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## Experimenting the Sustainability Transition in Montreal Laneways The *Nos milieux de vie!* Case Study

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### *Abstract*

Climate change results from persistent problems, the solving of which calls for innovative approaches. Transition experiments attempt to do just that. The goal of this paper is to present the experimentation project *Nos milieux de vie!*, carried out in Montreal by the non-profit organization Solon and the UQAM Research Chair on Sustainability Transitions, as well as to elucidate the results obtained during the first phases of the project and the methodological adaptations made over the course of the transition experiments. Our descriptions of the *Nos milieux de vie!* project alongside a presentation of results achieved one year into the project have allowed us to identify four principal learnings concerning the crucial role of Solon as a mediator; the existence of diverse temporalities within the project; the importance of adapting to the demands and needs of participants; and the existence of social drivers of sustainability transitions.

*Keywords:* climate change; sustainability transition; experimentation; action research

### *Résumé*

Les changements climatiques découlent de problèmes persistants qui impliquent d'innover dans les manières de les aborder. Les expérimentations de transition représentent des tentatives en ce sens. L'objectif de cet article est de présenter le projet d'expérimentation *Nos milieux de vie!* mené à Montréal avec l'organisme Solon, afin de rendre compte des apprentissages acquis lors des premières phases du projet et des adaptations méthodologiques effectuées au cours des expérimentations de transition auxquelles ces projets ont donné lieu. Les explications de la démarche du projet *Nos milieux de vie!* et la présentation des résultats de la première année permettent d'identifier quatre apprentissages principaux : le rôle crucial de Solon comme organisme de médiation, l'existence de temporalités diverses au sein du projet, l'importance de s'adapter aux demandes et aux besoins des participants, et l'existence de déterminants sociaux de la transition écologique.

*Mots clés :* changements climatiques; transition écologique; expérimentation; recherche-action; durabilité

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## Introduction

The emergence of environmental issues on the public agenda in the 1960s quickly generated interest in social organization at the local level. Approaches such as social ecology, for example, highlighted the need to rethink our sense of community and reduce our dependence on natural and energy resources, the exploitation of which generates ecological crises. However, although experiments were carried out at the time, this localism was considered a radical ideology, driven by a militant fringe of the green movement and countered by the political and economic elites with the conviction (equally ideological) that ecological modernization based largely on technology and the market could address ecological problems.

Today, we are seeing a revived interest in the potential of local intervention, this time underscoring the complex, persistent and ambiguous aspects of environmental problems. These problems exist on several levels, involve multiple actors and have social, economic, political, ecological, spatial and other ramifications (Kemp and Loorbach 2006). This renewed focus on local energies is also important in the fight against climate change, in which institutional routines and patterns have proven incapable of engendering any significant reduction in greenhouse gas emissions (GHGs) or other sustainable alternatives (Voß and Kemp 2006). For this reason, sustainability transition projects seek solutions outside established frameworks and are based in part on what are known as experimentations—in other words, participatory and iterative processes organized at the local level which bring together heterogeneous actors in the search for and implementation of climate or sustainability solutions (Hodson et al. 2017). These experiments generate many methodological and theoretical questions, among them the following two, to be addressed in this paper. First, what new knowledge about social and sustainability transformations can be acquired through these experiments? And second, how might we organize and adapt experimentation processes according to contexts in order to maximize the results?

The objective of this article is to present one such experimentation project, the *Nos milieu de vie !*, or NMV, project, which has been underway in Montreal since the fall of 2016, and to describe its methodology and the main learnings acquired during its first phases. The NMV project, a collaboration among the non-profit organization Solon, researchers from the UQAM Research Chair on Sustainability Transitions, and several community and social economy partners, proposes an approach to co-constructing local collective solutions to combat climate change in two so-called living environments (an analysis and intervention unit to be defined below) in the Rosemont-La-Petite-Patrie district. It aims to mobilize and support residents and stakeholders in these two living environments in order to identify collective solutions that reduce GHGs in the areas of energy and mobility, and to develop the capacity to implement them.

The article is divided into three sections. In the first section, we lay the theoretical and methodological foundations of the transition experimentation approach, outlining in particular the phases of its implementation. In the second section, we report on the first two phases of the NMV project and their preliminary results. In the third section, we return to the analysis of the lessons learned since the beginning of the project and we address the two questions posed above.

