a Living Lab environment. While we found the tools to be valuable in categorizing and describing our practices and ecosystem, their primary drawback was the absence of clear guidance on how to operationalize them, particularly in terms of evaluative practices. Evaluative practices

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in Living Labs certainly require a case-by-case approach as regards the choice of indicators. More formal frameworks would, however, help to ensure that Living Labs are assessing the broader impacts of their activities and not just those of the innovation or service developed (Bouwma et al., 2022; Bronson et al., 2021). Evaluating broader impacts, such as the scientific added value of a Living Lab when compared to more classical research activities, would also help determine whether large investments in these infrastructures are justified. Some initiatives, such as the Vitalise project (https://vitalise-project.eu/), as well as more publications on evaluative methods conducted in Living Labs, will contribute to the broader discussion on Living Lab methods and impacts, allowing the field to move forward.

While our choice of models and conceptual frameworks was supported by the nature of our Living Lab, its objectives and values, they may not give us a complete picture of our Living Lab's impact at this stage. Indeed, some evaluation frameworks are more holistic than the ones we chose or have more focus on political and economic impacts as well as sustainability indicators (for example, see Bouwma et al., 2022, or Beaudoin et al., 2022), but seemed difficult to apply at this stage of our Living Lab's maturity level. Moreover, there is no consensus as to which frameworks should be universally applicable across all Living Lab contexts (Bronson et al., 2021). In the future, we hope to engage in a second cycle of our Living Lab and go beyond our actual indicators to attain clearer macrosystem impacts.

Using the available tools to describe and classify our Living Lab also had the effect of helping us identify other limitations of our research agenda, beyond the evaluation indicators. For example, the list of published Living Lab characteristics provided by Hossain et al. (2019) has allowed us to identify our lack of a clear business plan for the continuation of the Living Lab. It has also highlighted the low level of private-sector involvement, which could support rapid and active development activities in the Living Lab, while fostering the implementation of sustainable services or solutions developed by the Living Lab ecosystem. In describing our governance structure, we realized that some scientific choices (such as the logic model) were not always discussed and validated by the Living Lab's ecosystem, perhaps due to a lack of reflex to consult nonacademic partners on issues that appeared complex to us. This formalization of our processes has led us to reflect on our practices and provides guidance on how and where we should improve during the next Living Lab phase.

In conclusion, this paper provides an overview of our Living Lab *Quartier Innovant* designed to improve social inclusion of older adults. By doing so, we hope to contribute to a collective effort aiming to promote transparency, comparability, and collaboration in the field of Living Lab research, ultimately triggering progress and fostering innovation within the Living Lab community.

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Biographies

Nathalie Bier. Nathalie Bier is Full Professor of occupational therapy at the Université de Montréal. She is also a Researcher at the Research Center of the Institut universitaire de gériatrie de Montréal and its Associate Scientific Director. The main goal of Nathalie Bier's research program is to better understand the impact of cognitive deficits in aging and dementia on everyday function, as well as to develop non-pharmacological approaches to promote aging in place – such as the use of cognitive rehabilitation, eHealth and community mobilization. Her work is carried out using collaborative research approaches, such as action design research and living labs.

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CRediT Statement: Conceptualization, Funding acquisition, Methodology, Project administration, Supervision, Writing – original draft

Samuel Turcotte. Pr. Turcotte is a trained occupational therapist and an Assistant Professor at the School of Rehabilitation Sciences at Université Laval (Québec, Canada). His research interests focus on health promotion and supporting the social participation of individuals aging with disabilities. He is also interested in the inclusion of diversity in social and health services, as well as intergenerational solidarity. He prioritizes participatory, qualitative, and co-design methods in partnership with community organizations and advocacy groups.

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CRediT Statement: Conceptualization, Project administration, Writing – original draft

Roxane DeBroux Leduc. Roxane DeBroux Leduc is a doctoral student in rehabilitation sciences at the Université de Montréal, under the supervision of Johanne Filiatrault, Ph. D., and Nathalie Bier, Ph. D. She holds a professional master's degree in occupational therapy and a graduate certificate in public health from the Université de Montréal. Her research interests focus on the prevention and health promotion among older adults, including ways to promote their social participation and enhance their mobility. She has a strong interest in community development and participatory approaches, particularly action research and design methods. She has been the coordinator of the Living Lab Quartier Innovant since its inception in 2018.

