

The Village Initiative

The Future of Aging in Community

Smart Cities Challenge—FINAL PROPOSAL



EXECUTIVE SUMMARY

In the face of a rapidly aging population, the City of Côte Saint-Luc will implement a connected framework, leveraging smart devices and related technologies that will empower seniors to: (1) live more safely and independently in their homes; (2) be better connected to their communities and city services; (3) be more socially engaged, improving the overall well-being and quality of life for older adults and reducing stress on families and caregivers, the healthcare system, and long-term care facilities.

THE RIGHT PLACE AT THE RIGHT TIME

Côte Saint-Luc is a city of approximately 34,000 people, of which a third are seniors (age 65+). According to Statistics Canada projections, that proportion represents where Canadian society is heading over the course of the next few decades. Our community, which has been committed to improving the health and well-being of older adults through a variety of programs and services, is therefore the ideal ground upon which to test new initiatives related to aging.

The demographic shift will place an unprecedented strain on the health care system, both in terms of cost and, also, resources. In an effort to adapt to future demographics and improve the continuum of care, new solutions are being explored by the health system that will break down compartmentalization and bring care to where the patient is. Digital health is the future, and the Smart Cities Challenge has presented an opportunity for Côte Saint-Luc to lay the foundation for a partnership that will deliver better patient care to the home. What we have before us is the perfect opportunity, at exactly the right time, in the ideal place.

OUR VISION

The VILLAGE Initiative is the future of aging in community. It operates simultaneously in the domains of technology and social transformation, and uses a Design-Thinking approach that continuously engages people and enables us to create appropriate and relevant services that meet the needs of older adults. With a focus on prevention, the Village Initiative is positioned to support the health sector while leveraging the trust and relationships that exist between people and their community.

Participants will have a single entry point, where initial intake and onboarding is done. A professional will make an assessment of his or her need and propose solutions from a menu of interventions or services. These interventions include everything from the installation of technology for safety and convenience in their home, to social prescription, to participation in the VILLAGE Community App. Privacy will be a core principle by which the VILLAGE Initiative is designed and operated, as will scalability.

The long-term impacts of the VILLAGE Initiative will be felt on multiple levels. Older adults will see an increase in their autonomy, and feel more secure living in their homes. Social isolation will be reduced. The families of older adults will gain peace of mind and experience reduced stress. Community capacity, connectedness and wellness will be improved. In the health and social services domain, the timeliness of care will be improved and placement delayed.

GOVERNANCE AND PARTNERSHIPS

In setting up the VILLAGE Initiative, we will create a federal non-profit organization (NPO). The decision to establish a NPO with a Governing Board and its own staff, rather than run the program directly through the City was based on many considerations which include: the size of the project, reduced interference from electoral cycles, more flexibility in terms of procurement and labour, and the ability to apply for a variety of grants. The City will, however, maintain some governing control,

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with two elected officials on the Governing Board, and approval rights over the budget.

The Governing Board, totalling nine people, will be made up of independent members from a diverse and relevant range of backgrounds. The NPO will be led by a CEO and a Management Team, who will set up and manage the entirety of the VILLAGE Initiative. A Technology Partner will act as the CTO and be responsible for the whole of the technology domain, platform development, and related partnerships.

A rich ecosystem of partners, including all levels of government, researchers, health sector representatives, private industry, community groups, and residents will collaborate to address the complex and widespread challenges our society faces related to aging. Côte Saint-Luc will be the epicentre for innovation—a Living Lab where senior health and aging will be studied, and solutions tested with residents, in the real world.

- The City of Côte Saint-Luc will be intimately involved in the development and implementation of the VILLAGE Initiative through such means as providing space and in-kind services, co-developing programs, and cross-promotion.
- Our research partners at the Institut universitaire de gériatrie de Montréal and at the Université de Sherbrooke have already helped develop the VILLAGE Initiative, and they and other research groups will continue in this role.
- Our health partners at the Ministère de la Santé et des Services sociaux and the CIUSSS West-Central (Regional Health Board) fully support the Initiative and will leverage it to develop their technological roadmaps and further their goals.
- MEDTEQ will support the VILLAGE Initiative through in-kind contributions of expertise and funding.
- Other partners will add expertise and collaborate with the VILLAGE Initiative in their respective domains.

HOW IT WILL RUN

The VILLAGE Initiative was distilled into five main projects, or project categories. Each of these contain several activities. The projects are:

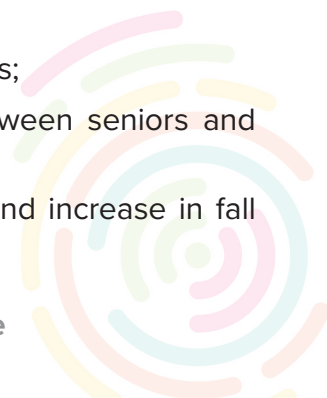
- 1. Governance and Operations**
- 2. Community Engagement & Social Transformation**
- 3. Platform Development**
- 4. Service Delivery**
- 5. Sustainability and Transferability**

The short-term outcomes associated with the VILLAGE Initiative activities include:

- Awareness of the VILLAGE Initiative—measured by the number of people informed about the project through communication efforts;
- Participation in Community Engagement—measured by the number of people who reach out and participate in community Engagement activities;
- Active involvement of community in service design—measured by the number of people engaged in the design and testing of products and services;
- Adoption of Products and Services—measured by the number of people onboarded and who have adopted at least one product or service;
- Participant satisfaction—measured by survey results from participants, stakeholders, and data from the platform.

Mid-term outcomes include:

- Improved digital literacy in older adults;
- Improved safety in the home;
- Improved function and autonomy;
- Improved perception of personal physical and mental well-being;
- Increased social connections;
- Better communications between seniors and their families;
- Reduced mechanical falls and increase in fall efficacy.



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The VILLAGE Initiative has an implementation plan that dictates the scheduling, sequencing, and dependencies for each activity, their outputs and deliverables, and those responsible for carrying them out. In the first year, a series of plans will be generated that set the foundation for the proper management of the Initiative.

THE TECHNOLOGY

Aging in place technology is the fastest growing sector in the longevity economy. The marketplace is filled with a dizzying array of options that seniors can choose from. During the finalist phase of our project, we consulted with residents to discover their needs, then researched and evaluated a number of solutions that could meet those needs. We created an evaluation criteria, and in the end selected the most suitable technologies to use in our pilot project.

The Pilot Project

The DOMUS (DOMotics at the Université de Sherbrooke) smart home solution was chosen as the main tech tool for the pilot project. Based on open technologies, it consists of small passive sensors, to which we added Amazon's Echo and a floor light path. The Sherbrooke team helped us install the sensors in the homes of pilot participants. We also used the Laipac Look Watch for safety on the go. Our pilot continues until May 2019, but so far, we have gleaned interesting data and will use what we learned to shape our future service delivery.

The VILLAGE Platform

The VILLAGE Platform will allow seniors to access resources in three categories for help when they need them: convenience, safety, and social connectedness and engagement. The vision and architecture for the Connected Technology Framework is based on the principles of open technologies, great experiences at home and on the go, smart automation, interoperability, and privacy and security.

LISTENING TO OUR COMMUNITY

Community engagement is at the heart of the VILLAGE Initiative, and it has shaped every aspect of this Final Proposal. Our research partners at the Université de Montréal and the CIUSSS Centre-West helped us structure our community engagement, which consisted of focus groups, public consultations, and a senior advisory council that consulted the seniors themselves, caregivers, staff who work with seniors, future seniors and the general public.

A Community Engagement Plan set a strategy whereby residents were given opportunities for various levels of participation. We asked about the challenges to aging in place, perceptions of technology, what the City can leverage, and privacy concerns. We informed residents about what we were trying to do, consulted on their needs, consulted on their impression of proposal concepts, collaborated with them, and finally empowered them through inclusion in a pilot project.

For the next phase of the VILLAGE Initiative, we will add four principles to our community engagement approach: outreach, participation, user-friendly material, and a Design-Thinking model, which will enable residents to co-design and test products and services. In laying the foundation for a VILLAGE Community App, many community-building social innovations will be tested. Other community engagement activities include: pop-up workshops, listening sessions, showcases, interviews, thriving sessions, and more.

DATA AND PRIVACY

The VILLAGE Initiative is deeply committed to implementing the highest standard of privacy and data protection. Sharon Polsky, privacy expert and President of the Privacy and Access Council of Canada, worked with our team to develop measures that will ensure that we depart from a point of Privacy By Design, going beyond the baseline and allowing participants to maintain control over the information. A Data Governance and Privacy Protection Policy will be created at the very beginning of the project.

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FINANCIALS

Our Projected Financial Plan reflects the planned funding strategy through which the VILLAGE Initiative will be financed. This includes the \$10 million start-up fund financed by Infrastructure Canada through 13 milestone payments, and revenue generated from number of sources to ensure sustainability and scalability in the long-term. These include:

- Partner support, most importantly from MED-TEQ and potentially from the Quebec Ministry of Health and Social Services;
- Subsidies, research grants, government grants, foundations;
- Smart device solution sales;
- Fundraising;
- Planned giving and endowment funds;
- Solution support services.

OTHER CONSIDERATIONS

In conjunction with our economic development partners, we will integrate diversity and inclusion into our future project team. We will also further consult with the Indigenous groups in our region and make a strong effort to contact our own local Indigenous population.

In addition, we will ask the provincial government to expand its home adaptation programs to include smart technology devices as part of the program.

CONCLUSION

We believe in the transformational power of the VILLAGE Initiative, not just for older adults and their families, but for Canadian society at large. Through a strong governance model, important partnerships, community involvement, technology and social innovation, solid privacy policies and sound management, we will bring the project to life and change the future of aging in community.



Figure 0-1: We conducted more than 15 community engagement events with more than 1,000 residents from November 2018 to January 2019. We also sent letters to 14,000 households with information about the project and an invitation to participate in the public consultations.

Chapter 1 VISION

1.1 CONTEXT

Across the country, the population is aging. The number of older adults as a percentage of the population is increasing, and life expectancy is rising. Canadians face many challenges in light of this, at the individual and family level, the community level, and of course, in terms of the health care system.

Our society has not been designed around older adults or the challenges that they face, such as how and where to live safely and independently, how to easily get around, how to carry out the instrumental activities of daily living (IADLs), and how to participate in community life in a meaningful way.

In addition, being a part of society increasingly means being ‘plugged in’ to technology, something which many of the current older adults are not comfortable with and/or cannot easily use or access, even though there is an avalanche of new older adult-targeted products and smart home and personal devices being pushed at them. This adds yet another challenge, another obstacle for older adults to overcome.

Isolated people do not recover as well from illness as people with meaningful connections. They are more likely to get sick, get depressed, and die at a younger age than those who are surrounded by people they can count on. Many older adults have children who live in other cities and/or who lead busy lives and they don’t want to impose on them.

As we have seen with our own first responder service and in public consultations, 9-1-1 is often the go-to place for people who have an issue and few people to turn to. Many older adults attempt to get some of their needs met through city services such as the public library or recreation department, as they do not feel they could rely on social services. In some cases they cease to participate

in civic life altogether, due to reasons such as access to transportation, or for reasons as mundane as being blocked in by a snowy walk that they can no longer shovel themselves.

1.2 OUR JOURNEY

In our preliminary proposal to the Smart Cities Challenge, entitled SHARED (Senior Health and Real-time Environmental Data) we addressed social isolation mainly in terms of security. In that vision, an isolated older adult would have more confidence about living autonomously with the knowledge that the city was looking out for their well-being, and that there would be a nuanced response to what would happen to them inside their dwellings and outside in the community. All of this was fueled by artificial intelligence (AI) enabled technologies in the home and in community. Environmental sensors were part of the vision as well. Noise and air pollution are key factors in the environment and have an impact on wellness, especially in vulnerable populations.

The spirit of the original vision of the ‘SHARED’ proposal has been preserved at its core, but after extensive public consultation and research, we deepened our understanding of the array of challenges older adults face, including meeting their daily needs and getting access to the health and social services they require.

At the public consultations, we learned that older adults were concerned not simply with safety and security as we originally understood it, but also social engagement and a desire for help with the tasks of daily living. With some modifications to our original vision, we could have a much greater impact on the reduction of social isolation and helping our residents age in community.



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1.2.1 Our revised Challenge Statement

In the face of a rapidly-aging population, the City of Côte Saint-Luc will implement a connected framework, leveraging smart devices and related technologies that will (1) empower older adults to live more safely and independently in their homes; (2) be better connected to their communities and city services; (3) be more socially engaged, improving the overall well-being and quality of life for older adults and reducing stress on families and caregivers, the healthcare system, and long-term care facilities.

The name of the initiative in our preliminary proposal did not reflect the amplitude of the new vision, which is why we changed it to the VILLAGE Initiative. The environmental monitoring that we outlined in the preliminary proposal, while important, was not a top priority for our residents and not at the heart of issues that face our existing and future older adults. The VILLAGE Initiative team opted to position environmental monitoring as one of the activities in the longer-term.

In the City of Côte Saint-Luc, 30 percent of our population is age 65 or older, which means that our community already reflects the future demographics of Canada. The issues of social isolation, safety, and the challenges of aging in place are very real for our residents as they are for those in other communities across the country. When the Smart Cities team discusses the project publicly, the response is overwhelmingly positive and always very personal. Everyone has a story about a family member who fell, or would have benefitted from the services we discuss.

Aging is a universal fact and process. Every community in every province has to address it in such a way as to ensure that their residents thrive in the face of it.

1.3 THE PROPOSAL

“It takes a village to raise a centenarian.”

— Susan Pinker, *The Village Effect*

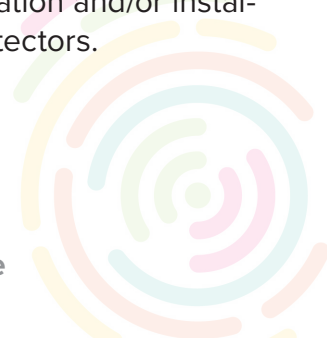
The VILLAGE Initiative is the future of aging in community. While the city is where the interface occurs with the older adult, it is only one player with many partners who work in tandem to reduce isolation, increase safety, and increase engagement and well-being. The VILLAGE Initiative operates simultaneously in two domains (see figure 1-1):

1. Technology
2. Social Transformation

The teams will work together and use design-thinking methods with continuous community engagement and feedback. The teams will also work with partners to co-create services and test them in living labs. The feedback from the public will inform the service delivery at every stage, ensuring that what we offer is relevant and impactful.

Participants will have a single entry point, where initial intake and onboarding is done. A VILLAGE Initiative social worker will assess the person's needs and preferences, and propose solutions from a menu of interventions or services. These will include the following:

- Home assessment, where a professional assesses the dwelling, flags hazards and identifies ways to improve safety and reduce falls.
- The installation of sensors and safety devices in the home, plus the verification and/or installation of smoke- and CO-detectors.



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- The installation of convenience technology in the home, to help with IADLs.
- Provision of smart wearables for safety on the go.
- Signing up for the VILLAGE App, to connect older adults with vetted community members and city services to help with IADLs.
- Referral to existing city and community services.
- Social prescription.
- Education and training for technology.

The orientation of these services is towards **prevention**. In this way, these services support, rather than supplant the health sector.

Municipalities are the closest level of government to the population and can therefore have the most direct impact on lifestyle and well-being. The role of a city, apart from delivering routine services, is to create an age-friendly environment and to build and foster community. Residents trust their local elected officials and the staff that they interact with on a regular basis. Cities can leverage that trust to reduce isolation and improve health. The VILLAGE Initiative would harness those relationships and then add to it more layers and more connections.

1.4 OUTCOMES

The long-term impacts of the VILLAGE Initiative will be felt on several levels:

- **Older adults** will be less socially isolated and participate more socially. This will enhance quality of life and well-being. They will also be able to age in place for longer.
- **Families and caregivers** of older adults will have more peace of mind and benefit from a reduced burden and stress perception.
- **City services:** Use of existing city services will increase and the City will earn the Age-Friendly Community designation from the Public Health Agency of Canada. Community capacity, connectedness, and community wellness will be improved.

¹ See Bianca Wiley (@biancawylie) Senior Fellow at the Centre for International Governance Innovation and co-founder of Tech Reset Canada “Why we need to push for data rights in Canada.” <https://business.financialpost.com/technology/why-we-need-data-rights-not-everything-about-us-should-be-for-sale>

- **Health and social services:** The timeliness of care will be improved, and there will be a reduction in lower priority emergency calls, with a corollary reduction in hospital admissions. Placement into senior residences will be delayed, and the trajectories of care will be vastly improved, as there will be an integration of community, city and social and health care services. Older adults will receive the right services at the right place at the right time, at a more reasonable cost. The VILLAGE Initiative will be aligned with the regional health network in terms of roadmap, data integration, and information privacy protection.
- **The City of Côte Saint-Luc** would become a Living Lab/innovation hub that will advance knowledge with its research partners. Interdisciplinary innovation will break down silos, resulting in a systems change with new working relationships in the community, new resources, new structures, new policies, and an improved delivery in existing programs. As the program would ripple out across the country, attitudes and perceptions of older adults will change, and aging will become a different experience for older adults of the future.

1.5 PRIVACY

The VILLAGE Initiative is committed to the highest standard of privacy and data protection. Privacy By Design is built into the VILLAGE Initiative and will become the standard for other Canadian cities that adopt this program. This will put Canadian cities on the map for the Cities Coalition for Digital Rights, a world initiative to promote and track progress in protecting residents’ digital rights in cities¹.



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1.6 SCALABILITY & REPLICABILITY

On the technology side, the VILLAGE Initiative is scalable and replicable by design. The menu of services offered can be scaled up or down depending on community resources and the needs of the individual using the services. The basic model of service delivery is the following:

**Community Engagement > Intake >
Menu of Services > Delivery of services**

This model is transferable anywhere in the country. The services and products that we selected are suited to our community at this time, but each city can use the ones it wants from a list that will evolve over time, given the fast-paced evolution of available technologies. The number of services offered can vary or can be added to, depending on the resources available.

The VILLAGE Initiative will use technology platforms that are open-source and tool agnostic. This renders the platforms accessible to others and future-proof, as new devices are developed and others become obsolete. All hardware will be easily available, off-the-shelf items, which will minimize the cost of the devices and increase their accessibility.

The value added by the VILLAGE Initiative is in the integration platform connected to City and health and social services. This platform will be constantly developing in response to the user experience.

On the social transformation side, most communities already have staff and volunteers who can provide services as described or with local variations. For instance, many public libraries offer technology training for older adults. These programs could be marketed differently as part of an initiative such as this one, or be prescribed, or be tweaked so as to be more accessible (e.g., take the class to the senior residence, or arrange transportation). Not every service need be completely new.

Innovation and design-thinking drive both the technology and social transformation domains of

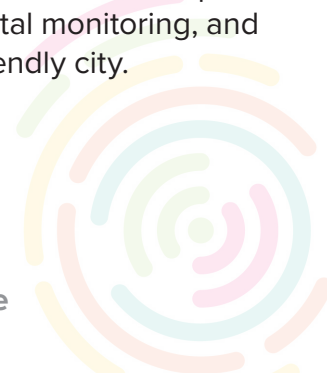
the Village Initiative. We will assess the services and other projects for outcomes and usability—in a continual feedback loop with the end users. Our research partners will help us develop and assess the services and projects. Once we have set up the Village Initiative, delivered the services, learned from our mistakes, and determined the best practices, we will create a guide for other communities so they can replicate what we have done.

1.7 THE ORGANIZATION MODEL AND FLOW OF THE VILLAGE INITIATIVE

The VILLAGE Initiative, a non-profit organization, has two main domains out of which all activities and service delivery flows: technology and social transformation. It is overseen by a Governing Board and run by a senior management team. Community engagement, done continually using design-thinking and Agile models, informs all aspects of service delivery.

Research partners, with whom co-creation and living labs will grow, will feed the technology and social transformation domains. On the technology side, digital health and tech solution partners will collaborate and support research and development. On the social transformation side, the City of Côte Saint-Luc is the primary partner, and the one who will also work on the PAD program.