## The transition and its experiments

In recent years, the theme of experimentation in the fight against climate change has emerged in several different research fields simultaneously. Hence, the theme might refer to urban experiments (Caprotti and Cowley 2017), to climate governance experiments (Kivimaa et al. 2017) or to transition experiments (Luederitz et al. 2017), depending on the context. Therefore, establishing a definition of experimentation is not easy. In some cases, attempts to define experimentation are based on general criteria. Matschoss and Heiskanen (2017), for example, identify three main criteria for describing what experiments do: they aggregate learnings; they deviate from existing practices within the experimental context; and they generate impacts outside the experimental context. Similarly, Sengers, Wieczorek and Raven (2016) distinguish three objectives of these experiments: deepening, which aims to recognize the conditions of collective learning in a given context; broadening, which consists in creating a network of partners for sharing knowledge around an experiment and, possibly, its reproduction in a new context; and finally, scaling up, which involves using experiments as levers to influence a broader context. Kivimaa et al. (2017), for their part, do not propose a definition but rather a typology of four experiments according to their field of action: the creation of technological niches at the local level; the creation of markets at the regional or national level; spatial development and the use of space and territories; and solutions to social problems.

Despite these efforts to describe experimentation, some authors conclude that these definitions remain vague and unclear (Hodson et al. 2017). One of the difficulties lies in the heterogeneity of the phenomenon to the extent that a variety of actors are involved in these transformation projects, which target several sectors or scales of action and which develop in more or less formal and institutionalized networks, depending on the case. After all, it is safe to assume that social movements, cities and many social actors have always been experimenting with new solutions to the problems they face, including ecological problems.

In the absence of a formal definition of experimentation, however, two general observations can be made on the subject. First, the organization of experiments is often prompted by the motivation to learn about change. These experiments are thus recognized as having the merit of leading the sustainability transition concretely and on variable scales, and of teaching “by doing” in a context of uncertainty and ambiguity that is characteristic of persistent problems (Kemp and Loorbach 2006; Luederitz et al. 2017). Second, when an experiment offers conclusive results, it is reasonable to assume that these results can be transferred to other contexts and can lead to broader, more structural transformations of the social organization. This is where the theoretical framework of sustainability transitions and its particular approach to experimentation (Audet 2015; Grin et al. 2010), favoured in the NMV project, come in.

Indeed, not all experimentation approaches refer explicitly to a theory of change. Transition experiments are particular in this respect, since they follow above all a method co-developed with the research community and inspired by the field of sustainability transitions, especially its multi-level perspective on socio-technical transitions (Grin et al. 2010). According to the multi-level perspective (MLP), transitions are understood as radical transformations of socio-technical configurations that take place over several decades. The MLP describes these configurations as the organization of three distinct but interdependent levels of structuring: socio-technical regimes, innovation niches and the socio-technical landscape. It is through the complex, non-linear and co-evolving interactions among these three levels that transitions occur.

The concept of a socio-technical regime is at the heart of the analysis of transitions, since it refers to networks and arrangements of actors, rules and resources that impose a certain mode of functioning on socio-technical systems such as the energy, mobility and agri-food sectors. Although so-called incremental innovations have their own operating logic, these regimes are largely locked in and hinder the emergence of divergent innovations. Thus, insofar as it inspires a certain radicality and brings about a deviation from standard practices, innovation (technical, social, in governance) is at the heart of the MLP. Innovation niches represent the least structured level of the socio-technical configuration, since the groups of actors who evolve and experiment with alternative solutions are constantly under the selection pressure exerted by the regime. Although the possibility of innovation by niches is continually compromised, they can benefit from windows of opportunity generated by the exogenous context of regimes and niches (called the socio-technical landscape, this corresponds to the third level of structuring). For example, in the context of a financial, geopolitical or ecological crisis, a socio-technical regime may disarticulate itself and be subject to competition from niche innovations that are organized enough to prevail. In general, as sociologist John Grin (2008) says, socio-technical regimes must be restructured according to innovation niches.