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CRediT Statement: Conceptualization, Project administration, Funding acquisition, Writing – original draft

Raphael D. Guyard. Raphaël Guyard works as a senior advisor in the strategic support team of La Maison de l'innovation sociale, a non-for-profit organization whose mission is to act on the obstacles faced by innovative projects aiming for a fair and inclusive socio-ecological transition. Holder of a bachelor's degree in product design and a master's degree in design research from Université Laval's School of Design, Raphaël is a PhD student in the Department of Design at École de Technologie Supérieure de Montréal (ÉTS). He has a particular interest in the effects of innovation laboratories for strengthening critical and creative thinking, both at individual and collective levels, within organizations.

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CRediT Statement: Conceptualization, Methodology, Writing – original draft

Mélanie Couture. Mélanie Couture, PhD, is the current chairholder of the Research Chair on Older Adult Mistreatment and Associate Professor at the School of Social Work, Université de Sherbrooke. She has worked as a Researcher in social gerontology for more than a decade. Her research promotes the co-construction and integration of clinical and organizational innovations for the prevention and management of mistreatment situations in the context of caregiving, common living environments and in the use of technologies for aging in place.

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CRediT Statement: Conceptualization, Funding acquisition, Writing – review &editing

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Ana Inés Ansaldo. Ana Inés Ansaldo is Full Professor at the School of Speech-Language Pathology and Audiology, at Université de Montréal, and Director of the Neuroplasticity, Communication and Aging Lab, at the Research Center of the Institut universitaire de gériatrie de Montréal. She is internationally recognized for her work on communication and aging, both impaired and healthy aging populations. Specifically, she studies in neuroplasticity mechanisms underlying language recovery following stroke using fMRI and functional connectivity methods, and the develops evidence-based interventions to address communication impairments in the context of post-stroke aphasia, and dementia. Thus, Prof. Ansaldo has developed the COMPAs App - whose efficacy to support communication in the continuum of dementia care has been proven- as well as training programs addressing family and professional caregivers of persons living with communication impairments. She leads an intersectoral team working on the effects of screen content on persons with dementia, and on using such content as a therapeutic tool for managing behavioral and psychological symptoms of dementia.
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Patricia Belchior. Patricia Belchior is an Associate Professor at the School of Physical and Occupational Therapy at McGill University and a Lab Director at the Research Center of the Institut universitaire de gériatrie de Montréal. The overall goal of her current research is to promote aging well in the community, particularly for older adults living with neurocognitive disorders and their family members. Her research areas include the development of occupational-based programs in the community, the use of technology to promote aging in place, and the impact of age stigma on the lives of older adults. She has a growing interest in a participatory research approach to better align her research interests with what really matters to the community.
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Nouha Ben Gaied. Ms. Ben Gaied holds a PhD in organic chemistry from the University of Strasbourg (France), which she completed with a post-doctoral internship at Southampton University (UK) before taking up the position of Production Supervisor at Sigma-Aldrich. Since then, she has been involved for over 10 years with the Fédération québécoise des Sociétés Alzheimer, as Director of Research and Development, which has given her in-depth knowledge of the reality of people living with a major neurocognitive disorder and their caregivers. Her expertise and skills in communications, government relations, program and service development, as well as her spirit of entrepreneurship and innovation, give her in-depth knowledge of the major issues surrounding the aging population. Since September 2023, Dr. Ben Gaied is the Executive Director of the Berthiaume-Du Tremblay Foundation, where she continues to work for the well-being of seniors.
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Sophie Chesneau. Sophie Chesneau is a speech and language pathologist. She completed a master's degree in linguistics and another in neuropsycholinguistics, and finally earned a doctorate from the University of Montreal. Her research focuses on communication in typical and pathological ageing. She is now Associate Professor and Head of the Speech-language pathology Department at the Université du Québec à Trois-Rivières.
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Johanne Filiatrault. Trained as an occupational therapist, Johanne Filiatrault is a Full Professor at the Université de Montréal's School of Rehabilitation and a Researcher at the Research Center of the Institut universitaire de gériatrie de Montréal. Her research focus on the development and evaluation of preventive and health promotion interventions for older adults. In addition to her expertise in the field of older adults' mobility and falls prevention, an important part of her research focus on intergenerational activities, as promising strategies to promote active aging and combat ageism. Her research program is mostly based on participatory research methods, which emphasize the value of combining scientific expertise with that of key community stakeholders and older adults to produce sustainable solutions to the challenges faced by the elderly in their daily lives.