Community partners will work with the VILLAGE Initiative as well. There is an initial intake for service delivery, where dossiers are created and users are assessed and then prescribed services from a menu. These services include: referral to existing city and community services, social prescriptions, education and training workshops, home assessment, the VILLAGE App, tech safety and tech convenience, a public dashboard, and support from a help desk. Apart from providing services directly to users, the tech and social teams will have platform development, environmental monitoring, and the establishment of an age-friendly city.



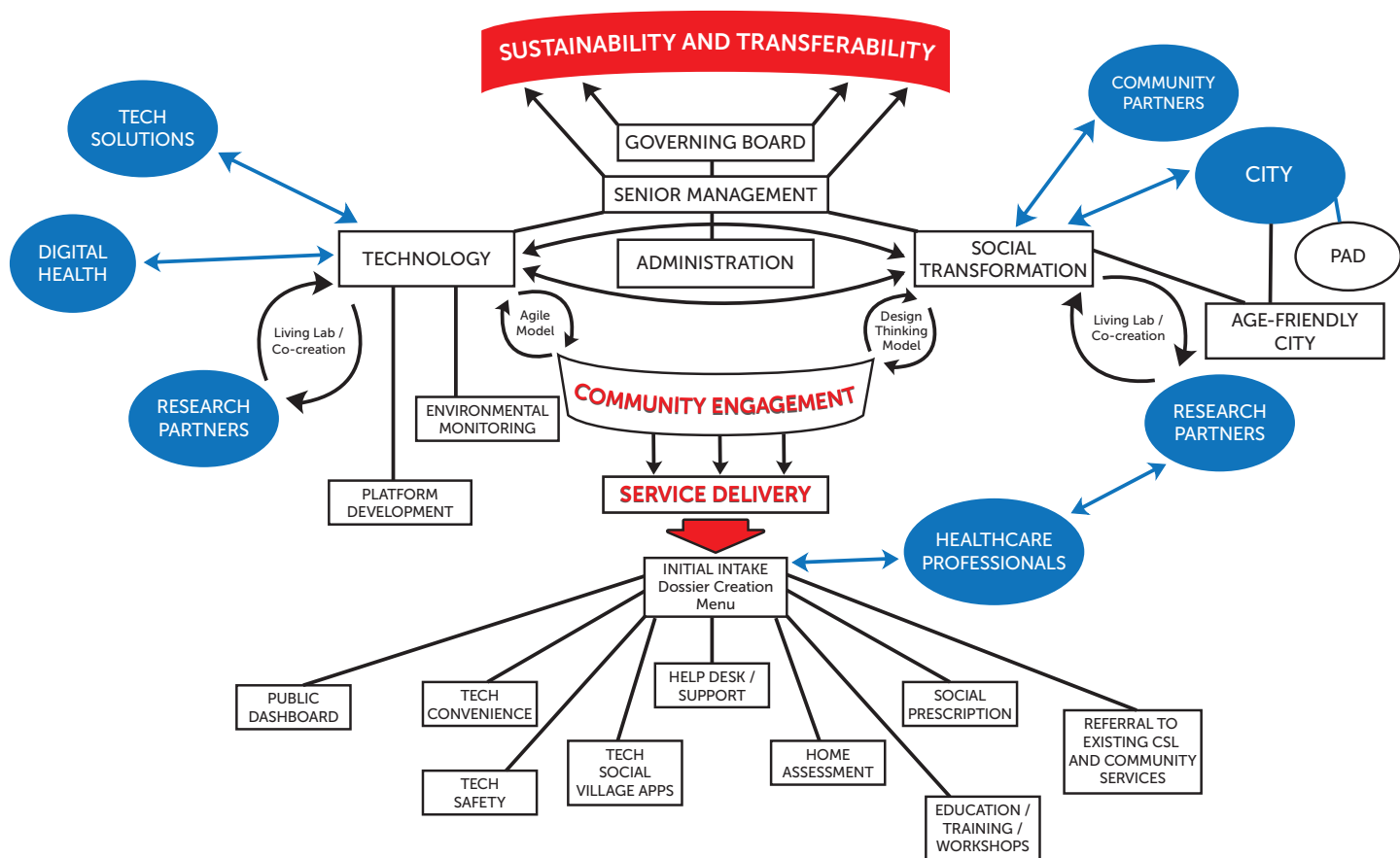


Figure 1-1: Organizational model



Chapter 2 PERFORMANCE MEASUREMENT

Performance measurement is key for understanding, managing and improving what the VILLAGE Initiative will be doing. It is a continuous improvement operation which involves checking the performance against that benchmarks. The VILLAGE Initiative performance measurement plan uses results-based management principles by:

- Focusing on performance and achievement of outputs, outcomes and impacts.
- Monitoring progress toward the achievement of expected results.
- Integrating lessons learned into decision-making.
- Regular reporting on performance.
- Working beyond processes, activities, products and services to focus on the actual social and economic benefits of projects and programs at the level of beneficiaries.
- Working harmoniously and cohesively to be effective.
- Focusing on sustainable achievements rather than short-term results that have a long-term impact on the lives of people.

2.1 PROJECT ACTIVITIES AND THEIR LINK TO OUTPUTS AND OUTCOMES

The VILLAGE Initiative was distilled into five main projects, or project categories. Each of these contain several activities, into which go a number of outputs. The projects are:



Figure 2-1: The five main projects or project categories

Project 1—Governance & Operations

The first project involves setting up the entire framework for the VILLAGE Initiative, creating the non-profit organization, hiring the team, formalizing partnerships, planning, creating systems, and creating policies and procedures.

Project 2—Community Engagement & Social Transformation

This project involves a series of activities, including creating a community engagement plan and an age-friendly city plan, in addition to implementing a series of community engagement activities. It also includes a neighbourhood development strategy and activities that lay the groundwork for the VILLAGE Community App to be developed.

Project 3—Platform Development

The development of the platform, applications, and smart device technology begins in the first year and goes on until the end of the five years. The technologies being developed are the foundation upon which service delivery will be based.

Project 4—Service Delivery

For our residents, this project is the VILLAGE Initiative. It involves planning, hiring staff, setting up a delivery point, service design, procedure development, coordination with existing partners, developing a campaign, and launching actual service delivery.

Project 5—Sustainability & Transferability

The final project involves creating and implementing a sustainability plan, expanding existing provincial programs, and creating a guide with best practices for other cities.

Chapter 2 PERFORMANCE MEASUREMENT

The Logic Model (see Figure 2-2) is a summary of the activities and intended qualitative and quantitative outcomes and will guide the development and improvement of the VILLAGE Initiative. It identifies the Challenge Statement and definition of the target audience, as well as secondary audiences, and focuses mostly on service delivery to the residents, as the other projects and deliverables are covered in the GANTT chart and in the Project Management section of this proposal. The model has been created to visually represent the underlying theory and logic of the VILLAGE Initiative's service delivery, and to demonstrate how project activities are linked to outputs, short-term outcomes, medium-term outcomes and long-term impacts for individuals and society.

Outputs refer to measurable, immediate deliverables and/or the amount of product/service that

is produced or delivered. **Short-term outcomes** refer to new learning and knowledge or change in attitude and skills among the audience. **Mid-term outcomes** refer to changes in behaviour and action that result from this new knowledge. If activities are accomplished, outputs delivered and short and mid-term outcomes achieved, then **Long-term** impacts to older adults, families, the City of Côte Saint-Luc, the health care system and society might be expected to occur.

The outcomes-based performance measurement plan will be focused on outputs and deliverables, while the long-term impacts will be built into the sustainability plan, since it will not be possible to show these kinds of effects during the five-year period.

The Logic Model

Challenge Statement	In the face of a rapidly aging population, the City of Côte Saint-Luc will implement a connected framework, leveraging smart devices and related technologies that will empower seniors to: <ol style="list-style-type: none"> 1. live more safely and independently in their homes; 2. be better connected to their communities and city services; 3. be more socially engaged, Improving the overall well-being and quality of life for older adults and reducing stress on families and caregivers, the healthcare system, and long-term care facilities.
Audience	The target audience will be older residents (65+) living in Côte Saint-Luc who are beginning to experience a loss of autonomy and want to stay living at home for as long as possible while maintaining autonomy, dignity and respect. They don't need support from social services yet, but are starting to need some help. Secondary audiences will include: family and caregivers, other residents (future seniors), City staff, and Partners.
Input	Funding: Infrastructure Canada Smart Cities Challenge Equipment & Tools: Tech for convenience, tech for safety, and tech for social engagement, social prescription software Facilities: City facilities, participants' homes, office in shopping mall (as of Year 3) Human Resources: Governing Board, Management Team, Technology Partner and Technology Team, Community Engagement Service Delivery Team, Partners, City Staff, Professional services
Activities	<ul style="list-style-type: none"> • Governance and Operations • Community Engagement and Social Transformation • Platform Development • Service Delivery—Intake assessment, baseline metrics and referral to menu of services including: <ul style="list-style-type: none"> • Full home assessments and adaptation • Smart technology prescriptions and installations for safety, convenience and social engagement • Social prescriptions and referrals to City programs, activities and services in and around CSL • VILLAGE Community App (people helping people) • Training and education workshops for seniors • Help desk, monitoring and support • Sustainability and Transferability

Chapter 2 PERFORMANCE MEASUREMENT

Outputs	<ul style="list-style-type: none"> • Policies procedures and guidelines • Management, Community Engagement, and Service Delivery plans • Monthly reports to Governing Board and Infrastructure Canada Smart Cities Challenge Team • Budget compliance • # of engagement activities offered • # of participants and partners engaged • # changes made for Age-Friendly City designation 	<ul style="list-style-type: none"> • Deployment of smart devices for older adults • # of older adults onboarded (people reached) • # of home assessments • # of social prescriptions • # of referrals to City and community services • # of workshops offered • Retention rate of participants • # of people participating in the VILLAGE Community App • Implementation and best practice guide for transferability
Short-Term Outcomes	<ul style="list-style-type: none"> • Awareness of VILLAGE Initiative (public informed about the Initiative) • Participation level of community (public signed up to the Initiative) • Active involvement of community in service design, feedback cycle • Diversity of community engagement participants (representative of population groups) • Participant satisfaction as measured by adoption, acceptability, appropriateness, feasibility/usability, efficiency, effectiveness, fidelity, and penetration level 	
Mid-Term Outcomes for Older Adults	<ul style="list-style-type: none"> • Improved digital literacy among older adults • Improved safety in the home • Improved function/autonomy (Instrumental Activities of Daily Living [IADLs]) • Improved perception of personal physical and mental well-being • Better communication between seniors and families • Increase in social connections • Reduced mechanical falls and increased falls efficacy 	
Long-Term Impact	<p>Benefits to Older Adults</p> <ul style="list-style-type: none"> • Reduced social isolation (nodes of relationships added to care map) • Increased social participation • Improved quality of life/wellbeing • Prolonging ability to age in place <p>Benefits to families/Caregiver</p> <ul style="list-style-type: none"> • Decrease caregiver and family burden (in terms of stress, time, and quality of interaction) <p>Benefits to the City and the Community</p> <ul style="list-style-type: none"> • Increase in use of existing services • Age-Friendly City designation • Community capacity <p>Health and Social Service Outcomes</p> <ul style="list-style-type: none"> • Timeliness of care • Reducing hospital admissions • Participant experience • Delaying placement 	<ul style="list-style-type: none"> • Efficiency of care: Better use and integration of community, City and the social and health care services (the right services at the right place at the right time at a reasonable cost) • Platform that others can plug into (CIUSSS digital health) <p>Benefits to society</p> <ul style="list-style-type: none"> • Living Lab/Innovation Hub advancing knowledge (knowledge translation, transferability)- Interdisciplinary innovation – breaking down silos • Changing attitudes/perceptions about older adults • Systems change – new resources, structures, new adjusted policies, improved delivery of existing programs and new working relationship in the community • Interoperability • Ripples to future seniors...

Figure 2-2: The Logic Model



Chapter 2 PERFORMANCE MEASUREMENT

2.2 INDICATORS

The following tables show how each of the outcome and impact indicators are defined and how they will be measured.

Governance Indicators	Performance Measures
Organization	Extent to which the progress and compliance with requirements is being monitored and reported
Community engagement	Number of community engagement activities in which residents actively participated
Multi-level Governance	Extent to which the NPO, City, and Tech partner cooperate with each other and with authorities and partners from different levels
Budget compliance	Extent to which annual expenditures are compliant and aligned to project cost projections
Sustainability and Transferability	Extent to which economic activities have generated revenues and social activities have benefitted beneficiaries long-term

Table 2-1: Governance indications and performance measures

Community Engagement Indicators	Performance Measures
Representative	Extent of engagement participation by stakeholder groups Increased participation of vulnerable groups
Trust	Extent of competence, integrity and dependability/reliability of the engagement process
Influence	Extent of effects of project participation on community participants, and of participants on design
Responsiveness and Communication Quality	Extent to which interactions with the public are timely, helpful, and clear
Accessible	Extent of engagement and technical tools available to ensure participation & feedback
Transformative	Extent of benefits to the community participants

Table 2-2: Community engagement indicators and performance measures

Platform Development Indicators	Performance Measures
Value Delivery	Extent the support platform is intelligent, as well as customizable to user needs Extent the implementation of prototype in homes of older adults is perceived as trouble-free and efficient Extent of acceptability, usability, and adoption by users of the VILLAGE platform
Risk Management	Extent of privacy protection and protection of personal data
Resource Management	Extent to which the management of resources (budget, human capital, material) have been used
Performance Measurement	Extent the support platform tracks and records user feedback and corrects technical malfunctions Extent the platform is responsive to user's feedback

Chapter 2 PERFORMANCE MEASUREMENT

Platform Development Indicators	Performance Measures
Strategic alignment	Extent to which the platform is aligned to user needs and challenge statement
Frailty	Screen for frailty
Acceptability	Satisfaction with various aspects of the innovation (content, complexity, comfort, delivery, credibility)
Adoption	Intention, initial decision, or action to try an innovation “uptake”
Appropriateness	Perceived fit, relevance, or compatibility of the innovation
Feasibility/Usability	Actual extent to which innovation can be successfully used for its intended purpose – based on effectiveness, efficiency and satisfaction, system usability scale
Fidelity	Delivered as intended based on protocol
Implementation cost	Marginal cost; cost effectiveness; cost-benefit
Penetration	Level of “reach” or spread or service access
Sustainability	Retention, maintenance or continuation by user

Table 2-3: Platform development indicators indications and performance measures

Service Delivery Indicators	Performance Measures
Quality	Extent of tangibles (reliability, responsiveness, assurance and empathy of service)
Availability	Increase access to and use of technologies
Revenue Improvement	Extent of price adaptability of service
Customer Experience	Extent of customer understanding of service Extent of customized services
Process Cycle (time, improvement)	Extent of waiting time
Digital Literacy – Older Adults	Extent of difficulty in adapting to wearables and other related smart technologies
Safety	Increased safety in the home (Safety Assessment Scale)
Perceived Physical and Mental Health	Extent of smart-home customer expressing improved physical and mental health
Increased functional Status	Ability to perform tasks necessary to live independently in the community (Lawton Instrumental Activities of Daily Living Scale)
Improved Communication between Seniors and Families	Extent of senior’s family participation months after smart home devices installed
Increased Social Connections	Frequency and quality of family, friendship and neighbour ties (Lubben Social Network Scale)
Reduced Mechanical Falls/ Increased Falls Efficacy	Falls Efficacy Scale

Table 2-4: Service delivery indicators and performance measures

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Sustainability and Transferability Indicators	Performance Measures
Economic Performance	Extent of VILLAGE smart home products and memberships installed Extent of revenue sources acquired from the VILLAGE Initiative
Social Performance	Extent of social impact the VILLAGE Initiative has on community and users of services

Table 2-5: Sustainability and transferability indicators and performance measures

Benefits to older adults	Performance Measures
Reduced Social Isolation (nodes of relationships to care map)	Quality and quantity of social relations with at different levels where human interaction takes place (individual, group, community and the larger social environment). Frequency of face-to-face human interaction
Social Participation	Extent of satisfaction with personal and family relationships and perception of loneliness
Quality of Life/Psychological Well-Being	Psychological General Well Being Index (Dupuy)
Prolonging Ability to Age in Place	Government checklist – Are You Ready to Age in Place

Table 2-6: Benefits to older adults indicators and performance measures

Benefits to Families/Caregivers	Performance Measures
Decrease in caregiver and family burden	Caregiver risk screen
Peace of mind/perceived stress	Extent of relieved stress of caregivers

Table 2-7: Benefits families/caregivers and performance measures

Benefits to City	Performance Measures
Increase in use of existing services	Internet access for percentage of lowest income and most isolated seniors
Increase social and economic resilience of older adults and community	Connection points in the community
Age-Friendly Community designation	Extent of following guidelines of Public Health Agency of Canada
Community capacity	Community capacity scale – social capital

Table 2-8: Benefits to City and performance measures



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Health and social service outcomes	Performance Measures
Reducing hospital admissions/ Reduction in priority 3 and 4 calls	EMS data (Hospital admission is costly and often preventable)
Efficiency of care	Better use and integration of community, city and the social and health care services (the right services at the right place at the right time at a reasonable cost) Just in time indicator

Table 2-9: Health and social services outcomes and performance measures

Benefits to Society	Performance Measures
Living Lab/Innovation Hub advancing knowledge (Knowledge translation, transferability) – interdisciplinary innovation	# of white papers written by researchers and organizations on VILLAGE Initiative # of cities modelling the VILLAGE Initiative for seniors in their territory
Changing Attitudes/Perceptions of Older Adults	# of positive, negative and neutral stereotypes on aging changed
Systems Change – New Resources, structures, new adjusted policies, improved delivery of existing programs and new working relationship in the community	# of resources, structures, adjusted policies, improved delivery of programs and new working relationship in the community changed
Ripples to Future Seniors	# of future seniors onboard the VILLAGE Initiative platform
Inter-operability	Extent to which project has increased a community infrastructure that provides services to and accept services from other community and health care infra-structures and to use the services so exchanged to enable them to operate (CIUSSS DIGITAL HEALTH)

Table 2-10: Benefits to society and performance measures



Chapter 2 PERFORMANCE MEASUREMENT

2.3 PROJECT TIMELINES, DELIVERABLES, AND MILESTONES

The GANTT chart below focuses on timelines, deliverables, and milestones, which are easily measured and quantifiable.