Notably, the theorists of the MLP have high hopes for radical or divergent innovations, calling them the seeds of transition (Grin et al. 2010). They also suggest that it is possible to steer or at least influence the dynamics of transitions, namely through “reflexive governance” mechanisms that involve generating and integrating networks of actors and innovation that reinforce each other through their actions, experiments, projects and practices (Voß and Kemp 2006). This is the starting point for transition experiments<sup>1</sup>: to set up a structured and reflexive process through which local partners, citizens and a group of researchers determine sustainability needs and issues, develop pilot projects to influence the transition, and then learn from both the process and the projects themselves. This reflexive governance approach should encourage the development of innovation niches that will contribute to the reconfiguration of socio-technical regimes (Hodson et al. 2017). This relationship—though it is rather theoretical—between experimentation and transition is often said to require further research (Luederitz et al. 2017; Kivimaa et al. 2017; Hodson et al. 2017). Accordingly, the first question pursued in this article is: What might we learn about social and sustainability transformations through a transition experiment?

In order to address this issue in the context of the NMV project, it is first necessary to explore more deeply the methodological aspects of the transition experimentation approach. This includes both a procedural and a substantive dimension (Loorbach 2007), which were both implemented as part of the NMV project.

## The procedural dimension

The success of transition experiments, at least in the academic field, has been supported by the existence of a relatively standardized approach that is largely inspired by the tradition of action research. As in action research (McIntyre 2008), transition experiments are based on collaboration between researchers and practitioners at all levels of the research process, from the formulation of research objectives and questions to the dissemination of results (Loorbach 2007; Wittmayer and Shäpke 2014). In this context, while also performing data collection and analysis, researchers can take on the tasks of group facilitation, animation, mobilization, synthesis and knowledge transfer. In order to facilitate the experimentation process, the approach is structured into four or five main phases, depending on the project. Wittmayer et al. (2014), who have undertaken transition experiments in local communities in the Netherlands and Austria, propose a five-phase approach:

1. *Preparation and exploration.* The research team prepares an analysis of the local context and selects project participants within the locality.
2. *Structuring the problem and developing a vision.* A “community arena” or “transition arena” (Loorbach 2007) is formed with 10 to 15 participants chosen for the diversity of their perspectives. Discussions within this interactive transformation space aim to identify environmental issues and develop a sustainable vision for the community.
3. *Review, trajectories and agenda.* At this stage, the project includes more participants. This phase consists of using backcasting exercises and other methods to develop transition trajectories and a program of actions and projects (the transition agenda) to achieve the vision.
4. *Experimentation and implementation.* The transition agenda is presented to the wider community, which helps to select the most promising projects. These projects are then implemented. This phase likewise integrates new actors, including local authorities and other stakeholders.
5. *Monitoring and evaluation.* The aim is to highlight the lessons learned in the previous four phases. In principle, this transversal phase is carried out throughout the entire project.

## The substantive dimension

The substantive dimension of transitional experiments, which is transversal in all phases of the process, consists of producing collective meaning (Wittmayer et al. 2014), or co-producing knowledge. The transition, the fight against climate change or sustainability, is always a relatively polysemic concept, which explains why the co-production of visions, trajectories and transition agendas seems so important. In other words, these processes aim to improve “focuses on enhancing reflexivity of actors with regard to interdependence and embedding in systemic contexts as well as facilitating mutual adaptation in ongoing processes of societal development” (Voß et al. 2008: 12). Thus, transition experiments implement the entire above-mentioned process not only to develop innovative sustainability transition projects but also to encourage the actors involved to share knowledge about their activities. This allows the actors to appropriate the experiment for themselves and hence to learn throughout all of its stages about social change, namely by facing the challenges of collective action, project organization and social innovation.

## The *Nos milieux de vie!* project. A transition experiment

The NMV project is part of a reflection on the potential of Montreal’s so-called *ruelles vertes* to contribute to the sustainability transition. In Montreal, the term *ruelle*, or alley, refers to the service roads running behind rows of houses parallel to the streets, which are characteristic of many neighbourhoods, particularly Rosemont–La-Petite-Patrie, where the NMV project is being carried out. Around the turn of the 20th century, these alleys were used as access roads to sheds and later to garages for cars in wealthier neighbourhoods. In dense working-class neighbourhoods, they offered space for laneway houses and sheds, as well as ambulant vending. Since the early 1980s, several revitalization programs have aimed to redevelop these public spaces into welcoming living environments, for example by greening them and ensuring their safety (Robert 2014). The *ruelles vertes* program set up by the Ville de Montréal supports residents in setting up laneway committees that organize planting and clean-up activities or meet-your-neighbours