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Raquel Fonseca. Raquel Fonseca is a Full Professor and Head of the Economics Department at Université du Québec à Montréal (ESG-UQAM). She holds the Research Chair on Intergenerational Economics (www.creei.ca) and is a Fellow at CIRANO. As a Researcher and Laboratory Director at the Research Center of the Institut universitaire de gériatrie de Montréal, her research focuses on aging, labor markets, inequality, and the interaction between health, savings, and retirement over the life cycle. She has published in journals like the Journal of Political Economy, Journal of European Economic Association, and Health Economics. Dr. Fonseca has extensive experience with programming and handling microdata on aging and health. Her research is funded by the NIH, SSRHC, the French National Research Agency, and FRQSC. Dr. Fonseca holds a Ph.D. in Economics from Université catholique de Louvain (UCL) and attended the European Doctoral Program at CORE-UCL, Belgium, 2002.
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Gonia Jarema. Gonia Jarema is a leading figure in the field of psychoneurolinguistics. Her main research interests are the cognitive processes underlying lexical comprehension and production, and the language disturbances associated with aphasia. She has been attached to the Department of Linguistics and Translation at the Université de Montréal since 1980. As a Researcher at the Research Center of the Institut universitaire de gériatrie de Montréal, she heads the mental lexicon laboratory. Professor Jarema has had a major influence on the evolution of psychoneurolinguistics, notably by launching a biennial conference, The International Conference on the Mental Lexicon, and by founding the international journal The Mental Lexicon. She has published 6 books, numerous book chapters and articles, and edited 18 special journal issues. Proof of the quality of her work is the fact that her entire research career has been supported by major funding agencies. Gonia Jarema is a Fellow of the Royal Society of Canada and of the prestigious Academy of Aphasia. She is presently Professor Emerita at the Universite de Montreal. Professor Jarema has trained numerous cohorts of students, many of whom now hold professorships at renowned universities.
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CRediT Statement: Conceptualization, Writing – review &editing

Adriana B.M. Lacerda. Dr. Lacerda is a specialist in audiology in the field of hearing health promotion, hearing loss prevention, and audiological diagnosis in the life course. She has collaborated on several projects and currently supervises masters and doctoral students. Her experience in the field of older adults' hearing health has led to the implementation of several research projects. Her research brings a unique dimension to audiology research, namely hearing health from a health promotion perspective. It is intersectoral, touching on the psychosocial aspects of hearing disorders associated with loss of activities of daily living, but also on the advanced interventions in promotion, prevention and rehabilitation in audiology and social geriatrics. Her research has the goal of 1) promoting social participation and break the isolation of seniors, 2) reducing the stigma associated with ageism and other related disorders affecting communication, 3) improving the quality of services rendered to geriatric clients. She is a member of the Research Center of the Institut universitaire de gériatrie de Montréal and Co-Titular of the Chair of the Fondation de recherche Caroline Durand en audition et vieillissement since November 2021.
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Jacqueline Rousseau. Jacqueline Rousseau, Ph.D, is an occupational therapist. She practiced as a clinician for almost 10 years. She is currently a Full Professor at the School of rehabilitation, Université de Montréal, and a Lab Director at the Research center of the Institut universitaire de gériatrie de Montréal. Author of the Model of Competence explaining the Person-Environment Interaction, her research interests focus on Aging-in-Place. Her projects are related to the development of assessment tools, accessibility (home adaptation, universal design), and technology to promote social inclusion. She is also a regular member of the Quebec Network for Research on Aging.
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Sylvie Belleville. Sylvie Belleville is Full Professor at the Psychology Department of Université de Montréal, Researcher at the Research Center of the Institut Universitaire de Gériatrie de Montréal, Scientific Director of the Réseau Québécois de Recherche sur le Vieillissement and member of the Ministerial Advisory Board on Dementia of the Public Health Agency of Canada. She is recognized for her work in the area of cognitive training for older adults and persons at risk of dementia and on the prevention of age-related cognitive decline. She identified processes of compensation and plasticity in mild cognitive impairment using brain imaging techniques. She also developed an important research program on the neuropsychology of memory in aging and dementia and has contributed to a better understanding of the neuropsychological deficits found in persons with very early signs of Alzheimer's disease or mild cognitive impairment. She published more than 250 peer-reviewed articles and holds a Tier 1 Canada Research Chair on the Cognitive Neuroscience of Aging and Brain Plasticity.
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