Projects		Activities/Deliverables		Duration	Dependen- cies	Human Resources	Y1				Y2				Y3				Y4				Y5			
							Q1 1	Q2 2	Q3 3	Q4 4	Q1 1	Q2 2	Q3 3	Q4 4	Q1 1	Q2 2	Q3 3	Q4 4	Q1 1	Q2 2	Q3 3	Q4 4				
Governance and Operations																										
		Create NPO and recruit Governing Board		6 months		Côte Saint-Luc (CSL)																				
		Establish Board rules, structure and framework		3 months	Create NPO	CSL																				
		Hiring CEO and Management Team		3 months	Establish rules	Governing Board (GB)																				
		Create policies and procedures		3 months	Hiring MT	Management team (MT)																				
		Establishing professional services		3 months	Create NPO	COO																				
		Financial plan and budget		3 months	Hiring MT	MT																				
		Sign contracts with Technology Partner		3 months	Professional services (PS)	MT, GB, PS (lawyer)																				
		Sign contracts with other partners		3 months	PS	MT, GB, PS (lawyer)																				
		Create HR management plan		3 months	Hiring MT	MT																				
		Create risk management framework		3 months	Hiring MT	MT, GB																				
		Establish outcome measurement plan		3 months	Hiring MT, partner con- tracts	MT, Research Partner																				
		Create data governance and privacy protection policy		3 months	Hiring MT and PS	MT, PS (Privacy expert)																				
		Develop marketing and communications strategy		3 months	Create NPO	MT, CSL																				
		Set up new location (service delivery and offices)		9 months		MT, GB, PS																				
Community Engagement/ Social Transformation																										
		Finalize CE Plan (including work with indigenous groups)		3 months	Hiring MT	DIR - CE/SD																				
		Create Village Community App/neighbourhood development strategy		27 months	Finalize CE Plan	DIR - CE/SD, CEO, TP																				

Chapter 2 PERFORMANCE MEASUREMENT

Projects	Activities/Deliverables	Duration	Dependencies	Human Resources	Y1				Y2				Y3				Y4				Y5			
					Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	Hire Community Engagement (CE) Coordinator	3 months	Governance and operations	MT, GB																				
	Implement CE Activities	Ongoing	Finalize CE Plan	DIR - CE/SD, CE Coordinator																				
	Create plan for Age-Friendly City designation	6 months	Hiring Management Team	CEO, CSL																				
Platform Development																								
	Core platform development	48 months	Technology Partner (TP)	TP, RP, MT																				
	Application development	48 months	Technology Partner	TP, RP, MT																				
	Smart device development	48 months	Technology Partner	TP, RP, MT																				
	System integrations	36 months	Technology Partner	TP, RP, MT																				
	Testing, staging, and deployment	36 months	Technology Partner	TP, RP, MT																				
Service Delivery																								
	Create service delivery plan	15 months	Hiring MT	DIR - CE/SD																				
	Create inventory of intake assessment tools	3 months	Hiring MT	DIR - CE/SD, RP																				
	Hire service delivery staff	6 months	Create SD Plan	MT, GB																				
	Design home assessment service	3 months	Hiring SD Staff	DIR - CE/SD, OT																				
	Develop help desk procedures	6 months	Hiring SD Staff	Case Managers																				
	Design education and training workshops and tools	6 months	Hiring SD Staff	Program Staff																				
	Make integration plan with existing csl and community services	6 months	Hiring SD Staff	DIR - CE/SD, CSL																				
	Create service delivery campaign	3 months	Platform development	Marketing coordinator																				
	Launch service delivery	27 months	Platform development, New location	DIR - CE/SD, RP and SD Staff																				
	Monitor results	27 months	Launch service delivery	DIR - CE/SD, RP and SD Staff																				

Chapter 2 PERFORMANCE MEASUREMENT

Sustainability and Transferability																								
Projects	Activities/Deliverables	Duration	Dependencies	Human Resources	Y1				Y2				Y3				Y4				Y5			
					Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	Finalize sustainability plan (revenue model inc. user fees, grants, partnerships, etc.)	48 months	Hire Management team	MT, GB																				
	Create and implement fundraising plan	33 months	Hiring Fund-raising	Fundraiser																				
	Lobby to expand PAD program to include Smart Homes Devices	21 months		CEO, CSL, RP																				
	Implement sponsorship and partnership revenue agreements	27 months		COO																				
	Create implementation and best practice guidelines for transferability	6 months	platform development, service delivery	MT, GB, RP																				
	Guidelines and framework for licencing VILLAGE solution to other cities	6 months	platform development, service delivery	MT, CTO																				

Table 2-11: Implantation plan

2.4 PAYMENT SCHEDULE

The VILLAGE Initiative will only be able to be established with the senior staff and extensive legal support in place, out of which everything else will flow. Most of the Governance and Operational set up will occur in the first year, so we would request the first payment to be 'seed capital' covering our first 12 months of operations in order to make that possible.

Outcomes-Based Performance Measurement - Milestones and Payments		Y1	Y2				Y3				Y4				Y5																									
Category	Description	Seed capital	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4																						
Awareness of the Village Initiative	This is the number of people that would gain awareness of the Village Initiative through our marketing efforts to our population of approx. 34,000 residents.		5,000				5,500			6,000			6,500			7,000			7,500			8,000			8,500			9,000												
Participation in Community Engagement	This is the number of people who reach out and participate in our Community Engagement activities.		200				300			350			400			450			500			550			600			650	700	750	800	850	900	950	1,000	1,050	1,100	1,150	1,200	1,250

Chapter 2 PERFORMANCE MEASUREMENT

Outcomes-Based Performance Measurement - Milestones and Payments																					
Category	Y1		Y2				Y3				Y4				Y5						
Design and Testing Workshops	Seed capital	Q1 1	Q2 2	Q3 3	Q4 4	Q1 1	Q2 2	Q3 3	Q4 4	Q1 1	Q2 2	Q3 3	Q4 4	Q1 1	Q2 2	Q3 3	Q4 4				
		50		125		150		175		200		225		250		275					
Adoption of Products and Services						50		100		250		350		600		850					
Benefits Derived from Adoption						38		75		188		263		488		638					
	\$1,061,000	Q1	\$762,000				Q1	\$1,229,500				Q1	\$1,229,500				Q1	\$1,262,000			
		Q2					Q2					Q2					Q2				
		Q3	\$457,200				Q3	\$737,700				Q3	\$737,700				Q3	\$757,200			
		Q4	\$304,800				Q4	\$491,800				Q4	\$491,800				Q4	\$504,800			

Table 2-12: Outcomes-Based Performance Measurement with the milestones and payment schedule



Chapter 2 PERFORMANCE MEASUREMENT

2.5 RISK STRATEGY AND MITIGATION

Risks	Mitigation Plan
Basing performance indicators only on quantitative data	Ensure that qualitative indicators are measured as well (through interviews, surveys, focus groups, and observation)
Lack of validity and reliability of outcomes	Ensure reliable and valid tools are being used and use multiple methods to triangulate the results.
Medium- and long-term outcomes may not be achieved for many years	Ensure service delivery starts on time Focus on showing medium- to long-term outcomes in sustainability plan.
Not being able to collect base-line metrics	Ensure evaluation tools are built into the platform on time
Not meeting timelines	Establish clear monitoring and reporting of deliverables based on dependencies Report on works in progress to the Governing Board on a monthly basis. Establish clear status reporting between Platform Development and Service Delivery

Table 2-13: Risks and mitigation plan



Chapter 3 PROJECT MANAGEMENT

Proper project management will ensure that the people responsible for bringing the VILLAGE Initiative to life stay on course and are accountable for delivering on the promise so awaited by our public. This chapter outlines a variety of strategies and tools for the organization to use related to resource assessment, risk identification and mitigation, communication and monitoring.

3.1 PROJECT SCOPE, SCHEDULING, SEQUENCING, AND DEPENDENCIES

The VILLAGE Initiative consists of five main projects, with several activities outlined in each. The GANTT chart (Figure 2-11) in Chapter 2—Performance Measurement indicates the scheduling, sequencing, and dependencies for each activity, in addition to the human resources, and the schedule of deliverables/outputs.

3.2 RESOURCE ASSESSMENT

Human Resources

A Human Resources Management Plan will be created by the Management Team that will outline the following:

- Individual and team roles and responsibilities for each of the projects and who will be responsible for all the hires
- A recruitment strategy
- Onboarding procedures and documentation

- Job descriptions with performance expectations
- Team-building programs
- Training programs
- Development of policies and procedures
- Performance Assessment and roll out plan

During the implementation phase of the Governance & Operations project, the HR Plan will be used for the acquisition, onboarding, training, and development of human resources.

The Organizational Chart below (see Figure 3-1) illustrates the structure of the VILLAGE Initiative. Closely mirroring the Organizational model (Figure 1-1), it ties the actual staff positions to Initiative activities. While the CTO technically has a separate technology team, they are included in this chart as they are funded by the Smart Cities Challenge, and will work very closely with the community engagement and service delivery teams. The roles of the Management Team are outlined in the Governance Chapter.

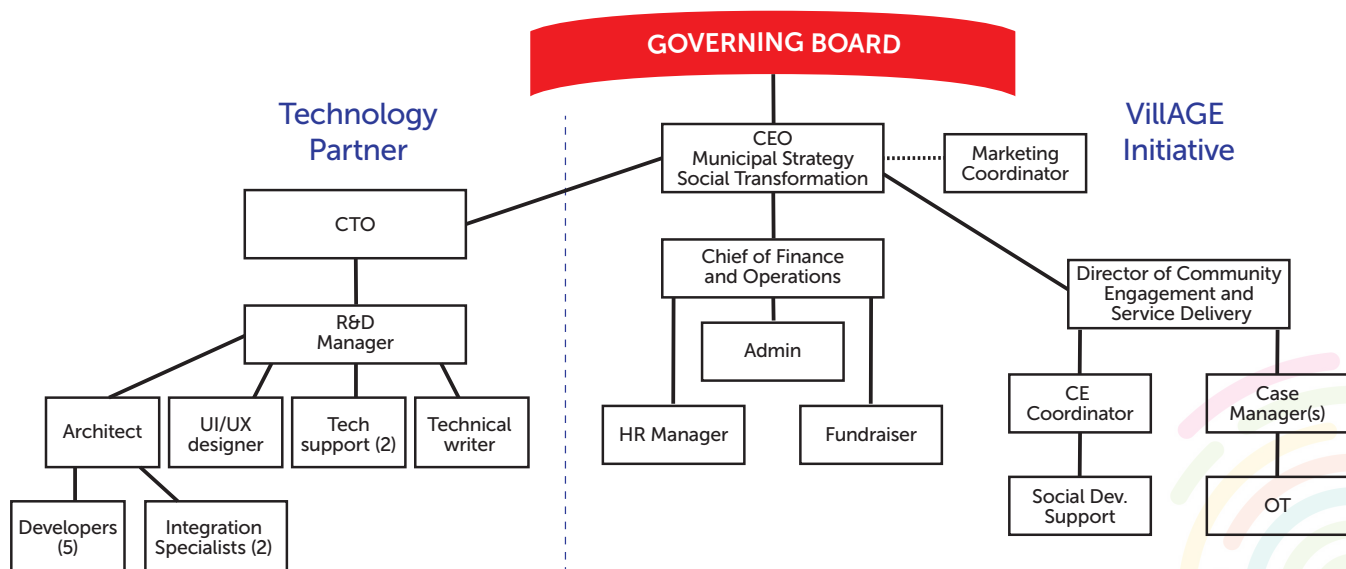


Figure 3-1: Organizational chart

Chapter 3 PROJECT MANAGEMENT

3.3 MATERIAL & FINANCIAL RESOURCES

Many material resources will be provided by the City of Côte Saint-Luc. This includes IT systems, marketing and communications resources, space for community engagement, and office space for the first few years. The infrastructure for service delivery is also well-established within City departments, whose resources can be tapped when required. This includes the Library, the Parks & Recreation, Public Safety (including EMS and vCOP). All financial resources are explained in the Financial Chapter.

3.4 STRATEGIES

Risk Identification & Mitigation

A Risk Management Plan will be created by the Management Team in the first year that will outline the following:

Roles and Responsibilities for Risk management

- Methodology
- Risk categories
- A Risk Breakdown Structure (RBS)
- Cost Management Plan
- Risk probability and impact assessment
- Risk categorization
- Reporting formats
- Tracking

Each project lead will manage the risks for his or her project. See Monitoring, Controlling, and reporting section, below.

Following are the best practices we will aim to implement in mitigating risks:

- No rush planning; bringing all stakeholders to the table and get their commitment
- Create proper governance and support structure
- Assemble a dedicated team
- Make sure team members know their roles
- Create test environment
- Deliver larger projects in phases

- Get clients to test and create or modify existing business processes
- Plan for a bumpy data migration
- Create service-level agreement with client
- Blitz support on go-live date
- Monitor systems for 60 days
- Celebrate success and acknowledge the team
- Procurement Management

A Procurement Management Plan will be created by the COO that will outline the following:

- Procurement policies and procedures;
- Risk Management issues;
- Contract Change Control systems;
- Payments systems;
- Claims administration;
- Performance reports;
- Payment systems.

The CEO and Governing Board will review all contracts, as will, when relevant, the CTO and Director of Community Engagement and Service Delivery. Outside legal counsel will be required for every contract, as there is no lawyer on staff.

The largest and most important contract will be with the Technology Partner (CTO), who will be responsible for developing the technology procurement plan, solicitations, equipment purchases, contracts with partners and vendors, hiring and managing technology team, make-or-buy analyses, systems integrations, activity costing and more.

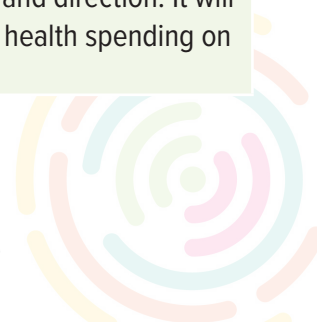
Stakeholders

Stakeholders are individuals who are involved in the project, or whose interests may be positively or negatively affected as a result of the execution of the project.



Chapter 3 PROJECT MANAGEMENT

Stakeholder	Impact and Influence
Senior residents (age 65+)	This group is the target audience for the VILLAGE Initiative. They have the most influence on all aspects of the project, and it impacts their lives the most. As a result of the Initiative, they will have more autonomy and be safer living at home and in community.
Families of senior residents	The people directly linked to the seniors are also extremely affected by the project and have a lot of influence on how it will unfold. They could gain tremendous peace of mind from the Initiative and also have their lives made easier if their loved ones are more autonomous.
Future seniors (age 40–64)	Those not quite senior yet will be able to reconsider their entire approach to aging in light of the VILLAGE Initiative, and perhaps, with this increased awareness, use prevention to avoid negative outcomes in the future.
Participating residents	The notion of the VILLAGE is to ideally have the entire community participate and help one another for mutual benefit thus strengthening the community as a whole. The impact of the group on the success of the project is important.
The City of Côte Saint-Luc	The City of Côte Saint-Luc, its residents, reputation, and demographics will be heavily impacted by the VILLAGE Initiative, which is game-changing for the municipality. The City itself will continue to have an extremely important and influential role in the project.
Technology Partner	This company and its president, who will be the VILLAGE CTO, has a major influence on the project and all its outcomes. Its success depends on this partner.
Future Board members	This group will have significant influence on the direction of the VILLAGE Initiative and will directly impact key decisions.
Future VILLAGE staff	Those earning their livelihoods from the project will of course be impacted by it. They will have a major influence on its implementation and success, but also on the lives of the individuals who participate in it. Those who have worked on it so far have been transformed already, and will only be more so as they see it through.
Community partners	This group stands to benefit immensely from the VILLAGE Initiative, and can co-develop programs and services with us. With social prescription and referrals, the project could even see their attendance numbers increase.
Research partners	The impact and influence of university research partners on the Initiative is already significant and will continue to be so. They have already helped shape the direction of the project, and will advise and co-create with us in the future as well.
Health and Social Services Centre	The strain of a rapidly aging population on these institutions is acute. The Initiative could have an immense benefit to and help alleviate the burden on the health system. The Initiative will complement rather than overlap with the services provided by these centres. Our partnership with them is highly valuable.
Hospitals	The hospital system is both a major beneficiary and major partner of the VILLAGE Initiative. The project will improve the trajectories of care, and advance the objectives of the health care system, which is moving towards digital health and transferring care to where the patient is. The Initiative will also receive advice and expertise from this group.
Provincial government	The province has a major impact on this project in terms of support, funding, and direction. It will have a seat on the Board, and can, within its powers, shift the entire focus of health spending on prevention and programs such as this.



Chapter 3 PROJECT MANAGEMENT

Stakeholder	Impact and Influence
Service providers to seniors	Several kinds of people fall into this category, and they are those that will be more indirectly affected by the project. This group includes: pharmacists, taxi drivers, transit services, and gardeners, but also companies like Lifeline, security companies, etc.
City staff, especially those who work in the Library, Parks & Recreation, Public Safety (including EMS & vCOP)	Many in this group will be heavily impacted by the VILLAGE Initiative, in that new programs, services, and standards will need to be created, adapted, or adopted by them.
Building operators	If the VILLAGE Initiative is successful, building operators (including superintendents) may have a more significant role to play in the lives of their tenants. They can opt to install smart technologies, receive alerts, and also impact social activities in the building.
Senior residence operators	These operators will be both positively and negatively impacted by the VILLAGE Initiative. People living in their homes longer means they don't move into these facilities, but on the positive side, they could make excellent partners for deploying technologies and augmenting their services.
Emergency Response Services (Ambulance, Fire, Police)	The Initiative will definitely have a positive impact on these services, because prevention is a major part of what it's about. They will be better able to do their jobs if we succeed.
MEDTEQ	This consortium will have definite impact on the project, especially in the realm of funding. With funding will come a measure of influence.
Tech companies who create tools	Any variety of businesses who develop technology tools for seniors could benefit from this project, especially those open to working with us. Some will see the Initiative as competition, but most could co-develop new products with us and test them with our target population.
Other cities	Other cities (nearby and not) can be both positively and negatively impacted by the VILLAGE Initiative. The project may create expectations in their populations that they may not be able to meet, and if any responsibility for health is devolved to cities, it will definitely impact both their budgets and operations. Other cities also stand to gain from the project, as the knowledge and technologies will be openly shared with them.

Table 3-1: Stakeholder impact and influence

Communications

Project Communications Management involves the creation of a Communications Strategy, which will include:

- Stakeholder register
- Stakeholder communication requirements
- Stakeholder Management Strategy
- Information to be communicated (including language, format, content)

- Communications distribution channels (e.g. emails, press releases, social media)
- Communications technology
- Communication requirements analysis
- Communication models and methods

A Marketing and Communications Coordinator will be responsible for all VILLAGE Initiative communications and the creation of the Plan. This person is linked to the CEO but reports to the Director of Public Affairs, Communications and IT in the City

Chapter 3 PROJECT MANAGEMENT

of Côte Saint-Luc. The reason for this structure is that the City is providing many in-kind donations related to marketing and communication, and so it made more sense to have a resource dedicated to the VILLAGE Initiative on that team.

3.5 MONITORING, CONTROLLING & REPORTING STRATEGIES

Each project lead will manage their project scope, time, cost, quality, human resources, and risk management. This includes:

- Defining and sequencing activities
- Estimating the resources required
- Estimating the duration of each activity
- Developing and controlling a schedule
- Estimating costs
- Determining and monitoring a budget
- Performing quality assurance and quality control

Where the Management Team is designated as responsible in the GANTT chart, the CEO will ensure that the activity gets completed.

Issues may escalate in certain areas of our project plan. To address them, an 'issue log' will be instituted. The log will manage the status, level of importance or priority, provide a description of the issue, a resolution timeline, possible escalation and evaluate the impact it may have on a project or other dependencies as well as indicate who will be responsible for managing it. The log will be accessible and archived when completed on the VILLAGE Intranet management system.

For the closure of each activity, 'lessons learned' documentation will be created, which includes variances, corrective actions taken and other relevant information.

The culture of the VILLAGE Initiative as an organization must be one that accepts failure as a means of learning, without which innovation and best practices will not occur. As long as failures are acknowledged as they occur, discussed, documented, and corrected, the Initiative will move forward.

Project Reporting and Communication

We will provide regular reports and communications to various stakeholders and partners of the VILLAGE Initiative such as monthly status updates, regular reviews, and as-needed communication to keep them informed.

Quality Assurance and Quality Control

To monitor and verify the effectiveness of processes used to manage and create the deliverables, we will be using a Quality Assurance software solution like TestRail. It is an easy to use web-based QA tool that integrates task lists and time tracking module solutions to organize test cases, execute tests, collect results, and coordinate testing efforts. TestRail also lets you automatically project past estimates and actual time spent into the future to predict workload more accurately. Project dashboards and email notifications keep you informed throughout your testing. All activities and test results are archived so that you always have a detailed history available for your reference. Each project manager with his team will be responsible for tracking and testing their activities for Quality Assurance.



Chapter 3 PROJECT MANAGEMENT

3.6 KEY RISKS

Risks	Risk Mitigation Plan
Unavailability of human resources/skill gaps	<ul style="list-style-type: none"> • Get the right team by using resource allocation techniques and secure them when they are available
Achievement Requirements	<ul style="list-style-type: none"> • Clarifying requirements by holding workshops • Interviewing stakeholders • Producing a comprehensive scope document and project brief
Lack of communication between key stakeholders, project managers, customers	<ul style="list-style-type: none"> • Plan our communications and include all key stakeholders, managers and consumers
Schedule coordination	<ul style="list-style-type: none"> • Appoint a coordinator responsible for ensuring proper coordination of activities and their dependencies across the projects • As a secondary role, the coordinator will ensure project managers work collaboratively to improve efficiency and effectiveness
Delays in project start-up/execution	<ul style="list-style-type: none"> • Produce a development chart to measure delay and milestone slips of all projects to stay on track and on budget
No Plan B when Unforeseen Problems Happen	<ul style="list-style-type: none"> • Plan risk responses • Prepare an alternative plan which includes • Contingency fund • Additional resources on standby • Options to break the project into segments and/or reduce scope
Stakeholders disappointed	<ul style="list-style-type: none"> • Create Stakeholder register • Stakeholder communication requirements • Create a Stakeholder Management Strategy that sets the expectations from the very start.