events. Founded in 2015 by a group of citizens working to “green” their alleyways, Solon is a non-profit organization (NPO) “that supports citizens in the identification, development and implementation of local collective projects [...]” (Solon 2018a). Through its mission, the organization aims to fight climate change by promoting collective action at the local level from a socio-sustainability transition perspective. Driven by the desire to empower citizens to take action on climate issues, its actions are varied and touch on different themes (energy, mobility, food, etc.). One of the organization’s founding projects is the CELSIUS project, an initiative to create a collective geothermal infrastructure that will soon be installed in three *ruelles vertes* to reduce dependence on fossil fuels and make local and sustainable energy accessible to residents. To this end, the organization works at several levels to support localized citizen action, develop innovative and ambitious initiatives, and promote its vision of the socio-sustainability transition within civil society and among local institutions.

In the Rosemont–La-Petite-Patrie borough, the *ruelles vertes* program has been so successful that Solon and its partners have proposed to broaden the scope of action (from greening to combating climate change) and to expand the basic unit of mobilization (from the scale of the alley to that of the “living environment”). The NMV project began in the fall of 2016, with the support of a grant from the Fonds d’action québécois pour le développement durable (FAQDD). First, a steering committee was created, composed of teams from Solon, the Coop Carbone (which supports GHG emission reduction projects) and the UQAM Research Chair on Sustainability Transitions. A mobilization officer was also hired. The steering committee oversees the daily running of the project and supervises citizen mobilization, the animation of living environments and data collection. It is supported by a broader circle of partner organizations, whose activities are often integrated with those of the steering committee. In contrast to the conventional approach to transition experiments, the steering committee in the NMV project has taken on some of the activities usually carried out by the community at large, as shown in Table 1.

**Table 1 — The phases of two methods, the community arena and the *Nos milieux de vie!* project.**

The phases of the community method	The phases of the <i>Nos milieux de vie!</i> project approach
1. Preparation and exploration	1. Creation of steering committee, evaluation and identification of living environments
2. Creating the community arena, structuring the problem and developing a vision	2. Mobilization of two living environments and development of desirable visions of the future
3. Review, trajectories and agenda	
4. Experimentation and implementation	3. Selection of projects and implementation
5. Monitoring and evaluation	4. Evaluation and transfer

In the following pages, we present a detailed report on the implementation of phases 1 and 2 of the experimentation process of the NMV project, followed by a discussion of the learnings.

### *Phase 1: The evaluation and identification of living environments*

The choice of the term “living environment” to identify the unit of analysis and intervention of the project was motivated by practical more than conceptual reasons. The term denotes an important spatial concern that corresponds to the spirit of the local collective projects that Solon is trying to implement. It also evokes ideas of social interaction and community. We consider the notion of living environment itself to be a part of the co-production of knowledge, insofar as the project aims simultaneously to build and to test this scale of mobilization and transformation. In fact, Phase 1 immediately instigated a first step in the co-construction of the notion of living environment within the steering committee: since it had not been determined in advance where the project would take place, it was necessary to adopt a process for analyzing and selecting living environments. This process was carried out in three stages.

First, a criteria grid was developed in order to make different living environments comparable, so that their appropriateness for the project could be assessed. The research team produced a grid of ten criteria to evaluate material, social and organizational aspects. Second, the committee documented eleven living environments (with vague and open outlines) on the basis of these ten criteria. The eleven living environments had been suggested by various local actors (community and institutional), who had offered to share their understanding and empirical knowledge of the field. These actors also helped to complete the grid for each of the living environments. We then used the 2011 census

data as presented and illustrated in a 2013 publication of the CSSS du Cœur-de-l'Île (a Montreal health and social services centre) to better document the social criteria. A sheet was prepared for each of the eleven living environments, which made it possible to make comparisons and proceed to the selection stage. This third step required a clarification of the characteristics desired by the steering committee. To do so, we analyzed the eleven living environment sheets by taking into account five targets: 1) a certain level of citizen mobilization demonstrating a capacity to take charge of ambitious and long term projects; 2) a variety of socio-economic profiles; 3) diversity in access to collective mobility; 4) diversity of commercial vitality; 5) the presence of other facilitating conditions (community support, presence of institutions, initiatives already underway, etc.). In addition, it was important to the committee to choose two relatively different living environments, as this contrast would allow them to determine collective solutions to a variety of issues within diverse contexts. This approach led to the selection of two sectors of intervention—Bellechasse and Masson Est—with different and promising profiles.