Table 3-2: Risk mitigation plan



Chapter 4 TECHNOLOGY

4. THE TIME IS NOW

We live at a time where older adults can benefit from technology that improves their quality of life at home and in community. This has been made possible by advances in smart devices, data science and system interoperability. This technology has reached a maturity where it can provide older adults with more confidence, convenience, safety, and social connectedness.

4.1 TECHNOLOGY ADOPTION AMONG OLDER ADULTS IS GROWING

Contrary to popular stereotypes, older adults are adopting technology at a growing and rapid rate. Recent Pew Research Center surveys² found that 42 percent of adults ages 65 and older own a smartphone—up from just 18 percent in 2013—and 67 percent use the Internet and home broadband—a 55-percentage-point increase in just under two decades (see figure 4-1).

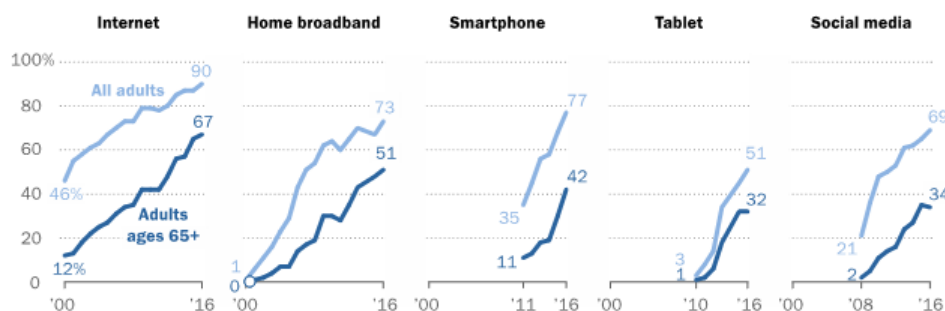
4.2 A FAST-GROWING TECH SECTOR IN THE LONGEVITY ECONOMY

The Longevity Economy is expected to grow to more than \$30 billion in the next few years³. Families, caregivers, and older adults will increasingly be acquiring new tech-enabled services that improve the quality of their lives. The 50+ market is increasingly aware of technology alternatives. The desire to live at home dominates the minds of the city-dwelling baby boomers who began turning 72 in January 2018. Health costs rise and health policy drives care into the home. Stark consumer economic realities prevent moves to senior housing and life expectancy at age 65 still substantial, especially for women.

There are four main categories of technology for aging in place (see figure 4-2). Each useful in itself—but together, they provide a complete, albeit complex puzzle for maintaining connections, safety, health, and a more fulfilling and interactive life as we age.

Smartphone adoption among seniors has nearly quadrupled in the last five years

% of U.S. adults who say they have or use the following



Source: Survey conducted Sept. 29–Nov. 6, 2016. Trend data are from previous Pew Research Center surveys.
 “Tech Adoption Climbs Among Older Adults”

PEW RESEARCH CENTER

Figure 4-1: Charts showing smartphone, Internet, tablet, and social media adoption amount older adults.

² <http://www.pewinternet.org/2017/05/17/tech-adoption-climbs-among-older-adults>

³ The 2018 Market Overview from Aging in Place Technology Watch

<https://www.ageinplacetechnology.com/files/aip/Market%20Overview%202018%20Final%2003-14-2018.pdf>

Chapter 4 TECHNOLOGY



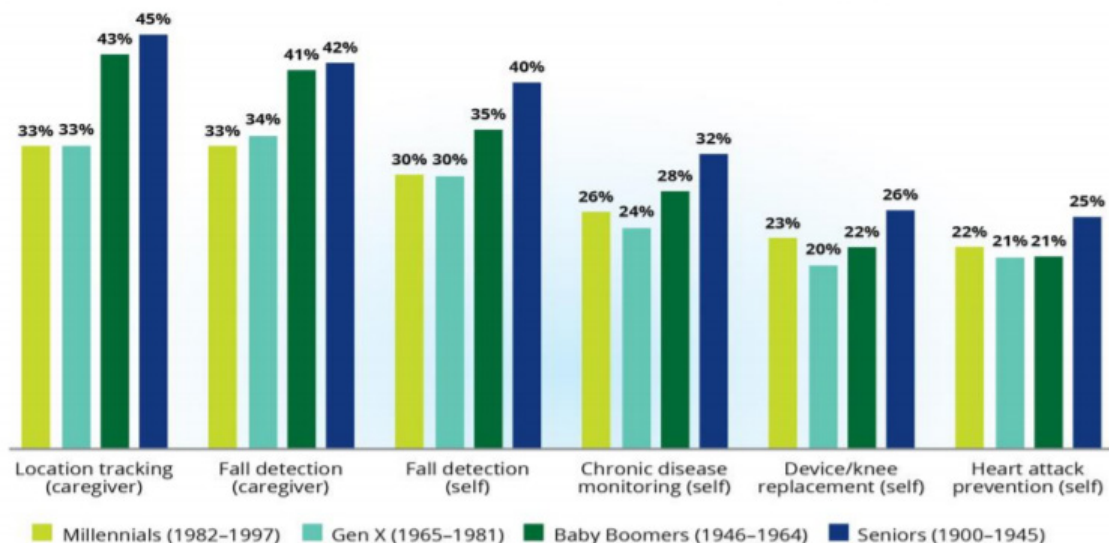
Figure 4-2: Aging in Place Technology Categories

The Personal Emergency Response Systems (PERS) market alone is expected to reach \$3 billion in 2019⁴. PERS device firms include Nortek, MobileHelp Smart, and TruSense. Modified interface solutions for older adults are available from GreatCall (acquired by Best Buy) and GrandPad. Wearables, which include health-related sensors, began to take the stage in 2017 and early 2018,

including UnaliWear, Clairvoyant Networks, and MyNotifi. Health and wellness solutions include Kardia Mobile for EKG, Misfit Vapor smartwatch for sleep tracking, and PillDrillHub, AdhereTech, and MediSafe for managing medications. Voice-first interfaces such as the Alexa or Google Assistant provide hands-free in-home engagement. The CareCoach puppy and Hasbro's Companion Pets focus on providing companionship for and serving the elderly. These solutions represent a very small fraction of the overall fast-growing market.

We find it interesting that older adults and Baby Boomers are more likely to use sensors and other passive technologies than younger generations (see figure 4-3).

The number of technology vendors and solution options available is enormous, complex, and ever-evolving. It has become confusing to navigate for older adults, their families, and caregivers. The landscape is highly siloed, solution sets can be very costly, adoption is difficult, integration is challenging (if not impossible in most cases), and privacy issues present very legitimate concerns.



Source: Deloitte 2016 Survey of US Health Care Consumers.

Note: Chart shows respondents who are likely to use the technology, where "likely" is defined as answering "4" or "5" on a five-point scale in which "1" is "not at all likely" and 5 is "extremely likely."

Graphic: Deloitte University Press | DUPress.com

Figure 4-3: Bar chart illustrating use of six health technologies used by four generational segments.

⁴ <https://www.ageinplacetech.com/files/aip/Market%20Overview%202018%20Final%2003-14-2018.pdf>

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4.3 THE FINALIST PHASE—ENGAGEMENT, RESEARCH, AND PILOT

During the finalist phase, we:

- consulted with residents during community engagement to discover their experiences, needs and concerns associated with technology
- researched and evaluated existing technologies and solutions
- implemented a pilot project in the homes of five residents (described in Chapter 6—Engagement)
- defined a vision and plans for our Connected Technology Framework—The VILLAGE Platform

4.3.1 Requirements Derived from Community Engagement

We discovered a broad set of older adult resident needs during our community engagement initiatives (see Chapter 6 - Engagement). From a technology implementation perspective, we categorize these needs as follows:

- Tech for **convenience**, focused improving experiences with day-to-day tasks and addressing challenges associated with cognitive and physical decline.
- Tech for **safety**, addressing challenges associated falls, water overflow, air quality, etc.
- Tech for **social connectedness and engagement**, focused on facilitating community interactions using digital channels and addressing challenges with social isolation.

Through discussions with the community as well as with our university research partners, we discovered how critical it is for our project to deliver **core solutions that offer simple and convenient user experiences with device interactions that are highly-adapted to older adults** and their lifestyle, both **at home** and **on the go**. These could include the following:

- **Sensors** and other passive devices and technologies
- **Voice and conversational assistants** offering a dialog-based approach
- **Touch interfaces** such as tablets, smartphones, and wearables which are easy to use, intuitive to operate, and that cover a wide range of needs
- **Wearables**, such as smartwatches—which are preferred to pendants—that integrate nicely into daily living and that offer a wide range of features
- **Smart automation**, at home or on the go, providing assistance based on intelligent situational analysis (e.g., using data science, AI, etc.), device integration, configurable workflows triggering alerts, actions, responses
- **Seamless integrations** across devices and to the City, community, and partners

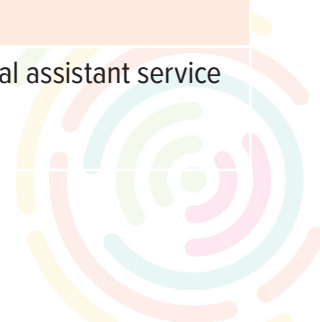


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4.3.2 Research and Evaluation of Existing Technology Solutions

We researched and evaluated a number of existing technology vendors and solutions during the finalist phase that might have fit our older adult residents' expressed needs, either as core or satellite solutions. The following table highlights many of the existing technology solutions we researched and evaluated.

Vendor/solution	Description
Essence Care@Home™ Enhanced Telecare Services Platform	An Aging-in-Place product suite that offers a seamless health monitoring experience, allowing independence for older adults and peace of mind to their loved ones. https://www.essence-grp.com/smart-care
InteliCare	Based on sensors, the InteliCare solution is designed to support people to remain in an independent living environment for longer, whether this be within their own home, a retirement village or in an aged care facility. http://intelicare.com.au/
Aerial	Aerial Technologies uses artificial intelligence to analyze disruptions in WiFi networks, extract data, and ultimately give meaning to motion (including fall detection), without requiring additional hardware, wearables or cameras. https://www.aerial.ai/
Elemental Core	A social prescription platform based in the UK offering Health Risk Analysis, Social Prescription Generation, Health Impact Measurement, Calendar, Attendance Tracking, Reports, Campaigns, and more. https://elementalsoftware.co/platform/
Laipac Look Watch	An elegant, standalone, and feature-rich IoT smartwatch for safety, health and wellness. https://www.laipac.com/smartwatch.html
Routinify WellAssist™	Tablet and IoT sensor-based solution providing for an environment of Adaptive Routines™ to create and reinforce positive habits with the goal of improving wellness, safety, social and mental engagement, and security. https://www.routinify.com/
ElliQ	An AI driven social companion robot aimed at keeping older adults sharp, connected and engaged. CES 2018 Best of Innovation Winner. https://elliq.com
Elizzbot	On-demand Smart Chatbot for Family Caregivers. https://elizz.com/landing-page/elizzbot
UBIOS	Smart building solution primarily focused on preventing water damage via sensors. https://www.ubios.ai/
Amazon Echo and Alexa	Smart speaker and voice-controlled intelligent personal assistant service by Amazon. https://developer.amazon.com/alexa



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Vendor/solution	Description
Apple Watch	Smartwatch by Apple Inc. It incorporates fitness tracking and health-oriented capabilities with integration with iOS and other Apple products and services. https://www.apple.com/healthcare/apple-watch/
Université de Sherbrooke DOMUS laboratory solution (DOMUS)	The Université de Sherbrooke DOMUS laboratory developed a smart home solution for older adults primarily based passive sensors and open technologies for research purposes. https://www.usherbrooke.ca/domus/en/

We considered and evaluated solutions according to our Technology Evaluation Criteria for The VILLAGE Initiative, which is covered in the next section.

4.3.3 Technology Evaluation Criteria for The VILLAGE Initiative

We have a responsibility to deliver simple, safe, private, and affordable solutions to our community. Given the high number of characteristics that any individual solution and vendor might have, and based on what we learned in community engagement combined with our market research, we developed our definition of **Technology Evaluation Criteria for The VILLAGE Initiative**:

Category	Evaluation Criteria
Relevance	<ul style="list-style-type: none"> Is the solution's feature and capability set relevant to older adults? Was the solution developed for a broader population and, if so, does it fit older adults?
Readiness	<ul style="list-style-type: none"> Where is the solution in the readiness and maturity lifecycle? How much of it is ready to deploy? Is the solution proven with real-world deployments?
Simplicity	<ul style="list-style-type: none"> Is the solution simple and intuitive to use by older adults?
Adaptability	<ul style="list-style-type: none"> Is the solution configurable to meet individual older adult needs? Does is the solution extensible by outside parties to meet key older adult requirements?
Smartness	<ul style="list-style-type: none"> Is the solution smart (if applicable), providing intelligent assistance to the user?
Privacy	<ul style="list-style-type: none"> How does the solution manage private data? Where does the vendor reside? Where does data reside? Is the data shared with partners? Is the solution transparent enough for a third party to validate data management and flow?



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Category	Evaluation Criteria
Security	<ul style="list-style-type: none"> Does the solution implement relevant best practices around security (authorization, encryption, etc.)?
Compliance	<ul style="list-style-type: none"> Does the solution comply with applicable standards and certifications?
Interoperability	<ul style="list-style-type: none"> Does the solution provide adequate and sufficient interfaces for interoperability with other systems (data integration, UI integration, etc.)? Are there any limitations that would prevent the solution from being integrated with our partner ecosystem today or in the future (health-care, research, or other)?
Manageability	<ul style="list-style-type: none"> Are heavy services needed to deploy and implement the solution? If so, what are the required skillsets and where could they be sourced from? Is the solution itself difficult to implement and manage/monitor/maintain over time?
Replicability	<ul style="list-style-type: none"> Are there any limitations (geographic or other) that would prevent the solution from being deployed to other cities?
Sustainability	<ul style="list-style-type: none"> Does the vendor have strong financial backing? How would the solution adapt to technological change?
Scalability	<ul style="list-style-type: none"> Are there any limitations that would prevent the solution from scaling to thousands or even millions of users?
Affordability	<ul style="list-style-type: none"> Is the solution affordable for older adults across varying income categories?

We evaluated the vendors and solutions using this criteria. We retained solutions that satisfactorily fit a sufficient number of our criteria and implemented them in our pilot project (described below). This included the DOMUS solution and the Laipac Look Watch. We added and integrated Amazon Echo to test voice assistance.

Our technology evaluation criteria would be used to vet solutions in our full program implementation of The VILLAGE Initiative, giving our residents confidence that we are taking a holistic, safe, and efficient approach that has their best interests in mind.



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4.3.4 Our Pilot Project

In January 2019, we launched a 4-month pilot project with five older adult participants living in Côte Saint-Luc (details on our subjects are covered in Chapter 6—Engagement). We used technology solutions that sufficiently satisfied our above-mentioned Technology Evaluation Criteria for The VILLAGE Initiative. The goals of our pilot project were to begin experiencing and testing the following:

- resident interviews for needs assessment
- at-home installation of technology
- resident acceptance of technology
- solution monitoring and results
- resident feedback

We implemented the following technology:

- The DOMUS smart home solution (from Université de Sherbrooke) with connected Amazon Echo (Alexa)
- The Laipac Look Watch

4.3.4.1 The DOMUS Smart Home Solution

Since 2002, the DOMUS (DOMotics at the Université de Sherbrooke) laboratory has been studying cognitive assistance, medical monitoring and tele-vigilance for people with cognitive disorders. The results of the research performed at DOMUS are applicable to people with cognitive deficits due particularly to head trauma, schizophrenia, Alzheimer's disease and cognitive impairment.

Based on their extensive expertise with advanced cases of cognitive decline, DOMUS has developed over 16 years a standard approach for older adult research in Quebec. To support their work, they have developed a smart-home-for-older adults technology platform using **open technologies**. The technology largely consists of passive sensors that integrate well into an older adult's every-day living. The technology is mature and setup only takes a few hours per home, which in large part is why we selected it. Also, DOMUS is university research lab, which gave us the confidence that privacy and subject consent were being taken very seriously.

In the DOMUS solution, small passive sensors (e.g., motion, water, door, drawer, appliance, etc.) capture and send raw activity data to a small computing hub in the home. The hub analyzes it, understands it, makes decisions, and produces actions or responses. The hub also sends data to a configured server to record activity, assemble activity patterns, and integrate with external systems.

With the DOMUS solution, a bed pressure sensor could detect an older adult getting up at night and trigger a response, such as turning on the bedroom lights, which reduces the risk of injury. A water sensor in the bathroom would detect whether the faucet was turned on, and generate a reminder in case the older adult forgets to brush their teeth within a set time. These are just some of the many ways technology can be used.

The DOMUS solution is based on open technologies, including openHAB as a controller for the home hub—typically running on a very low-cost Raspberry Pi. It also supports smart home data communication and interchange protocols and standards such as MQTT, ZigBee, Z-Wave, which makes the architecture very attractive from an interoperability, extensibility, transparency, privacy, and affordability perspectives.

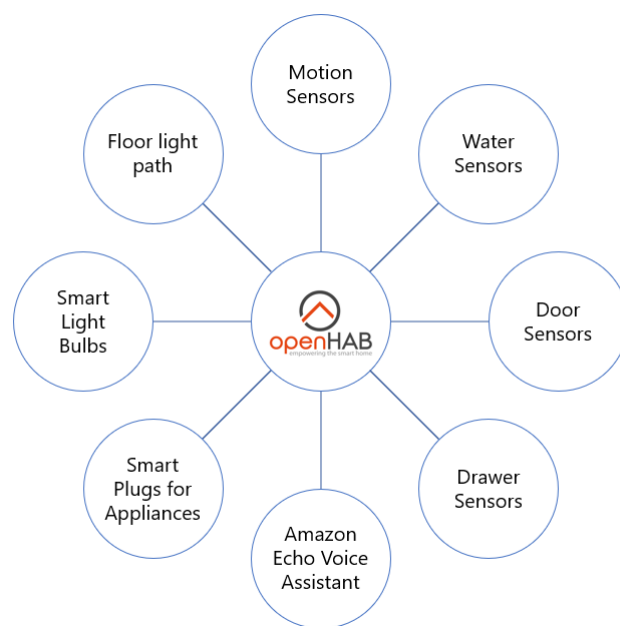


Figure 4-4: Chart showing eight examples of sensors or smart technology that connected with the openHAB-based home hub during our pilot.

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During our pilot project, we installed low-cost motions sensors (Fibaro), water sensors, door and drawer sensors (Fibaro), smart plugs for appliances (Aeon Labs), smart lightbulbs (Philips Hue), and a floor light path (Philips Hue). We also installed one Amazon Echo unit per home to enable participants to use voice commands to operate lights (e.g., “Alexa, Lights On”) and to access information and entertainment, such as news, weather, and music.



Figure 4-5: Photos of the smart device installation in a pilot participant's home.

The DOMUS solution experiment also gave us a chance to experience the benefits of Augmented Reality (AR). Using Microsoft HoloLens—which is a virtual reality (VR) headset with transparent lenses for an augmented reality—we were able to capture and generate the map of a home or apartment that includes placement of and activity from smart devices. The approach offers great capabilities for remote monitoring and troubleshooting.



Figure 4-6: Photos of the HoloLens capture and generated map of pilot participant's home.

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4.3.4.2 Laipac Look Watch

In addition to the DOMUS smart home solution, we also implemented the Laipac Look Watch, which is an esthetically-pleasing, full-featured Android-based IoT smartwatch. Core features for older adults include tracking and monitoring, geofencing entry and exit alerts, heart rate monitoring, fall detection, SOS button, check-in feature, watch removal alert, two-way voice communication, and more.

We configured and trained pilot participants on how to use the watch. In the event of a fall or after manually pressing the SOS button, the watch would automatically alert family members, friends, or project volunteers. We used the Look Watch's backend software to deploy configurations (e.g., contacts, reminders, etc.) and track pilot participant activity, including any detected incidents.

4.3.4.3 Pilot Project Results

Our pilot project is scheduled to run until May 1, 2019. At the time of this writing, we are able to report results based on two months of activity in collaboration with our research partners. On an aggregate basis (to protect privacy), our pilot system generated activity reports for us and pilot participants to learn from. See Appendix for activity reports from the pilot project.

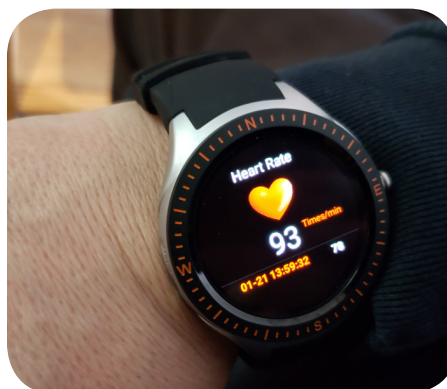


Figure 4-8: Photos of Laipac Look Watch used by pilot participant.



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4.4 THE VILLAGE PLATFORM

We learned a lot from our community engagement, market research, pilot project, and collaboration with partners. These learnings have led to the development of the vision and architecture for our Connected Technology Framework—**The VILLAGE Platform**. This will help us meet the objective stated in our Challenge Statement.

INCREASED CONNECTEDNESS

Through The VILLAGE Initiative



Figure 4-9: Graphic illustrating how the VILLAGE Initiative will increase opportunities for connectedness for older adults.



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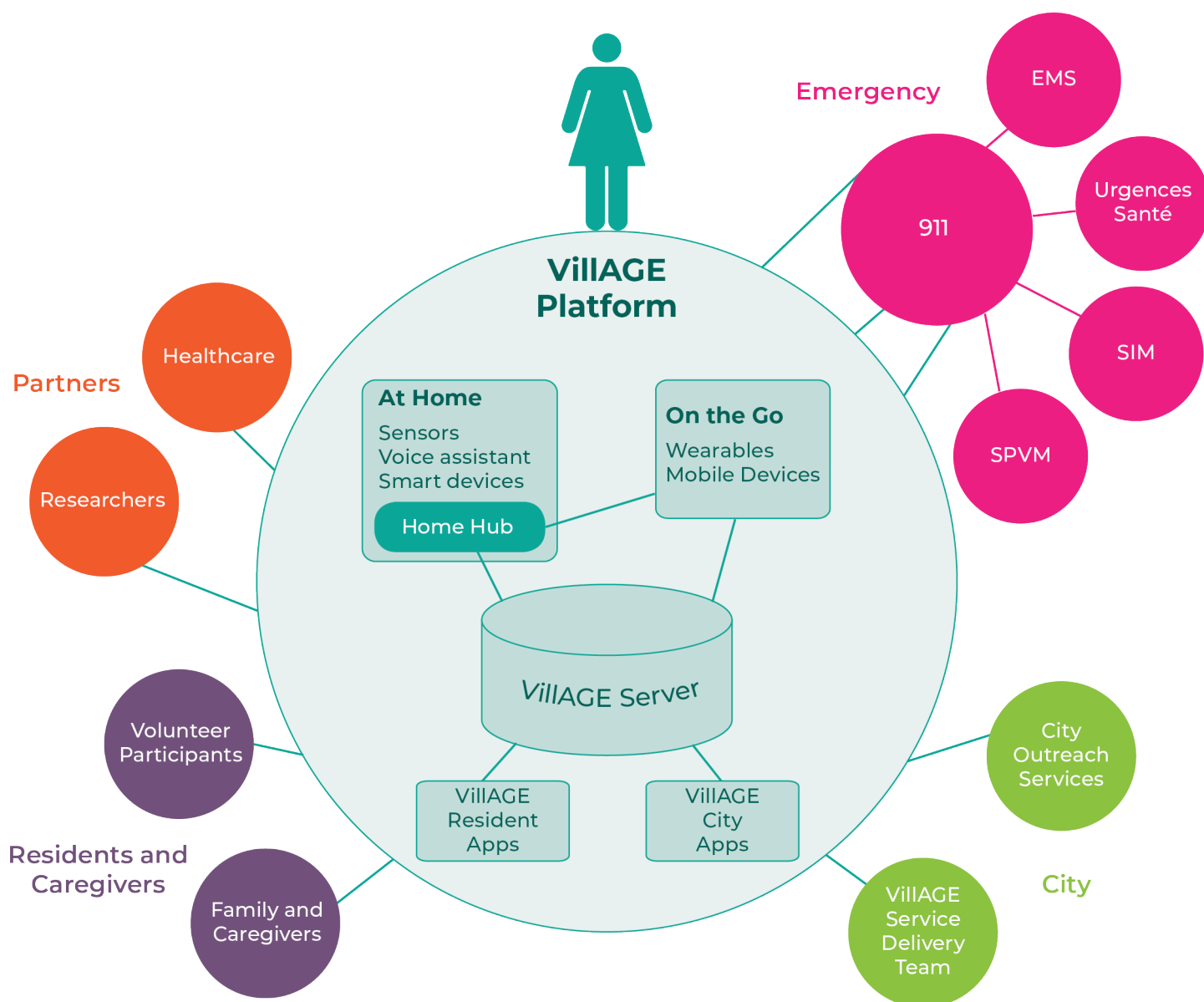


Figure 4-10: The diagram describes the flow of data emanating from alerts generated by the Home Hub and On-the-Go smart devices. Alerts will be transmitted to designated individuals (e.g., family, caregivers, according to the participant's instructions) and/or City services. In the case of an emergency incident, alerts would be sent to 9-1-1 and related services, as well as to residents and caregivers according to the participant's instructions. In the case of soft alerts, the information will flow to the VILLAGE Home Hub and VILLAGE Server, City Outreach Services and Service Delivery teams. Information would be provided to healthcare and research Partners in accordance with participants' consent.

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With a focus on providing more convenience, safety, and social engagement, the VILLAGE Platform will allow older adult residents to access resources for help when they need them. The following table illustrates examples.

Category	Scenarios
Convenience	<ul style="list-style-type: none"> A bed pressure sensor could detect an older adult getting up at night, and turn bedroom lights on automatically, reducing the risk of injury. An older adult could use a voice assistant to get information on the news, weather, or social programming from the city on any given day.
Safety	<ul style="list-style-type: none"> An older adult could experience a fall. A smart device could detect the incident, and trigger an alert to city services or even better, to someone who might be physically closest in the moment, helping with a faster response. An older adult could leave the stove on. A level of response could be anything from a device that automatically shuts it off, to a call to check in on the situation, making sure the resident and those around her safe and sound.
Social Connectedness and Engagement	<ul style="list-style-type: none"> An older adult could receive reminders while at home of upcoming activities at the library or local theatre, and a lift could be arranged. An older adult might need help with a challenging task, such as salting a walkway. The older adult could broadcast the request using a voice assistant and a nearby neighbour who is connected using the VILLAGE App, could receive and fulfill the request.

4.4.1 Platform Architecture

Our guiding architectural principles for The VILLAGE Platform are the following:

- Open technologies
 - Core system based on open technologies, favouring transparency, extensibility, future-proofing, affordability, and replicability
 - Large developer community, reducing the risk of being short on resources
- Great experiences at home at on the go
 - Easy-to-use technology solutions wherever the resident is that add value to an older adult's daily living, connected to applications for the community and city
- Smart automation
 - Intelligence to assess situations
 - Smart, configurable automation and workflows to process actions and responses
- Interoperability
 - Seamless interoperability and integrations between devices, the city, and partner systems (based on consent)
- Privacy and security
 - Seamless interoperability and integrations between devices, the city, and partner systems (based on consent)



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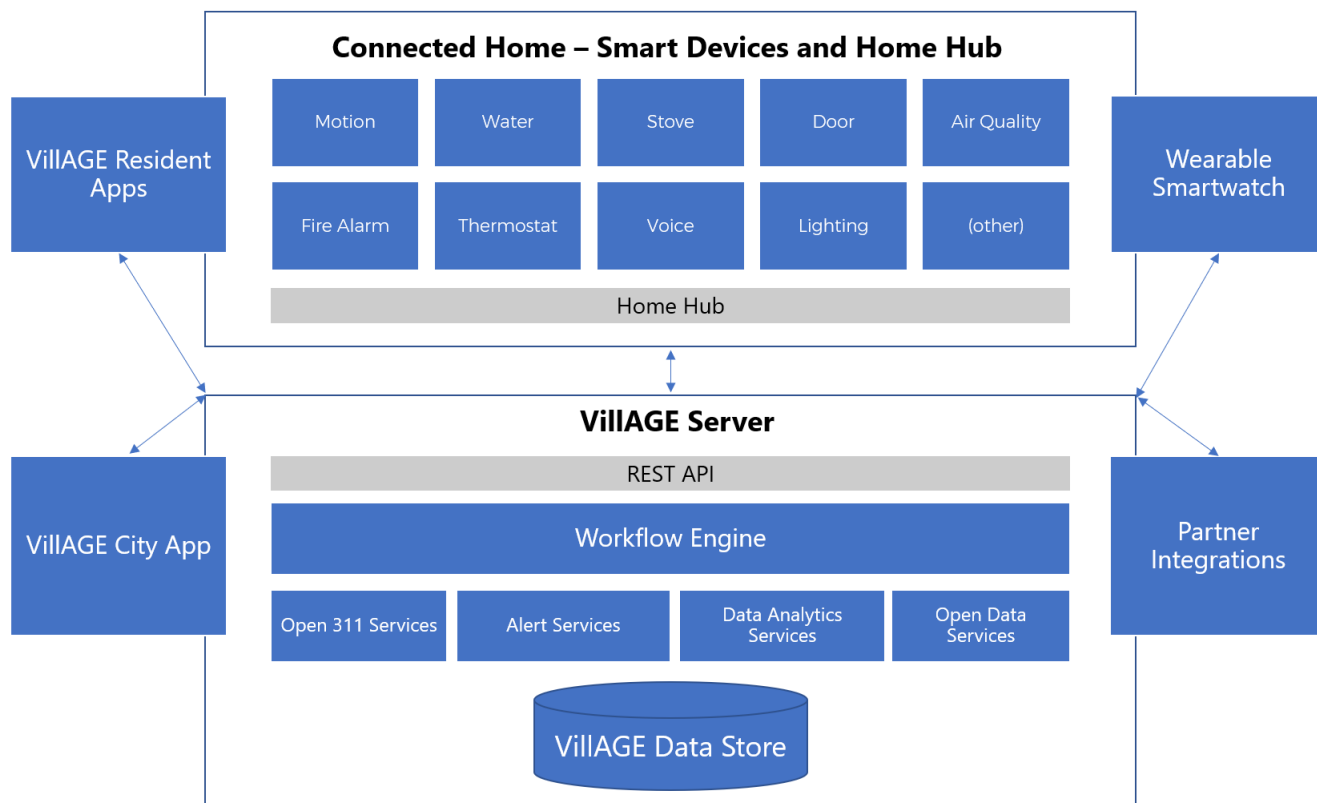


Figure 4-11: Illustration of the VILLAGE Platform Architecture.

4.4.1.2 Connected Home—Smart Devices and Home Hub

Similar to what we implemented in our pilot project, various sensors and smart home devices would connect to the Home Hub for events, such as motion detection, water detection, voice commands, or others. These events would be **tracked, understood, processed**, and made to **trigger actions or responses**.

The Home Hub will be based on openHab, a mature, open-source home automation platform that runs on a variety of hardware and is protocol-agnostic. This means it can connect to nearly any home automation hardware on the market today.

The Home Hub will integrate with devices using a wide range of protocol bindings supported by

openHab, including but not limited to MQTT, Zig-Bee, and Z-Wave. The Home Hub will also include or integrate with a reasoning or decision-making engine, which will be based on simple decision trees, ontological rules (OWL), and/or more advanced data science- or AI-based framework such as TensorFlow, which is an open source machine learning framework, based on requirements for “direct vs nuanced” interpretations of device activity and response requirements. The Home Hub would send information, based on resident consent, to the VILLAGE server for processing, recording, and integrations outside the home.

Given reported privacy issues with popular voice assistants such as Amazon Alexa and Google Home, we would consider implementing an open technology-based solution using Mycroft or Snips.

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4.4.1.3 Wearable Smartwatch

We will continue our work with Laipac on their leading-edge Android-based Look Watch to develop it further for older adults and to integrate its core capabilities for older adults (e.g, vitals monitoring, GPS positioning, fall detection, two-way voice calls, etc.) into the VillAGE Platform.

4.4.1.4 VillAGE Resident Apps

We will implement an older adult-adapted smart home controller app, **The VillAGE Home Hub Panel App**. Based on HABPanel, openHab's open-source user interface software will allow residents to be able to interact with and monitor their smart home devices using **a single touch interface for all VillAGE devices** installed in the home. Based on open technology, non-VillAGE devices (such as a smart TV) could be added to the Hub Panel App as well. The panel solution could be fixed on a wall or could be used on a mobile device, depending on the preference of the older adult.

We will also develop **The VillAGE Community App**, a simple-to-use app for residents, families, and caregivers. This mobile app will allow them to stay connected to the older adults they care for. The VillAGE Community App will allow people to “subscribe to” or “follow” events and requests from specific older adults in the community. For example, a volunteer might request to be notified if her older adult neighbour in an apartment two floors down has fallen or needs help with a task.

The VillAGE Home Hub Panel App and The VillAGE Community App will include Jitsi, an open source videoconferencing solution. This will facilitate live discussions with other community members. We are also considering **Rasa**, an open source conversational AI platform.

4.4.1.5 VillAGE City Apps, Workflow Engine, and VillAGE Data Store

City Outreach and Service Delivery teams will use the **VillAGE City App**, an enterprise application that will manage all backend functions such as:

- Older adult resident registration, profile, and contact management

- Case management
- Device order tracking and system configuration
- Monitoring and service calls

The platform will also include a **Workflow Engine** for server-side processing of older adult activity to produce responses (such as alerts to the right parties).

We will develop the VillAGE City App and Workflow Engine with JOGET, which is an open-source workflow software, business process management and low-code application platform. Among other database engines, JOGET supports MySQL, an open source database we will use for the **VillAGE Data Store**.

4.4.1.6 REST API

The **VillAGE Server** will be accessible via a **REST API**, which will be implemented using an open framework such as Node.js, that will cover the totality of our backend services. Together with our JOGET-based workflow engine—which itself generates REST APIs—this will make our system highly interoperable.

4.4.1.7 Open311 Services

Open311 systems are used in many cities including Ottawa and Toronto for a wide range of city services including alerting city workers to problems with garbage collection, illegal parking, and vandalism. We will instead use the same concept to trigger emergency services, in-home visits, check-in phone calls, and other interventions.

Open311 Services is our extension to Open311, which is protocol that advertises what services are available and what data is needed to access those services. It is very easy to connect with any mobile device or networked system. It typically identifies who is requesting a service and where they are located using GPS or other geospatial data.

Our system will leverage JOGET to create an Open 311 system. Open311 SDK is a REST API standard that has been used throughout Europe and parts of the US to integrate smart city services with a building-block approach.

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4.4.1.8 Open Data

Our process model is clearly defined and will be shared openly with the city so that the process is clear and verifiable. Any metrics and KPIs of the project that are not of a private nature will be shared on a VILLAGE dashboard that citizens can use to see summaries of data. Wherever possible, raw data will be available as open data, provided that the sharing of that data constitutes no breach of privacy of any individual or organization.

The nature of our system is to analyze individual needs of older adults, which results in private data. We then prescribe solutions to their specific issues and problems to help them link city, volunteer, family and private services, the services of each, which we clearly explain to each participant. We then use sensors, and IoT devices to establish a custom solution for the individual and set up data monitoring, which is completely private.

While the private nature of the raw data permits us only to publish data that has been anonymized and analyzed, the analytic results shall be open in every regard as long as no person can be recognized by that data or have their privacy violated. Role-based access to the data ensures that all databases have field-level access only to data for which the role is allowed access.

4.4.2 Replicability and Scalability

Our system is entirely comprised of technologies that are open source, with inexpensive off-the-shelf devices, capable of being run securely on inexpensive hardware with high security.

The most cost-efficient way to create this system is to divide it into two parts—the Smart Home and the Backend Server and address each separately.

4.4.2.1 Smart Home Solution Replicability and Scalability

The Smart Home can be assembled with three components: a Raspberry Pi running OpenHab as the hub, a Z-Wave Gateway USB stick, and a variety of off-the-shelf sensors and actuators. We list-

ed the devices used in our pilot project. Regardless of the supplier, this basic home system will work as the majority of IoT suppliers support either Z-Wave and Zigbee protocols.

The number of devices one standard openHAB hub can support is in the hundreds, so it is possible to use one hub to support a WiFi-equipped apartment building assuming that the building shares the WiFi throughout and that the system has been tested for Z-Wave range. Typically, Z-Wave gateways need to be within 100 meters of the devices they control.

4.4.2.2 Backend Server Replicability and Scalability

For the backend systems, a standard cluster of high availability virtual machines, behind a high-quality intrusion protection firewall is the most typical route we expect cities would take. A cluster could consist simply of a VM Host, two VMs running either Windows or Linux, a DNS/load balancer and a good firewall.

For a large city, the number of front-end servers and application servers could be increased, using SAN arrays between the virtual machines, and a complementary disaster recovery array to mirror the online systems. A low-cost Linux approach we researched was Antle, which supplies a single box that can run up to 100 Linux Virtual Machines, rendering the deployment of backend services a simple, easy to maintain that any city should be able to afford at under \$2,000 CAD.

4.4.3 Interoperability between the technologies, other technologies, existing community systems and services, and infrastructure

Our system's purpose is all about interoperability with existing systems and community services. The JOGET workflow system will link older adult needs directly to city services, while maintaining compatibility with Open311 systems. It will offer cities the potential to trigger city services based on any identified situation where one or more sensors is used to identify a situation. It may also be

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used in unique ways to accomplish other smart city monitoring services that go beyond the domain of older adults aging in community.

For example, a unique way to configure our system would be to link it to multiple air quality sensors and urban noise level sensors monitored by the artificial intelligence in the domain model to send out alerts to city workers and departments operating in specific sectors of the city. As our technology is based on standard protocols and configured with many options, there is no reason our system could not interoperate with any city system using standard protocols.

4.4.4 Accessibility and usability of the technologies to diverse users, residents, and other stakeholders that support their uptake and acceptance

The systems we apply to a specific older adult's home are geared for accessibility that is specific to each older adult. The majority of the system is designed from day one to be as passive as possible and not require any specific actions from a older adult, though elements such as voice-enabled assistance devices would require interaction.

Any interactive device must be chosen for its ability to match the cognitive abilities of the older adult, and over time it is possible that with cognitive decline, a device or interface used today may become unsuitable in the future. The monitoring of that older adult should help us be able to identify when gradual cognitive decline has hit a limit.

Wearable devices must be chosen for their compatibility with our criteria and standards, and at minimum, be able to send messages via MQTT or

REST API via a supported communication channel, such as WiFi.

4.4.5.1 How the technologies comply with relevant legislative and regulatory requirements

The VILLAGE Platform will maintain all records on the system in a HIPAA-compliant anonymized format. While the workflow system may require direct knowledge of older adult addresses and personal contact information, no other aspect of the system maintains information that would compromise older adult privacy.

The openHAB hub is an appliance that operates in their home, maintaining their sensor data in a private manner, which is connected to VILLAGE servers via SSL. Operators may access an openHAB device using a secure VPN connection, but only under the direction of the occupant.

As the Workflow Engine is the main system that contains contact information, it is maintained behind a secure firewall with only the Open311 connections public-facing.