### *Phase 2: Mobilization and development of desirable visions for the living environment of the future*

Phase 2 of the NMV project consisted, on the one hand, of reaching out to and mobilizing citizens and stakeholders in both living environments and, on the other hand, of initiating the co-construction of a desirable vision for the future of the living environment (this dual process was conducted independently in each living environment). Solon and its mobilization officer, with the support of the steering committee and local partners, instigated the process of mobilization, in particular by soliciting the existing *ruelle verte* committees. Meanwhile, strategic discussions were held within the steering committee to develop and later synthesize desirable visions for the future. The activities carried out in the living environments (eight in Bellechasse and thirteen in Masson Est, between April and August 2017) consisted first of all of contextualizing the sustainability transition and the fight against climate change at the local level, notably through brief introductions by the team's researchers. Subsequent activities were organized around three main questions: the diagnosis (how do the participants evaluate their own living environment?), the motivations (why are they participating in the project?) and the projects to be carried out (what projects do they want to carry out in their living environment, particularly in the fields of energy and mobility?). These three issues were addressed in several ways during the meetings and visits with the committee members in the field. Such a structure seemed appropriate, both because it allowed the citizens to participate in the co-construction of the notion of living environment, which then made it easier for the latter to accept the structure, and also because it addressed projects dealing specifically with energy and mobility. The analysis and synthesis of the data collected during these activities then allowed for the formulation of two visions, one in each living environment, which were modified with the input of the citizens until the final formulations were reached.

This data was presented in several different ways: note cards on which participants summarized their ideas, short, open-ended surveys or oral interventions transcribed by the facilitation team. We classified the statements collected (using ATLAS.ti software) according to whether they evoked diagnostic, motivational or project elements and according to the main themes raised. In particular, we analyzed how these three questions intersected with the themes in order to reconstruct the discourse of each living environment. This analysis allows us to understand citizens' priorities and their representations of the project's main issues.

### *The living environment of Bellechasse*

The living environment of Bellechasse is located between the Beaubien metro station and the Marc-Favreau library. This area is known for the strong citizen mobilization in its alleys. It has excellent access to public transport and a business environment that is very dynamic, even though its priorities sometimes clash with the needs and desires of the citizens residing in the area. The citizens of this district are relatively well to do.

In describing their living environment, Bellechasse participants mentioned both positive elements, such as the consolidation of a local social bond, and elements that are a cause for concern. References to the proximity and the scale of local action are predominant in citizens' representation of this living environment, as is the conviviality that characterizes neighbourhood relations. The social bond that is forged among people through greening activities, mutual aid or children's games generates a sense of community. However, this positive vision is offset by problems that could be categorized as safety concerns. Among these are the traffic caused by cars and delivery trucks stopping outside businesses on Saint-Hubert Street, a lack of lighting, and the occasional presence of drug or alcohol users in

the alleys are considered difficult to conciliate with family life. This diagnosis has had an impact on the motivations behind the NMV project. In other words, citizens and the NMV leaders share the desire to reduce traffic in the alleyways and the fear of accidents for children, and both groups prioritize the greening of the living environment. There are a variety of proposed actions. Some resemble more conventional alleyway chores while others require intervention with many stakeholders in the living environment, or even in the borough. This is the case with traffic-calming measures. Several ideas also concern the mobility of residents of the living environment, such as the creation of safe bike paths, the installation of bike racks and the development of shared transportation.

Following the presentation of these observations and solutions to the steering committee, we formulated a desirable future vision for the Bellechasse living environment. Since the initial participatory phases in the two living environments had followed the same plan and shared several ideas in common, we first composed a general structure of the vision for both locations and then identified the more characteristic elements of each living environment. For the Bellechasse living environment, the emphasis is on animating public spaces, calming traffic and anchoring the neighbourhood in an urban area marked by a major shopping artery. A statement was submitted to participants in the fall of 2017 and was then discussed and amended until it resulted in the following wording:

Our living environment is friendly and we love it! Nature and humans have a place in it. There is a spirit of community and mutual support. The number of cars has decreased significantly and traffic has calmed down. It is easy and safe to get around on foot or by bike ... Our alleys are places for adults and children alike. We enjoy our proximity to Plaza Saint-Hubert and a wide range of local shops. Our living environment is open and connected to the rest of the city. We are the actors of its transformation!