We will work with Laipac on data flow from the Look Watch to comply with our privacy practices and storage requirements.

The secure data management policies of the city and those outlined in the Preliminary Privacy Impact Assessment (PPIA) highlights the efforts taken to ensure that data is appropriately managed at all phases of collection, storage, and destruction.



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4.5 ROLES AND RESPONSIBILITIES OF PARTNERS

Under the leadership of our organization's CTO for the project, the partners who will collaborate to implement the VillAGE Platform are:

Partner	Role and responsibilities
Delevante Software	Delevante Software's expertise is in developing cross-platform technology solutions for local communities based on open technologies. Delevante's role will be to lead and implement the platform development.
DOMUS	DOMUS as a research-focused organization will advise on key technology-focused portions of the development.
Concordia University	Concordia as a research-focused organization, which includes the older adult-focused ACT (Aging, Communications, and Technology) project, will advise on the development.
Laipac	Laipac will be responsible the development of the smartwatch solution for the platform.
CIUSSS West-Central	The CIUSSS W-C, as our local healthcare network and partner, will act as an advisor around privacy, technologies for digital health, and interoperability with healthcare systems.

4.6 RISKS AND MITIGATION

There are four key cybersecurity risk points in the design of our system. All best practices for disaster recovery, high availability, cybersecurity, privacy and open data will be implemented.

Risk	Mitigation
Home Hub breach	<p>The first risk is the ability for a malicious party to take control over one or more openHAB hubs. If a party were to infiltrate the WiFi connections of a older adult they could attempt to break into the openHAB hub.</p> <p>To minimize this risk, the administrative accounts of the openHAB server have usernames and passwords that are administered offsite, so that the device can only be accessed by accredited VillAGE system administrators using VPN connections to the older adults WiFi.</p> <p>In general, throughout our system, information on the usernames, passwords, VPN connections and other security information should be stored in a secure password server such as KeePass or Linux password vault and only accessed by VillAGE system administrators and configuration teams.</p>
Access to raw and logged data	<p>The second risk is the security of the raw data and situational data logs. While this data is by definition anonymous, it has value to the city and information within it could be triangulated with public information to constitute a theft of personal information.</p> <p>For these purposes, data is kept in encrypted databases. Access credentials to the databases is kept in encrypted formats and software which connects to the data uses o-Auth or Apache Shiro. Apache Shiro is a powerful and easy-to-use Java security framework that performs authentication, authorization, cryptography, and session management. With Shiro's easy-to-understand API, you can quickly and easily secure any application—from the smallest mobile applications to the largest web and enterprise applications.</p>

Chapter 4 TECHNOLOGY

Risk	Mitigation
Server breach	<p>The third risk is in the server system, which maintains confidential information about each older adult. This system integrates with a database that holds all survey and private information as well as location, address and contact information.</p> <p>This information is not available to the public. It is protected behind our firewall and uses role-based access to the system.</p> <p>The last cybersecurity risk is denial of service attacks, which unfortunately are becoming more prevalent. The most catastrophic would be access to confidential data on individuals in the program, which would be stored in city databases.</p> <p>As a primary policy, at no time will access to older adult data in the server system be accessible to non-VILLAGE approved workers nor available outside our Intranet.</p> <p>The system prevents denial of service attacks through the use of FortiGate firewalls supporting FortiDDOS, which provides Layer 3, 4 and 5 DDOS attack prevention at high speed.</p> <p>CloudFlare is an alternate moderate cost solution that other cities might prefer since they require very little administration.</p>
System downtime and lack of availability	<p>As the number of deployments in homes increases, the overall system available will become a matter of concern. For this reason a high-availability model for the backend servers is key.</p> <p>Virtual machines with a shared SAN (Storage Area Network) are the preferred architecture for ease of administration. Depending on the needs of each city, they may choose from a wide array of virtual hosting and SAN hardware to achieve this.</p> <p>Using load-balancers between clustered machines generally keeps services running at high speed at all times while allowing for virtual machines to be shut down for maintenance without affecting the service provision.</p> <p>For optimal disaster recovery, a second data site that replicates the main system is preferred.</p> <p>On Windows servers, the use of DFS replication (distributed file system) and SQL mirroring will allow multiple virtual machines running Windows Server 2018 to run all required servers in a high availability mode with a load balancer administering the cluster.</p> <p>On Linux servers, following the advice on the Linux-HA project that is most appropriate to selected hardware is advised.</p>



Chapter 5 GOVERNANCE

The VILLAGE Initiative requires an extremely strong governance model for its success and sustainability, and one which puts the right players in the right places at the right time. True to its name, it will take a village of partners and stakeholders to ensure the viability of the project. The Governance Chapter is based around the Organizational Model presented in Chapter 1 (see Figure 1-1). A non-profit organization will be created, which will be governed by a Board and run by a team of senior staff.

There are two main domains around which the VILLAGE Initiative runs: Technology and Social Transformation. While separate, these two domains collaborate closely. Both are fueled by ongoing community engagement with a design-thinking mindset, and service will be delivered in conjunction with a multitude of partners. The technology side is going to be run by a private partner with expertise in the domain, and the social side will be led by a person from the City of Côte Saint-Luc.

5.1 GOVERNANCE FRAMEWORK

In order to maximize sustainability and effectively deal with all the governance challenges, the City of Côte Saint-Luc proposes the establishment of a federal non-profit organization (NPO) under the *Canada Not-for-profit Corporations Act*. It would:

- Define, within its articles of Incorporation and its by-laws the various classes of ‘members’;
- Define the Board size and composition;
- Define members’ respective roles, terms, rights, delegations, accountability, limitations and obligations;
- Create a clear and concise mission statement and strategic plan that will be its guiding force;
- Establish a policy framework and operational structure for developing, implementing, reviewing and maintaining the VILLAGE policies and procedures in a form and manner that is consistent with best practice;
- Create governance and management policies;
- Stipulate other criteria that would facilitate funding, stability, growth, flexibility, research, and investment;
- Adopt a policy for data governance and information privacy protection;
- Create a risk management framework which will have a commitment to building a risk management culture in which risks and opportunities are identified and managed effectively;

- Create a legal compliance framework and an accountability framework;
- Establish the controlled entities (partnerships).

Establishing the NPO will enable the VILLAGE Initiative to maximize the strengths of the government, business, and non-profit sectors, while minimizing the obstacles and drawbacks that each presents on their own. When constituting the NPO, the vision and the mission of the VILLAGE Initiative will be outlined. The vision must entail a connection between government innovators and the technological and design community, and the governance must address the framework of that connection, which will be led by its Governing Board, management staff and private partners. The direct responsibility for the VILLAGE Initiative needs to be shifted from the City Council to a NPO Governing Board for several reasons:

- Avoids political interference resulting from the electoral cycle;
- Allows information flow and data governance to be totally segregated from other City information systems and therefore ensures more privacy and controls;
- Allows for multidisciplinary Governing Board composed of variety of members with wide range of expertise who have wealth of knowledge and experience to guide the VILLAGE Initiative;
- The VILLAGE Initiative is too large to become

Chapter 5 GOVERNANCE

merely a city department. Its scope is to such a scale as to require full attention by a team of people dedicated to it;

- Non-profit organizations are eligible to apply for a variety of grants that municipalities are not;
- A non-profit organization has more freedom and flexibility in terms of procurement and labour relations than municipalities;
- Research and development, particularly in the domain of technology, is far from municipal expertise.

The City, however, has the benefit of public trust and proximity to the population and also has the obligation and duty to comply with all rules governing access to information and privacy protection. The City also creates by-laws, is responsible for the public domain, zoning, and infrastructure, in addition to maintaining important programs and services that are crucial to the success of the VILLAGE Initiative. It is for these reasons that long-term safeguards must be put in place to ensure that the City will maintain some governing control of the NPO, and include clauses in its founding statutes that indicate the following:

- That two members of the Governing Board must be sitting members of the Côte Saint-Luc City Council, and that those seats must be preserved in perpetuity;
- That the budget must be approved by the City of Côte Saint-Luc.

As a result, the new organization will be recognized as a “public body” for the purposes of privacy protection and access to information in accordance with the *Quebec Act respecting Access to documents held by public bodies and the Protection of personal information* and among other duties it will have all the obligations and rights to protect the data, which will be generated by this Initiative.

Governing Board

The Governing Board will be made up of nine independent members with a diverse range of expertise, perspectives and knowledge who have a fiduciary obligation to oversee and ensure that

they are in the role to continually assess a variety of risks regarding all elements, including but not limited to: financial reporting, ethics, privacy, technology, health and safety. The Governing Board will be accountable for the oversight of the governance process. It will include the following members:

- 2 sitting members of the Côte Saint-Luc City Council
- 1 Medical/Social
- 1 Research/Academic
- 1 Technology Entrepreneur
- 1 Venture Capitalist
- 1 Resident
- 1 Provincial Representative
- 1 Lawyer/Privacy expert

5.2 MANAGEMENT

The following positions constitute the Management Team.

The NPO will be run by a **Chief Executive Officer (CEO)** who is also responsible for the Social Transformation domain of the VILLAGE Initiative. The CEO reports to the Governing Board, and is the primary link with the Technology Partner (see below), the City of Côte Saint-Luc, all other (non-tech) partners, and the Infrastructure Canada Smart Cities Challenge team. This person is responsible for the leadership and strategic direction of the NPO, its policies, development, marketing, and communications. On the Social Transformation side, this person will innovate and design municipal strategies that enable older adults to thrive, and work with the City of Côte Saint-Luc City Council and staff in order for them to incorporate these ideas and concepts.

A **Chief Financial and Operations Officer (CFO)** will run the organization, its administration, finances, legal and human resources, and fundraising, ensuring a lean management approach. This person develops procedures, implements policies, and ensures that Key Performance Indicators (KPIs) are met. The CFO reports to the CEO.

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A **Director of Community Engagement and Service Delivery** will be responsible for community engagement work and the service delivery design and team. This person will pivot between the technology and social transformation domains, ensuring that the technology is suitable and relevant to the users. The Director will also be responsible for tracking, analyzing, and reporting on outputs and outcomes, and ensuring the quality of the services provided by the VILLAGE Initiative is high and that all of its users maintain their dignity, their information privacy, and are respected as the elders of our society. The Director of Community Engagement and Service Delivery reports to the CEO.

The Management Team will be collectively responsible for:

- Providing and implementing the policies and procedures through which governance occurs within the organization;
- Optimizing the efficiency and effectiveness of the organization;
- Ensuring that the VILLAGE Initiative follows all relevant laws and adheres to a high ethical standard;
- Ensuring that the Technology Partner adheres to all the rules and regulations related to governance, privacy, and sustainability and that it strictly fulfills its contractual obligations;
- Continually engaging in risk assessment and mitigation;
- Working towards ensuring that the VILLAGE Initiative is sustainable and ultimately, transferable;
- Ensuring that the VILLAGE Initiative is a fair employer that supports its diverse staff and allows them to thrive as individuals and as part of a team in an atmosphere of respect and professionalism;
- Ensuring that all staff, partners, and anyone else connected to the VILLAGE Initiative hold true to its mission;
- Gathering data and reporting on all activities on a regular basis to the Governing Board, Infrastructure Canada, and all other parties outlined in the founding charter;

- Data Governance and Information Privacy Protection.

5.3 PARTNERS

The ultimate success of the VILLAGE Initiative extends far beyond the NPO. An entire ecosystem of partners, including all levels of government, the research, health and private sectors, community groups, and citizens will collaborate to address the complex and widespread challenges our society faces related to aging.

5.3.1 The Technology Partner

The Technology Partner is the primary partner for the VILLAGE Initiative, one essential to its existence. In the Organization Model (see Figure 1-1), the entire technology domain will be provided by a private company, consisting of a consultant who will serve as the Chief Technology Officer (CTO) and his full tech team, in order to develop the platform and do all the research and development, working with partners on the technology side. This company will be the same one with whom the City of Côte Saint-Luc contracted to help create and manage the Final Proposal project, and who was instrumental in developing the VILLAGE Initiative.

The decision to contract out the technology portion of the VILLAGE Initiative was based on the following:

- For-profit companies are run in an agile way, and are able to be extremely flexible.
- Private companies are eligible to receive R&D tax credits from other levels of government.
- The size of the technology team required to create the VILLAGE platform is larger than what the budget allows and the size of the team required will fluctuate. The NPO will not have to allocate resources to manage them.

Delevante has more than 15 years of experience and expertise building large-scale technology solutions across a wide range of sectors including: aerospace, investment finance, pharma, health-care, energy, entertainment, social media, and retail. Today, Delevante's focus, expertise, and pas-

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sion are in building modern technology platforms, based on open technologies, that drive engagement and commerce for local communities, which is philosophically aligned with Côte Saint-Luc's and the VILLAGE Initiative's objectives. Delevante is the creator of the leading-edge mobile-first platform Numnu, a smart connected platform that allows consumers to discover events (festivals, fairs, and more) in their area, engage on-site, place mobile orders, and promote local vendors and products to their networks. Founder and CEO of Delevante is Marc Chriqui, former president of Raymark, a leading global enterprise retail software vendor strategically acquired by US-based Mi9 Retail in 2015. Marc personally and very closely collaborated with Côte Saint-Luc during the Smart Cities Challenge finalist phase as Project Director. Concepts from Marc's expertise around smart and connected retail stores translated well and informed our designs for smart connected solutions for residents' homes and mobile devices.

5.3.2 City Partner

We outlined the special relationship that the VILLAGE Initiative has with the City in the Governance Framework section of this chapter. Further information needs to be added, however, as the Initiative has a special and symbiotic relationship with the City. So important is this initiative to the residents of Côte Saint-Luc that the City is providing many in-kind donations, of space, resources, and services, especially in the first few years. The residents will need to have the comfort that the City is still behind the Initiative, even if it is not directly running it. This will be achieved through several means:

- City staff familiar to residents will have key and public roles in this Initiative;
- Community engagement will be done in conjunction with the City, in city spaces;
- Many services offered by the VILLAGE Initiative, such as technology education and training for older adults, will be given by the City;
- Important activities, such as making Côte Saint-Luc an officially Age-Friendly Community will be done collaboratively;
- City departments such as the Library, Parks and Recreation, and Public Safety will co-develop programs and service with the Initiative;
- The *Programme d'adaptation de domicile* (PAD) program will continue to be administered through the City, and lobbying to modify it to include technology will be done by the municipality as well;
- Cross-promotion will occur continuously;
- The City will collaborate with all VILLAGE research partners as a 'Living Lab'.

5.3.3 Other Partners

The VILLAGE Initiative has, as part of its organizational model, relationships with research partners in both the technology and social domains. The goal is to continue working with valued partners to fulfill the vision set out in this proposal, and also to co-create with them and expand knowledge that will benefit society. See Appendix for the letters of support from our partners, which outline the nature of future collaboration. Our partners include the following:

RESEARCH PARTNERS

The VILLAGE Initiative has, as part of its organizational model, relationships with research partners in both the technology and social domains. The goal is to continue working with valued partners to fulfill the vision set out in this proposal, and also to co-create with them and expand knowledge that will benefit society. Our partners have provided letters of support, which outline the nature of future collaboration.

Université de Montréal/Institut Universitaire de Gériatrie de Montréal:

Our existing collaborators who have accompanied us so far in the community engagement and pilot projects, are committed to work with us to co-develop solutions and measure their social, human, and economic impacts. They will continue to provide the VILLAGE Initiative with their expertise, time and resources in order to implement and measure performance outcomes for research and future development of smart solutions for older adults. They will also help secure funding and help develop an implementa-

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tion guide so that other cities may benefit from the VILLAGE Initiative.

« Cette co-construction ardemment souhaitée par la Ville, et l'écosystème créé autour du projet, m'amènent à considérer la Ville comme un véritable laboratoire vivant; une infrastructure sociale et communautaire qui permettra l'émergence d'innovations par et pour les résidents. »

—**Nathalie Bier**, erg., PhD. Professeure agrégée, École de réadaptation, Faculté de médecine, Université de Montréal

Université de Sherbrooke/Laboratoire DOMUS:

This is a university research lab, which has developed smart-home-for-seniors technology platform using open technologies. They were our primary partner in the pilot project. They will continue to develop interdisciplinary solutions and lend their expertise to the VILLAGE Initiative, helping to introduce new technologies to older adults in an effort to reduce social isolation.

« Le laboratoire DOMUS est donc prêt à soutenir ce projet en engageant son expertise dans une démarche interdisciplinaire pour cerner les enjeux, élaborer des solutions appropriées et respectueuses et tester ces innovations sociales auprès des aînés. »

—**Hélène Pigot**, Professeure titulaire en informatique, Chercheuse au Laboratoire DOMUS et **Sylvain Giroux**, Professeur titulaire en informatique, Directeur du Laboratoire DOMUS

Concordia University: With their EngAGE and PERFORM centres, Concordia has undertaken to provide expertise in the development of programs, services and policy-development related to older adults.

« From prevention to big data insights to arts-based therapies, our researchers are harnessing the potential of treatments and technologies for better health for older adults and facilitating next-generation solutions to pressing issues facing cities around health and well-being. »

—**Christophe Guy**, VP, Research & Graduate Studies, Concordia University

Age-WELL is Canada's technology and aging network dedicated to the creation of technologies and services that benefit older adults and caregivers. They see the VILLAGE Initiative as advancing their mission to develop a community of researchers, older adults, caregivers, partners and future leaders that accelerates the delivery of technology-based solutions that make a meaningful difference in the lives of Canadians.

« Our commitment to your proposal will be through providing access to our members, researchers, and stakeholders, and by providing your group with consultation on the various issues related to emerging technologies and smart cities. »

—**Alex Mihailidis**, PhD PEng, Scientific Director & CEO, AGE-WELL NCE Inc.

HEALTH PARTNERS

Working closely with the CIUSSS West Central, the Ministère de la Santé et des Services sociaux du Québec (MSSS), and other leading experts during the finalist phase, we learned that healthcare will increasingly become decentralized. Dependencies on hospitals will be reduced. The point of care will be wherever the patient is—whether at home, in community, or elsewhere. Digital health will continue to drive the way care is delivered and we will continue to see an increasing focus on prevention and prediction with the help of new and advanced technologies.

We will work with our healthcare partners through the VILLAGE Initiative to lay the digital foundation in which smart cities and healthcare providers could deliver better care to the home and improve outcomes along the continuum of care. This would not only improve care in the future, but could for the first time actually begin to identify and pre-empt clinical problems before people require treatment.

Ministère de la Santé et des Services sociaux (MSSS), Gouvernement du Québec: The VILLAGE Initiative is very much aligned with the orientations of the provincial health ministry, especially as relates to aging in place, and they fully support the project and will have a seat on the Governing Board. As they believe that this initiative will have

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concrete and positive effects on the well-being of older adults, they have expressed, in their letter of support, a desire to discuss a framework for sustainability.

« Votre projet s'inscrit en cohérence avec les orientations ministérielles du réseau de services intégrés pour les personnes âgées et est intégrateur des divers services qui sont offerts dans une communauté impliquée activement auprès de ses aînés. »

—**Natalie Rosebush**, Directrice générale adjointe des services sociaux et des services aux aînés, Ministère de la Santé et des Services sociaux du Québec

Integrated Health and Social Services University Network for West-Central (CIUSS West-Central Montreal): Our primary health and social services partner would act in an advisory role for our program governance, as well as information privacy protection and measuring outcomes. The alignment of our respective technological roadmaps and data integration would enable us to co-develop better patient care. They are most interested in partnering for the delivery of digital health on the VILLAGE platform. If the future of care is where the patient is, then the first ones to get it will be the VILLAGE participants on the platform.

« Côte Saint-Luc's VILLAGE Initiative would lay the digital foundation in which smart cities and healthcare providers could partner to deliver better patient care to the home and improve outcomes along the continuum of care. »

—**Dr. Lawrence Rosenberg**, President and CEO, CIUSSS du Centre-Ouest-de-l'Île-de-Montréal | Integrated Health and Social Services University Network for West-Central Montreal

INDUSTRY PARTNERS

MEDTEQ: This industrial Consortium for Research and Innovation in Medical Technologies has committed to support the VILLAGE Initiative through several forms of contribution: in-kind expertise via MEDTEQ staff and resources for the structuring of eligible collaborative projects as well as project management support; financial support from

MEDTEQ for collaborative projects with industry which can represent a direct contribution of up to \$500,000 per project year over three years (maximum \$1.5M per approved project) and direct financing in accordance with the consortium's current program rules (maximum of \$1M for the MEDTEQ tranche in a syndicated round of financing).

« Our belief is that Canadian talents and entrepreneurs in partnership with our public health care system and communities, can develop and implement substantial cost savings solutions for the well-being and health of seniors and their families. »

—**Diane Côté**, CEO MEDTEQ Consortium

Laipac Technology Inc.: Based in Richmond, Ontario, Laipac is an industry leader in mobile health-care solutions, developing Internet of Things (IoT) products since 1999 that have been exported to more than 100 countries. We worked with Laipac during our pilot project around their feature-rich Look Watch product. In a complete implementation and rollout of the VILLAGE Initiative, we would continue our collaboration towards creating a seamlessly integrated smartwatch for older adults offering more convenience, safety, and social connectedness.

« Should the city be a winner in the Smart Cities Challenge, we would welcome the opportunity to collaborate further on a broader rollout that would meet your program vision and resident needs. »

—**Diego Lai**, CEO, Laipac Technology Inc.

ECONOMIC DEVELOPMENT PARTNERS

Agence Ometz and PME Centre West Montreal are two organizations which promote employment and entrepreneurship and which have committed to work in close collaboration with the VILLAGE Initiative. As more fully described in Chapter 9, these agencies provide advice and guidance for business start-ups and offer services to entrepreneurs and job seekers.



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COMMUNITY PARTNERS

Cummings Centre, St. Patrick's Square, and B'Nai Brith Canada:

There are at least three subsidized residences for independent older adults who have indicated serious interest in collaborating with this Initiative: Caldwell Residences, B'nai Brith and St. Patrick Square. St. Patrick's has already proven to be an invaluable partner in the pilot project and will be again during implementation. They are in-

vesting in smart building technology in partnership with the City and its residents. By deploying the VILLAGE devices into a few of the older adults' apartments in each building in collaboration with the building's administration, we will be able to measure performance and success in a controlled trusted environment, which will allow residents to remain in their homes longer without having to go to assisted care.

5.4 RISKS AND MITIGATION

The risks related to governance are outlined in the table below.

Risks	Mitigation Plan
Potential for ambiguity of roles and responsibilities	<p>Sign written agreement outlining the relationship between the NPO and the City, including financial arrangements, in-kind donations, human resource allocation, service harmonization and any other shared issues.</p> <p>Develop comprehensive guidelines on roles and responsibilities within the NPO for each level including:</p> <ul style="list-style-type: none"> • Level and form of engagement of different actors. • Delegation of authority. • Scope of operation and the origin of funding. • Relationship with each other and other partners or stakeholders. • Level of assistance and support with each other. • Explicit mandates of each. • Partnership agreements and scope. • RACI Chart. <p>Create codes of conduct and ethics for the Governing Board and employees.</p>
Outsourcing technology development	<p>Clearly define in a contract agreement the scope, deliverables and timeline for the development of the technology platform, including adherence to privacy policies and procedures, and relationships with other partners.</p>
Human Resources—Finding suitable candidates, start-up very tied to specific people, creating organizational culture	<ul style="list-style-type: none"> • Build a Human Resource Management Plan that is integrated with decision-making throughout the organization and which has built-in succession-planning. • Develop clear job descriptions with performance outcomes that are aligned to the values and mission of the organization and which incorporate diversity and inclusion. • Create a recruitment strategy to find the best candidates for each position. • Create an organizational chart. • Develop an onboarding program. • Develop a training program to fill skill gaps for both management and employees. • Develop a performance appraisal and recognition program. • Include a liability insurance plan to cover for long-term management absences.
Cash Flow and Collection cycles based on Milestones—continuity breakdown	<p>Clearly define outcome performance agreement per project with the Government of Canada to ensure continuity of projects and outcomes.</p>
Time Escalation on Deliverables	<p>Chart starting and projected delivery date for each activity output on a development chart to measure, control and manage possible slips and adjust when needed.</p>

Chapter 6 ENGAGEMENT

This chapter is a summary of what we have learned through community engagement activities to date and our Community Engagement Plan for the next phase of this project. We will also highlight the opportunities for ongoing conversation with our residents and other important stakeholders, which will help define and shape the VILLAGE Initiative.

During our community engagement phase, we sought feedback from seniors, caregivers, and other stakeholders in the community in three main areas:

- The needs, worries and challenges they experience as they or their loved one age in community.
- How they view the role of smart technologies to help them age in community.
- How they view the role of the City in supporting aging in community.

Focus groups, public consultations, advisory committee meetings, and a pilot project have been vital. They have created a common understanding and a space for ongoing dialogue with residents. We gathered insights on current issues that are important to them and their families related to aging in community. Residents liked the open, two-way dialogue. They proposed ideas and came up with collective solutions. The meetings also confirmed for us the real needs and desired outcomes of our residents.

During the next phase of the VILLAGE Initiative, we will make efforts to expand the number and diversity of the voices providing guidance in the development of the VILLAGE Initiative.

6.1 SUMMARY OF RESULTS OF COMMUNITY ENGAGEMENT ACTIVITIES TO DATE

We worked with the following groups and organizations:

- Côte Saint-Luc programs and services including the public library, Aquatic and Community Centre (ACC), Emergency Medical Services (EMS), volunteer Citizens on Patrol (vCOP), volunteers
- Research partners from the Montreal Geriatric Institute
- St. Patrick Square pre-retirement community
- Cummings Centre

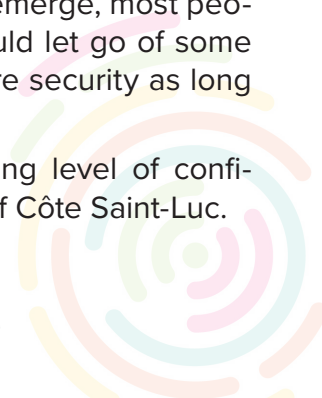
We conducted the following community engagement activities, which have driven the direction of this proposal:

- Community engagement planning and visioning
- Information sessions
- Focus groups/action research
- In-person public consultation

- Online public consultation
- Senior advisory group meetings
- Project website
- Pilot project

Several key themes emerged through this engagement effort. They are summarized here with explanations in the next sections:

- Older adults would prefer to age in place, yet face a variety of challenges to doing so.
- Smart technology designed for convenience, safety and social engagement can be used to help give older adults and their caregivers peace of mind when aging in place.
- Technology needs to be simple to use, affordable, older-adult-friendly, and customizable.
- While privacy concerns did emerge, most people expressed that they would let go of some privacy in order to have more security as long as privacy was protected.
- Residents expressed a strong level of confidence and trust in the City of Côte Saint-Luc.



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- There is an infrastructure already in place in the City of Côte Saint-Luc for this initiative to work.
- Don't forget the human element—it's not about connecting people to technology but about connecting people to people using technology.

6.2 COMMUNITY ENGAGEMENT VISIONING

Between June 2018 and September 2018, the VILLAGE Initiative team clarified the community engagement issue, developed principles for community engagement and defined the community to be engaged.

6.2.1 Community Engagement Principles

Inclusivity: The City encourages participation by those who will be affected by a decision. We want people to feel agency, to enable them to make a meaningful contribution to their community to matter what their age or background.

- **Connectivity:** The City aims to create networks of community members, linking people from different backgrounds to the City and to each other.
- **Coordinated approach:** The City coordinates community engagement activities to use resources effectively. Residents and community groups are our partners.

- **Open and timely communication:** The City provides information that is timely, accurate, accessible, easily understood and balanced. Public engagement processes will be designed to involve the appropriate people at the appropriate time in the appropriate way.
- **Transparency and accountability:** The City explains its governance processes to residents and ensures that information is readily available to the public.
- **Change and continual improvement:** As technology and circumstances changes, so too will the City. Continual feedback from residents will ensure that the City evolves with them and their needs.

6.2.2 Understanding the Community

While older adults are the target population for this Smart Cities Challenge initiative, many other groups of people will be affected by it as well including families, caregivers, neighbours, future older adults, residences, partners, health care professionals, city staff, and city councillors. Each of these groups have their own needs and concerns and we wanted to ensure they each had the opportunity to participate in community engagement activities. Engagement efforts were conducted with a focus on equity to connect with the broadest cross-section of the City of Côte Saint-Luc population, including focusing on reaching under-represented people.



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6.3 COMMUNITY ENGAGEMENT PLAN

In September and October 2018, we developed a Community Engagement Plan with scope, timelines, locations, costs, and responsibilities to ensure that residents were given opportunities for various levels of participation, from receiving information, to being consulted, to collaborating and active participation. Below is a summary.

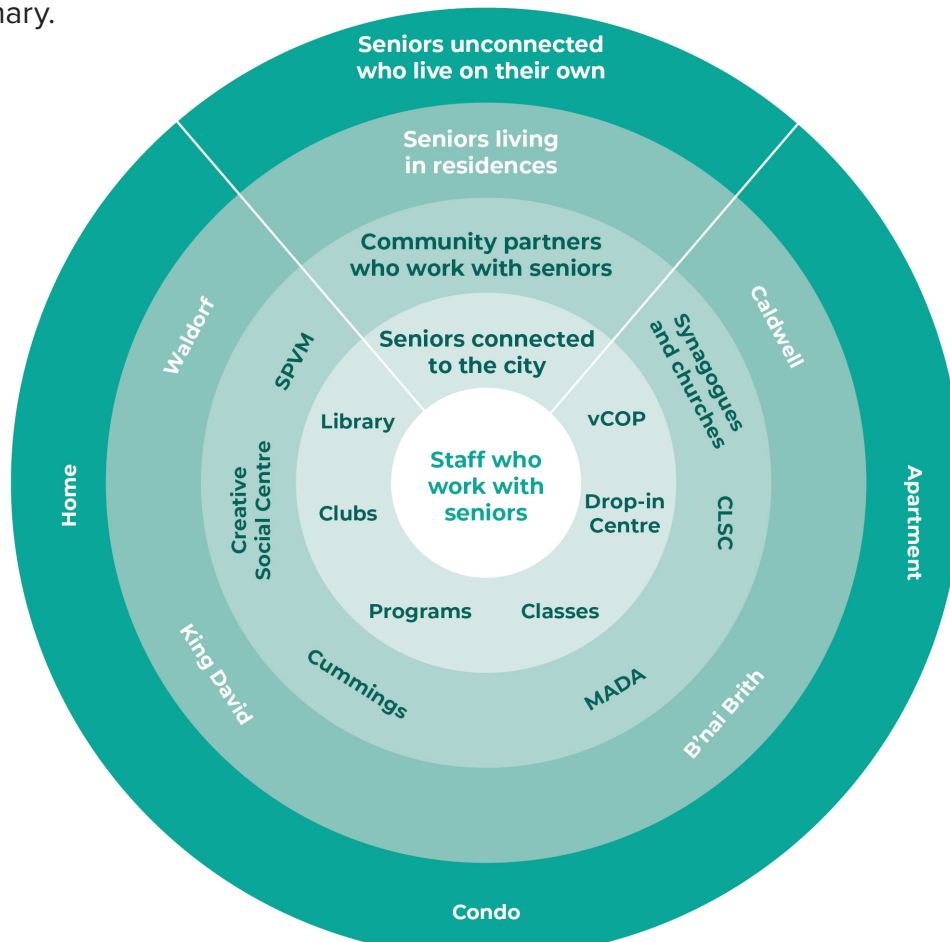


Figure 6-1: Illustration showing the concentric circles of connectedness to the City, from most connected in the inner circles, to least connected in the outer circles.

Increasing Levels of Community Influence

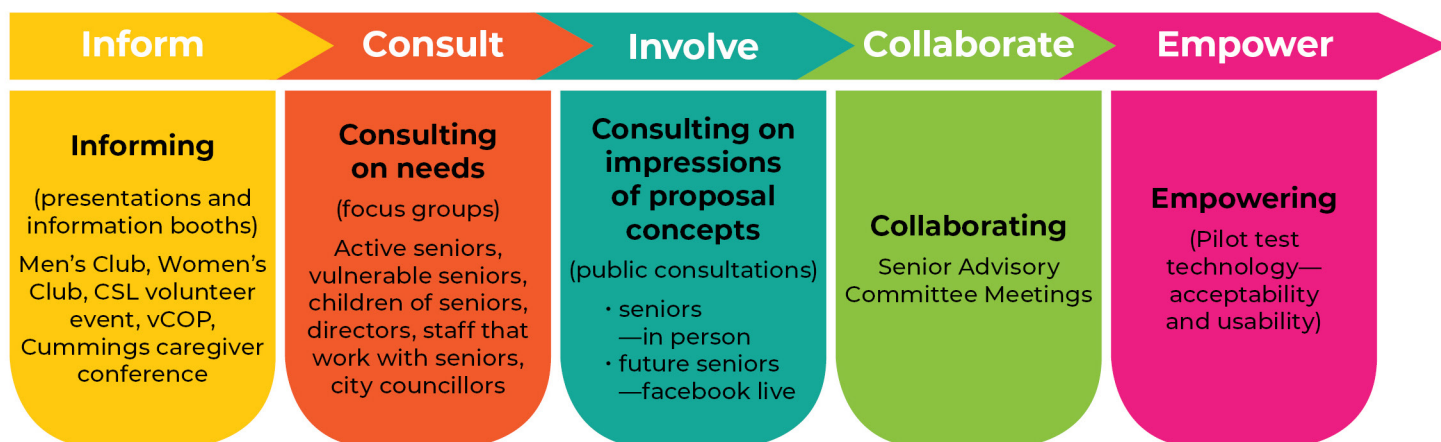


Figure 6-2: Chart illustrates five increasing levels of community influence including inform, consult, involve, collaborate, and empower.

Chapter 6 ENGAGEMENT

6.3.1 Summaries from Engagement Activities

We conducted more than 15 community engagement events with more than 1,000 residents from November 2018 to January 2019. We also sent letters to 14,000 households with information about the project and an invitation to participate in the public consultations.



Figure 6-3: Illustration listing public engagement activities from October 2018 to January 2019.

6.3.1.1 Inform: Going Out Into the Community

The first phase of community engagement was informing stakeholders and residents about the Smart Cities Challenge and inviting them to participate in various activities. Information presentations and booths with invitations to sign up to participate in engagement sessions were given to the Côte Saint-Luc Men's Club, the Côte Saint-Luc Women's Club, a Côte Saint-Luc volunteer appreciation event, vCOPs, and a Cummings Caregiver conference. We connected with, informed and invited more than 1,000 people as a result of these informational sessions. We also spoke on local television, used Facebook and Twitter to share our progress, and produced videos to update residents.

6.3.1.2 Consult: Focus Groups

We conducted focus groups with our research partners to determine the most pressing needs of older adults when it comes to aging in place. The focus groups helped to ensure that everyone had the same understanding of the project and to prioritize needs for the proposal. We met with six groups of people (ranging from 4 to 12 people per group) including active older adults, vulnerable older adults, children of older adults, senior City staff, staff that work with older adults, and City Councillors. All groups were asked the same questions following a structured interview guide. During these focus groups—despite some differences between them—we were able to see trends emerge in terms of challenges to aging in place,

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perceptions of technology, how Côte Saint-Luc has a lot of resources that it can leverage, and privacy concerns. The results of the focus groups helped the team come up with the concepts of the VILLAGE Initiative Proposal: smart technology for convenience, safety and social engagement through a connected community of people helping people.

What we heard

We heard four broad themes from the focus groups, which can be summarized as follows:

1. **Challenges to aging in place:** social isolation, safety and insecurity, health care system, desire to remain autonomous, mobility, accessibility, daily tasks caregiver burden
2. **Perceptions of technology:** older adults learning curve, socio-economic gap, human connection, purposeful, simple, passive, reliable, caregivers (collect objective data for decision making), connect with others in city for help with daily tasks
3. **What the City can leverage:** confidence/trust in the city, public library and Aquatic and Community Centre are main hubs, partners with community organizations, “connector” role, advocacy and informational support, infrastructure already in place
4. **Privacy concerns:** hackability, theft, what will happen with the data, must be individualized, trustworthy technical support (choosing, installing, ongoing help), manage the privacy risks not avoid them (safety number 1 priority)

6.3.1.3 Involve: Public Consultations

We organized two public consultations to understand the impressions of Côte Saint-Luc residents regarding the concepts being submitted in the proposal, that is, the VILLAGE Initiative and smart technology for convenience, safety, and social engagement.

CONSULTATION NO. 1: The first consultation attracted 81 participants. It was conceived for older adults and to be participative in order to share concepts from the Smart Cities Challenge and gain impressions of older adults.

What we heard

We asked participants to draw a **care map** indicating who they would call during an emergency or if they need help with something. The results were surprising. Some people indicated that they had family or friends close by, or a neighbour, caregiver, health care professional or community program that they rely on for support. However, many people expressed that they were alone and that they relied on emergency services for even minor situations. Nobody listed the City as a node on their care map.

After the VILLAGE Initiative concepts were presented, the participants asked what, if anything gave them **peace of mind** about the project. They indicated that they like the VILLAGE initiative for both social engagement and security. The people-helping-people approach resonated with participants, as did the concept of village as a way to build community and feel connected and less isolated. They liked the idea of healthy older adults helping isolated older adults and having someone “be there without being there.” Others appreciated the safety and security that it could bring to people who live alone.

We asked about **concerns** related to the project. Participants raised several issues related to privacy, accessibility, and the human element. For privacy, participants expressed concerns around invasiveness, hackability, and what would happen in the event of power failures or malfunctions. For accessibility, they had concerns about affordability, language, simplicity of technology and adaptations for people with hearing, vision, speech and mobility impairments. For the human element, they said that technology without people will not be accepted, and that we can’t forget about the human element.

CONSULTATION NO. 2: The second consultation was for future older adults (ages 40 to 64) and was facilitated by the City Manager, the Mayor and two municipal councillors. It was streamed on Facebook Live. Participants were asked for feedback on the proposal and its impact on them as they age. Twenty-two participants attended this event.

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We asked participants how they would define **Thriving** as it relates to aging. Their answers focused on feeling connected and contributing to society, remaining active and engaged and having a sense of meaning and purpose. The perceptions of and interest in the **Village Initiative** were very positive with participants reflecting on that fact that this would have an “amazing positive impact in the event of a major event like last years heat wave” and that this would be “one less barrier for older adults.” They suggested that municipalities be at the frontlines for preventions and work closely with public health agencies. This age group is prepared to give of their time to help support the initiative.

6.3.2 Collaborate: Senior Advisory Council

A permanent Côte Saint-Luc Senior Advisory Council was established and its first meeting was held in November 2018. Chaired by the City Manager, the members of the Senior Advisory Council included several senior members of the community, volunteers, community partners, elected officials, and city staff who work with older adults. The first meeting focused on the Smart Cities Challenge, and feedback about what was proposed. Thoughts and concerns included:

- Ease of use related to technology
- Lack of WiFi
- Potential costs and accessibility
- Transportation
- vCOP able to make a positive contribution
- Volunteerism deemed to be an important part of the project

6.3.3 Empower: Pilot Project

We launched a pilot project in January 2019 with research partners from the Montreal Geriatric Institute. We implemented smart technologies and monitoring devices into the homes of five older adult participants. The purpose was to get preliminary information on the level of usability and acceptability of the technologies. The five were selected from a pool of more than 15 older adults

who showed interest in participating in the pilot project. The five were selected based on predetermined criteria (e.g., living alone, WiFi at home, no big pets, etc.). While we used a convenience sample, every effort was made to ensure a diverse group in terms of gender, language and socio-economic status.

Demographics of pilot participants:

- 3 men, 2 women
- 3 apartments (1 specifically for autonomous older adults), 2 single-dwelling homes
- 3 have involved family living in Montreal, 2 do not
- Age range: 65 to 93

All participants expressed challenges related to safety in the home, performance of instrumental activities of daily living, and fear of falling. None of them had any cognitive impairments, and two shared that they were experiencing some symptom of depression.