### *Masson Est*

The second living environment involved in the NMV project is Masson Est, which is located near Lafond Park and bordered by Saint-Michel and Pie-IX boulevards, two major transit routes for car traffic. According to those community organizations we spoke with, residents in this area were not very engaged in community activities, although there was an apparent willingness to mobilize, as with the recent creation of three new *ruelle verte* committees. As well, some community organizations already existed, particularly in schools, and expressed interest in the NMV project. Masson Est is relatively neglected by merchants and poorly served by public transport, and it has a lower socio-economic profile than Bellechasse.

For the participants from Masson Est, the alleys are perceived as “ultra-local spaces of animation” where social involvement and mutual aid strengthen the local social bond. Some participants nevertheless view the emergence of these local networks critically, mentioning that it “touches on the question of overconsumption and also inequalities of access to certain resources and objects.” Participants are aware of the efforts needed to make this space more inclusive, particularly with regard to the elderly and the most vulnerable residents. Clean-up initiatives in the alleys and other collective chores that “get people out” are therefore seen as ways to encourage inclusion and a sense of belonging. However, although the alleys are seen as key community spaces they also present a space management issue, particularly with regard to car traffic. Thus, when discussing their motivations, participants expressed a strong desire for their living environment to evolve, for it to be “open to new things and new people,” and for it to serve as a locus for changing habits that can counter isolation. Some of their motivations are also more down-to-earth, such as safety and tranquility. In concrete terms, the actions proposed by the participants focus on three elements. First, they would like to see better communication to foster inclusion within their heterogeneous neighbourhood, in particular by promoting cultural and artistic activities within the living environment, with a strong emphasis on intercultural and intergenerational festive events. Second, participants would like the living environment to be redesigned to improve both mobility and conviviality, for example by partially prohibiting car access in certain alleys, by providing more direct access to certain services such as the nearby Botanical Garden, or by providing street furniture such as public benches in the alleys. Third, participants expressed an interest in developing an economy of sharing of both objects and resources, such as car sharing, community refrigerators, and even an “interruelle” rental toolbox.

The formulation of the desirable vision for the future in Masson Est followed the same iterative process as that of the Bellechasse living environment. Nevertheless, the former differs from the latter by placing greater emphasis on inclusion and social cohesion, with the following result:

Our living environment is friendly and we love it! Nature and humans have a place in it, our many public spaces are vibrant. There is a spirit of community and mutual support. Contact between residents of all backgrounds and ages is frequent and friendly. Car traffic has decreased significantly, and it is easy and safe to get around on foot, by bike ... We are taking advantage of the development of Masson Street and a whole series of local businesses. Our living environment is open and connected to the rest of the city. We are the actors of its transformation!

In summary, the analysis of the two living environments and their formulation of desirable visions of the future suggest a real desire for citizen mobilization to create local collective projects. Indeed, during Phase 2, participants from both communities spontaneously created neighbourhood committees that are still active to this day. That said, it remains to be seen whether this mobilization will contribute meaningfully to the sustainability transition and the fight against climate change. To address this question, we will examine, in the next section, what this transition experimentation has taught us so far about the sustainability transition at the local level.

### Learning in the sustainability transition

We have already pointed out that learning about change is a central objective of transition experiments for researchers, partners and participants alike. Thus, although the NMV project is still ongoing, addressing the article's two main questions helps us to assess the lessons learned during the first two phases of the project. Four elements seem clear at this stage, the first two related to the procedural dimension and the latter two to the substantive dimension.

#### *Solon, mediation body and object of action research*

The creation in the community arena of two spaces for reflection on transformation—the steering committee on the one hand and the meetings in living environments on the other—was adapted from the usual procedural approach of transition experiments. The adoption and adaptation of this approach is largely due to the key role played by Solon in the development of the project and in obtaining initial funding from the FAQDD.<sup>2</sup> In fact, Solon was the main driving force behind this project, which we wanted to carry out together using the transition experimentation method. Because of its central position, Solon acted as a mediator among all the actors involved in the project. To our knowledge, this is unprecedented in transition experiments, which are generally initiated and carried out by a single research team. It is therefore necessary to consider the situation of Solon as a mediation body in order to better understand what makes the procedural dimension of the NMV project so specific.

Ever since the initial formation of the steering committee, Solon has assumed a mediating role from several angles: between citizen-participants and researchers; between living environments and other project partners; between the procedural dimension and the development of local projects, etc. Solon's presence fuels the bonds between the actors and is reassuring for all partners. In discussions we had with participants, they often expressed confidence that Solon would find solutions and the resources and partners needed to carry out projects. Within the research dimension of the project, Solon acted as both an *interlocutor* and an important resource. It was an interlocutor because it was an essential partner in all stages of co-construction (as shown in Phase 1 for the notion of living environment), and a *resource* because it was responsible for communicating with all partners and mobilizing participants, tasks which are often very challenging for research teams carrying out transition experiments (Wittmayer et al. 2014).

In addition, Solon's presence encouraged not only the adaptation of the experimental process but also a close relationship between researchers and their action research object. In other words, Solon became a key actor in helping researchers to understand their dual belonging both to the field of practice and to the field of research, as well as their constant movement between these two fields (Wittmayer and Schöpke 2014). This observation, made during the course of the project, finally led us to add a new research objective to our partnership (which now goes beyond the NMV project), namely that of better understanding the organizational and strategic characteristics that make Solon a mediation organization that promotes the emergence of local sustainability transition projects. In a way, Solon itself became the object of an action research project, in parallel with the transition experimentation. A qualitative data collection was conducted in spring 2018 to develop this new research axis.

*Solon, citizens and research: three temporalities*

The selection of energy and mobility projects is part of a third phase of the NMV approach (which is now completed). During the second phase, the participants had fairly specific expectations, and were generally anxious to see projects come to fruition. This phenomenon is not surprising and is mentioned in the reports of other transition experiments (notably Wittmayer et al. 2014). On this subject, the steering committee believes that it has learned a crucial lesson, namely that the participants' expectations reveal several gaps between different temporalities, gaps that must be managed in any transition experiment. We identified three of these gaps. First, *participants' time* is limited, being restricted to evenings, weekends and time slots that do not interfere with school holidays and seasonal leisure activities. It is important to maximize this time and to show participants that their involvement is not in vain. Second, the *project time* is structured by the phases of the procedural approach. It is marked by "impact" requirements imposed by the funder, and depends on the intensity of the citizens' participation and the researchers' work. Third, the *time of the research* is the most irregular, as the researchers are subject to the multiple demands of university life, and they also sometimes need to step back, which can make it difficult to deliver syntheses and analyses at strategic moments in the process.

Solon's role as mediator helps to reconcile and balance the various temporalities within the process—in other words, not only the phases themselves but also the rhythms of the citizens, the project and the researchers. However, the issue of temporalities also conceals a tension between the procedural and substantive dimension of transition experiments: participants appreciate developing the vision for the future, but tend to grow bored and are generally eager to tackle more concrete projects. To better understand this tension, it is necessary to focus on what we learned from the substantive dimension of the NMV project.

*Towards a commitment to the transition in living environments*

In its original formulation, the *Nos milieux de vie !* project aimed to carry out local collective projects focusing on energy and mobility, in order to reduce carbon emissions. The steering committee therefore relied heavily on the development of desirable visions of the future to inspire these potential projects. However, as both the analysis of the results and the expression of the two visions show, energy and mobility projects are not necessarily considered a priority by citizens.

Reflections on the problems identified by participants, and on residents' motivations and actions to effect change, are encouraging in several respects. They demonstrate that project participants are able to identify very immediate problems in their living environment, particularly relating to safety and cleanliness, and that they also reflect on issues of more general interest. Thus, in Bellechasse, the analysis shows that the living environment is considered a part of a broader and more complex urban fabric, and that the proposed traffic development and mitigation measures reveal residents' desire to integrate their living environment into this fabric. In Masson Est, the issue of inclusion has proven so important that the cultural facilitation that was recommended during the period covered by our analysis has indeed begun to materialize. In fact, the significance of social connection and a sense of community is emphasized in both environments. In addition, some comments related to energy consumption and pollution suggest that many participants could possibly envisage a more politicized representation of the problems encountered in living environments. While these are issues on which we are still collecting data, we can already observe these general trends and above all a desire for transformation in the visions of living environments.

That said, while the activities in the living environments have put the notion of the sustainability transition and the fight against climate change on the community agenda, the first two phases of the project generated a low level of commitment in this regard. The second phase of the project, which consisted of co-constructing desirable visions of the future, leaves us with a co-constructed notion of a living environment in which the issues of transition, energy and mobility are not central. However, Phase 3, which is now coming to an end, has given rise to concrete projects that address mobility and spatial planning. With regard to mobility, the two living environments have agreed to become the pilot living environments for LocoMotion, a multivehicle sharing program (cars, bike trailers and others) supported by Solon and officially launched in September 2018 (Solon, 2018c). With regard to spatial planning, the Masson Est living environment has dedicated itself to developing a neighbourhood space—called "Bonheur Masson" by the participants—for the inhabitants of the district. The Bellechasse living environment, for its part, has invested in the development of Place Hector-Prud'Homme—renamed "Oasis Bellechasse" by the participants—as a place where citizens can spend time and relax.

Two conclusions can be drawn from this, one methodological and the other theoretical. First, participants were less interested than expected in the energy theme, yet they enthusiastically embraced the themes of mobility and spatial development, both through their visions of a desirable future and their choice of projects. The gap between what was expected in Phase 2 and what was achieved is therefore not substantial and is probably normal in the context of action research, which, we must remember, invites researchers to adapt to the demands and needs of participants. While promoting as much as possible a broader reflection on transitions in general, the transition experimentation process must embrace such shifts in focus, which allow the project to be more effectively adapted within the local context. The second conclusion to be drawn from this relative gap has theoretical implications, which we consider to be a fourth learning.

### *The social determinants of the sustainability transition*

It is not insignificant that the theme of energy was the least mobilizing in the substantive stage of the NMV project. After all, the current discourse on transition—particularly in Quebec, following the creation in 2018 of the Transition énergétique Québec agency—is dominated by the term “energy transition.” As we have shown elsewhere (Audet 2016), institutional discourses on transition focus on the idea of clean technological substitution through tax incentives and support for companies pioneering the transition. Also, in the context of the MLP, transitions are understood as reconfiguration processes that are primarily socio-technical and favour innovative technological actors.

The learnings, even preliminary, of the NMV experimental approach encourage us to reflect on an aspect of transitions that is most often ignored in scientific discourse and literature, but which is essential in any consideration of social change: the existence of spatial conditions, collective representations and local dynamics allows people to feel drawn to a given transition project—or not. These social determinants of the sustainability transition, which were manifested in the early phases of the NMV project through the expression of a need for security, the search for social cohesion and the desire for inclusion, are likely to either encourage the adoption and appropriation of a project by citizens or, conversely, to induce its rejection. In this sense, highly technocentric approaches to transition may fail if they do not address these social determinants. This, at least, is a hypothesis and an avenue for further research that emerged from the *Nos milieux de vie!* project.

### **Conclusion**

This article aimed to describe the approach to transition experiments and to show how this approach was implemented in the early phases of the NMV project. The attention devoted to the lessons learned so far and the adaptations of the conventional methodology of the transition experiments has enabled us to highlight the following conclusions. First, the Solon organization plays a particular role, that of mediator, which encourages us to think differently about the project’s interactive spaces of transformation and to adapt them accordingly. Secondly, Solon’s role as mediator affects the relationship that researchers have with the project, because Solon facilitates the logistical work of communication and mobilization (in particular by coordinating the different temporalities at play within the project) and because in so doing, Solon itself became an object of research. Third, the process of developing desirable visions of the future of living environments gives rise to a certain gap between the initial formulation of the project and the actual co-construction of the living environment, a gap that we have chosen to embrace in the rest of the project. Fourth, this gap makes visible the existence of social determinants of the sustainability transition that will need to be theorized and further studied following the NMV project and in future projects.

Since the NMV project is still underway today, the publication of this very article will contribute to its evolution. By highlighting the lessons learned thus far, the article feeds into the evaluation and transfer phase of the experimentation process and allows us to progress towards deepening and broadening a local sustainability transition.

### **Notice**

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## Notes

<sup>1</sup> While the term *transition management* was introduced in the early years of the development of the field of sustainability transitions, the term *transition experiment* has taken over in the literature in recent years. It is this latter term that we shall use in the remainder of the text.

<sup>2</sup> In November 2017, research funding from the SSHRC Partnership Engage program was received to complete the data collection and analysis of Phase 3. In October 2018, a grant from Quebec's Ministry of Economy and Innovation (MEI) for the transfer (PSVT program, component 2) was also confirmed to support the transfer activities. Unlike these two grants, the funding of the Fonds d'action québécois pour le développement durable (FAQDD) was not intended for researchers but rather for the project's lead organization.

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