During the first meeting, participants signed consent forms and sat for a short interview and completed standardized questionnaires. During the second meeting, we implemented the technology and offered education in learning how to use it. Ongoing support was provided. Only one participant has been involved long enough to have participated in a follow-up interview to discuss perceptions on usability and acceptability

What we learned

A few weeks after installation, participants were asked questions about the usability and acceptability of the technologies. In general, participants expressed:

- The sensors did not feel invasive
- The level of support provided during installation was excellent in terms of explanations received. The letter that was created to describe the process which was given to each participant is attached.
- Alexa was especially appreciated, however participants wished it was programmed to do more things—such as making calls to family and friends

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- Aside from the Alexa, the rest of the technology had no impact on improving or hindering daily activities
 - The installation of the sensors and lights was not always done satisfactorily and they fell off—several visits were often needed to ensure that sensors were installed properly
 - Participants need access to training and support to ensure the proper use of smart home technologies
 - One participant was given a Laipac watch that had fall detection and SOS button functions—however, it kept giving false alerts and therefore was not satisfactory and needed to be disabled during the pilot. Further review of this device is warranted.
 - Participants would be willing to pay for hardware and some monitoring subscription fees, however reported that subsidies will need to be available for people who can't afford it. At this point they were not comfortable committing to a price they would be willing to pay since they do not know exactly what they would be receiving or how it would help.
- See Appendix for consent forms, letter given to participants, and preliminary report.

6.4 COMMUNITY ENGAGEMENT STRATEGY FOR THE NEXT PHASE

During the next phase of the Community Engagement strategy, we will focus on equity to ensure we connected with an even broader cross-section of Côte Saint-Luc population. We want to reach underrepresented and health-disparity populations, increase stakeholder involvement, and distribute outreach materials in a more targeted and strategic manner. We will continue to work closely with organizations and other partners working with specific populations and communities to provide ongoing opportunities in a variety of formats for residents and stakeholders to share experiences and ideas for the VILLAGE Initiative. Given the opportunity, we will focus on adding the following principles to our Community Engagement Strategy.

6.4.1 Outreach

We will take engagement to places where people are already congregating, setting up pop-up workshops at community events and popular destinations to make it easier for community members to provide their comments without having to attend a separate meeting. This will help us to ensure that the right community members are at the table.

6.4.2 Participative Approach

The process and structure of community engagement activities will allow for all voices to be heard and equally valued. Community members will be involved in developing the VILLAGE Initiative from conceptualization, to implementation, to evaluation, to ensuring it is culturally sensitive.

6.4.3 User-friendly Material

To effectively communicate with members of the public, we will develop welcoming, user-friendly, jargon-free community engagement materials that are visually attractive and written with easy to understand language. Bright stickers, post-it notes, pens and markers will be provided for people to share comments.

6.4.4 Design-Thinking Approach

In order to ensure that the best, most impactful services will be delivered, we will apply IDEO's Design-Thinking process (described below):

- **Empathize:** Learn about the audience through observation, seeking to understand users' perspective



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- **Define:** Construct a point of view based on user needs
- **Ideate:** Brainstorm and come up with creative solution
- **Prototype:** Build representations of ideas
- **Test:** Test ideas through prototyping, pilot projects

Once tested, the developers of both technology and social transformation will loop back into the relevant phase to re-define, re-ideate, re-create a

prototype, and re-test until the service works and satisfies user needs and expectations. This process puts community engagement at the heart of design and innovation and allows the actual users to share their experience of a service with those who will be delivering it.

In addition to traditional community engagement activities including presenting at conferences and events, focus groups, and mailings, additional efforts to engage residents will be made in person and online.

6.4.5 In-person Activities

Activity	Description
Senior Advisory Committee meetings (4 meetings per year)	Composed of health care professionals, older adults, caregivers, and city staff. The primary role is to: <ul style="list-style-type: none"> • provide multidisciplinary, well-rounded perspective on needs of older adults and caregivers and solutions • provide guidance on VILLAGE initiative planning and implementation process • assist in disseminating information and serving as a liaison to community members
Pop-up workshops (2 to 4 per year)	Informal engagement opportunities strategically located in places where people are already congregating including the library, the Aquatic and Community Centre, the malls, community events, parks and other popular designations. These workshops will include opportunities to interact with the smart technologies that making learning about the project and sharing ideas easy and inviting. Pop-up workshops enable people to share comments quickly, provide materials for participants to engage with online materials on their own time, and capture the perspectives of people who may not ordinarily attend more traditional workshops.
Listening sessions (4 per year)	Listening sessions, like pop-up workshops, take the meeting to the people. However listening sessions typically take place at a regular meeting of a pre-existing group. For example, a listening session may take place at a Senior Men or Women's Club meeting, or at an activity taking place at a local residence or community centre. Listening sessions enable people to participate in the planning process at meetings they already attend regularly, and provide an opportunity for in-depth discussion with specific demographic or special interest groups within the community.
Showcase with user experience sessions (2 per year)	Innovation-through-design thinking is a structured, human-centered method for creatively solving complex problems that inspire and delight users. Using iterations to: <ul style="list-style-type: none"> • test and stage • refine prototypes and solutions • learn more about user • refine solutions
Individual interviews (at least 10 individuals)	Individual interviews with residents who are homebound and cannot participate in the focus groups or other community engagement activities

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Activity	Description
Thrivability sessions for the VILLAGE Community App (monthly)	Working with an experienced facilitator, we will work with residents to cultivate the fertile conditions for the VILLAGE Initiative to be successful and for older adults to age in a place of their choosing, closely connected to their communities with the supports and tools they need. We will explore aging of their own design, opportunities for residents to use their talents to improve the VILLAGE and plan social activities that minimize isolation and promote interaction and trust within the village community, between individuals who ask for help when needed and individuals who offer help. These sessions will help to fill the gap and allow meaningful engagement and initiative of the VILLAGE before service delivery can begin.

6.4.6 Online Activities

Activity	Description
Website	VILLAGE Initiative website will be maintained and expanded to communicate general project information, announce events and engagement opportunities, and house online engagement tools like the survey. The project website will also provide an area for people to share open-ended comments related to the project and to opt into the mailing list and receive e-mail updates.
Survey	An online survey will be developed and accessible directly through the website. Hard copy forms will be available as well. The survey will be developed with our research partners to ensure reliability and validity.

6.5 RISKS AND MITIGATION MEASURES

Risks	Risk Mitigation Plan
Low engagement levels of identified target groups, which can jeopardize the success of the onboarding stage of the platform and service delivery buy-in	<ul style="list-style-type: none"> Ensure tools and locations of community engagement are accessible and spread out across the City of Côte Saint-Luc Focus on outreach and bringing engagement opportunities to where people congregate using pop up workshops and listening sessions
Community concerns, needs and questions not sufficiently addressed, jeopardizing success and sustainability of platform and service delivery	<ul style="list-style-type: none"> Design community engagement sessions to ask the right questions Give residents many opportunities to express their needs, concerns and questions
Lack of information or misconceptions about the project and its outcomes leading to disillusionment of participants	<ul style="list-style-type: none"> Ensure transparency in community engagement sessions in terms of where we are, where we are going, and how information gathered from residents will be used in developing the VILLAGE Initiative Communicate updates and how they like to findings from community engagement
Interactions & discussions during engagement activities going off tangent or being monopolized by a few participants	<ul style="list-style-type: none"> Use facilitators with extensive experience in dealing with difficult group dynamics and keeping discussions on track
Long lag time between community engagement and onboarding of platform and service delivery phases of the project	<ul style="list-style-type: none"> Plan on-going engagement activities including regular brainstorming and working session where residents can play a large role in the development of the VILLAGE Community App (people helping people)

Chapter 7 DATA AND PRIVACY

This chapter is to be read in close conjunction with the Preliminary Privacy Impact Assessment (PPIA) and documents which have been placed in the Confidential Annex on Privacy.

7.1 CONTEXT

Many private companies in the world market are promoting the use of smart home solutions for older adults, but without the rigorous data governance rules and oversight that are necessary to protect users' sensitive personal and health information. Who owns the sensors, who has access to the data they collect, and what the data can be used for are all issues arising from the proliferation of tracking and monitoring devices and systems. In the hands of private companies, individuals' personal information is often leveraged and commercialized for targeted marketing and other purposes, as has been recently revealed in other smart city projects.⁵

The VILLAGE Initiative is committed to the highest standard of privacy and data protection. Privacy-By-Design is built into the VILLAGE Initiative and will become the standard for other Canadian cities that adopt this program. This will put Canadian cities on the map for the Cities Coalition for Digital Rights, a world initiative to promote and track progress in protecting residents' digital rights in cities.⁶

7.1.1 The New Organization

The VILLAGE Initiative will reside within a third-party non-profit entity created to manage the VILLAGE Initiative. The structure and governance of the new organization would ensure that data collected, created, and generated by the VILLAGE Initiative would continue, in perpetuity, to be subject to data protection and access rights and responsibilities applicable to the City and all provincial "public bodies." Since the new organization will be constituted in compliance with the *Quebec Act re-*

specting Access to documents held by public bodies and the Protection of personal information it will have all the duties, obligations, and rights to protect the data which will be generated by this Initiative.

According to the VILLAGE Initiative Governance Model, one member of the Governing Board will be a privacy expert so that we maintain data governance and privacy protection as a constant consideration throughout the execution, implementation and entire lifecycle of the project.

7.2 THE PRELIMINARY PRIVACY IMPACT ASSESSMENT

At the very early stages of the finalist phase, the City of Côte Saint-Luc engaged Sharon Polsky, President of AMINAcorp.ca, President of the Privacy and Access Council of Canada, and a Privacy by Design Ambassador with more than 30 years experience, to consult and advise the Côte Saint-Luc Smart Cities Team in the preparation of this VILLAGE Initiative proposal.

As is more fully elaborated in the Preliminary Privacy Impact Assessment (PPIA), which is included in the Confidential Annex of this proposal, the privacy consultant conducted a thorough assessment of the City's information protection and privacy compliance policies. As a result, she prepared a very exhaustive PPIA with 91 recommendations. Furthermore, she proposed that the City adopt an Information Privacy Protection and Governance Policy Framework, and the City is prepared to adopt that Policy Framework in a timely fashion. In addition, the City envisions incorporating the suggested Policy Framework and the recommendations into the articles of incorporation of the new

⁵ "Smart Cities May be too Smart for their Own Good" National Post Feb 2 2019 in the Appendix <https://business.financialpost.com/technology/smart-cities-may-be-too-smart-for-their-own-good>

⁶ See Bianca Wiley (@biancawylie) Senior Fellow at the Centre for International Governance Innovation and co-founder of Tech Reset Canada "Why we need to push for data rights in Canada." in the Appendix <https://business.financialpost.com/technology/why-we-need-data-rights-not-everything-about-us-should-be-for-sale>



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VILLAGE Initiative non-profit organization as part of its creation.

The Policy Framework is intended to provide the foundation of the City of Côte Saint-Luc's Information Security and Privacy Protection program, and enable the City and the new VILLAGE Initiative organization to effectively identify, manage, and mitigate the risk of data exposure or compromise within the organizations' computer and information-handling systems and the technology and communications devices under their control.

All the essential elements related to privacy in support of this project are addressed in the PPIA, including compliance with all relevant privacy regimes, types and methods of data collection, and efforts and recommendations to adhere to the ten universal privacy principles which are the foundation of the Fair Information Principles that form the basis of Canada's Personal Information Protection and Electronic Documents Act (PIPEDA). Certain additional elements relating to privacy merit to be highlighted in this section which is not covered by confidentiality.

7.3 PRIVACY BY DESIGN AND HOW PUBLIC CONSULTATIONS INFORM DESIGN

The City of Côte Saint-Luc, in conjunction with academic and research partners and members of Quebec's health care profession, held several in-person public consultations and focus group discussions with a broad range of Côte Saint-Luc residents, their families, caregivers, and the staff who serve them. Consultations were intended to (and did) elicit feedback, concerns, and questions about the VILLAGE Initiative in general, and privacy implications and concerns in particular. It should also be noted that, pursuant to this exhaustive engagement exercise and the implementation of the pilot project in the homes of five independent older adults, issues around privacy and security were raised. All of those concerns (see Chapter 6: Community Engagement) were addressed and integrated into the design of the project. For instance, feedback indicated that:

- The solutions offered need to be customized

to each individual's level of comfort with technology in general and monitoring technologies in particular, since some participants will want monitoring via cameras and others not;

- The person who recommends devices and the one who does the installation must be trustworthy and accredited;
- The use and distribution of data must be totally secure and not available to any third parties without participants' explicit consent.

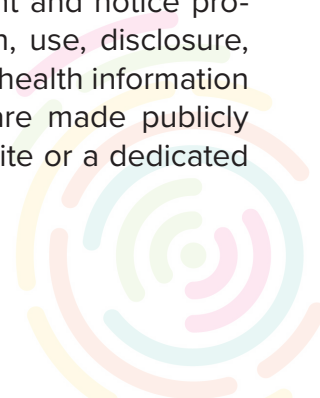
Residents who were consulted and those who participated in the pilot project understood that some risks (such as power failures or personal home intrusions) are unavoidable, but were prepared to play a role in managing risks in collaboration with the VILLAGE team. The partnership with researchers (including those involved in the pilot project) was also seen as providing a positive ethical approach that could further enhance the design of the VILLAGE Initiative.

7.4 OPENNESS AND BIG DATA

The City also believes that providing open access to project data about the VILLAGE Initiative must—and can—be done in a manner that genuinely respects privacy and governing law; and that strategy can—and will—invite innovation using anonymized data in a way that genuinely respects individuals' privacy.

The VILLAGE Initiative and the City will adopt a communication plan to explain to the public the policies and practices relating to the proposal's management and handling of personal information.

In addition, information management and other policies will be available online and by request as suggested in PPIA Recommendation 87—Access to Policies—ensure consent and notice provisions governing the collection, use, disclosure, and disposition of personal and health information through the VILLAGE Initiative are made publicly available through the City website or a dedicated VILLAGE Initiative website.



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7.5 FINAL COMPREHENSIVE PIA

As a fundamental component of developing the City's final proposal, we have addressed the privacy concerns through the Preliminary PIA and resolved issues that became apparent during the pilot project. For example, we prepared plain-language consent forms and pilot project participants were asked to sign both the City's consent forms and were invited to sign the consent for their information to be collected by our research partners from the Université de Montréal, whose consent forms are government approved.

If Côte Saint-Luc is selected as a winner of the Smart Cities Challenge, we will conduct a comprehensive Privacy Impact Assessment to ensure that VILLAGE participants' information is adequately safeguarded, whether through collaborations with research and healthcare partners or in relation to the technology and devices employed in the VILLAGE Initiative.

Furthermore we will rely on the advice and guidance of our major health partner, the CIUSS Centre Ouest-de-l'île de Montreal/Integrated Health Network for West Central Montreal, headed by Dr. Lawrence Rosenberg whose letter of support indicates its intention "to collaborate with Côte Saint-Luc in an advisory role regarding its program governance, alignment of technology roadmaps and data integration aimed at augmenting Patient Health records as well as information privacy protection."

This collaboration has already started in that they have shared with Côte Saint-Luc the policies, laws, regulations, and directives that will guide our information security and data governance once we begin to service those residents of our city who are patients in their health network.

This model of collaboration will serve other communities across the country when adopting the VILLAGE platform.

7.6 PRIVACY COMMISSIONER OF QUEBEC

The City of Côte Saint-Luc submitted the draft PPIA to the Privacy Commissioner of Quebec (see letter in the Confidential Annex). After due consultation with the Privacy Commissioner's office, we revised the PPIA to address all of its concerns and included its recommendations.

7.7 RISK STRATEGY

The PPIA identified a broad range of risks and unintended consequences that could result from the creation and implementation of the VILLAGE Initiative, and provided detailed recommendations and strategies to mitigate the risks, which are outlined in the four key findings:

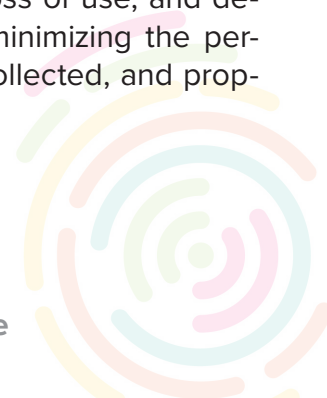
Finding 1—Beyond the Baseline

The wealth of sensitive personal, health, and financial information that will be collected, used, and disclosed in the VILLAGE makes it clear that it is incumbent upon both the City of Côte Saint-Luc and the VILLAGE non-profit organization to go beyond the baseline requirements of the privacy laws.

Côte Saint-Luc must ensure that information is collected and disclosed at the right times, for the right reasons, to the right parties, and in the right amounts, and ensure that the personal information is protected against such risks as unauthorized access, collection, use, disclosure, disposal, and loss of use throughout its lifecycle and to a degree that is appropriate to the sensitivity of the data.

Finding 2—Prevention is Key

The intentional reliance on technology to enhance independent living demands adequate controls for securing all information in the VILLAGE (regardless of its form or format) against unauthorized access, use, disclosure, loss, loss of use, and destruction. The importance of minimizing the personal and health information collected, and prop-



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erly safeguarding it throughout its lifecycle, cannot be overstated.

Accordingly, it is essential to ensure that effective encryption is required in all elements of the VILLAGE; that all VILLAGE data be categorized and segmented, de-identified and encrypted at source, at rest and in transit through its entire lifecycle; that use by third parties be limited by non disclosure agreements and contracts that articulate strict limits on sharing, access by further third parties, and data location; and that both Privacy by Design and Privacy by Default be embedded and required as the de facto standard in all elements of the VILLAGE so that it genuinely respects privacy while facilitating innovation and scalability.

Finding 3—Participants Must Be in Control of their own Information

The desired outcome of the VILLAGE Initiative will rely on individuals voluntarily joining the VILLAGE Initiative; but they will trust and use the “smart” VILLAGE solution only if they are satisfied that it provides adequate confidentiality and privacy, and that it enables them to have explicit control over whether and what information about them is (and is not) collected, who has access to which parts of it, and that they can have access to their own information when they want or need it.

Finding 4—Maintain Primary Control over Information, and Control Secondary Uses

The collection, processing, storage, retention, and management of personal and health information might rely on third parties. Accordingly, it is essential that clear and unambiguous language limit vendors or other third parties from releasing/revealing personal/health information to subsequent parties, and that such limiting language be embedded in all agreements, bid processes, and purchasing policies/procedures relevant to the VILLAGE Initiative.

Comprehensive protection of personal and health information can be attained—throughout the data lifecycle—by the City of Côte Saint-Luc creating a separate organization to manage the VILLAGE Initiative, thereby facilitating data sovereignty and ensuring that VILLAGE data would continue to be subject to data protection and access rights and responsibilities applicable to the City.



Chapter 8 FINANCIAL

8.1 INTRODUCTION

This chapter describes the five-year financial plan for the VILLAGE Initiative program including estimates for expenses and revenues along with a detailed financial analysis. This financial plan adopts a top-down forecasting approach.

Program Overview

The VILLAGE Initiative program is comprised of five projects and 40 core activities focused on the implementation of a Connected Framework in the City of Côte Saint-Luc as defined in the Challenge Statement and aligned with milestones payments for outcome achievement defined in the Performance Measurement chapter.

Project	Total five-year cost in \$CAD
Governance and Operations	\$3,170,000
Community Engagement	\$1,128,250
Platform Development	\$3,362,000
Service Delivery	\$1,719,500
Sustainability & Transferability	\$629,250
TOTAL	\$10,000,000

Table 8-1: Cost Breakdown by Project

Management and Oversight

The VILLAGE Initiative management and oversight for accounting and financial projections will be the responsibility of the Chief Financial and Operations Officer (CFO).

8.2 PROGRAM COST ESTIMATES

The total estimated cost for the VILLAGE Initiative program over five years is \$10 million with a \$405,000 in-kind contribution from the City of Côte Saint-Luc, which covers half of the CEO's salary (\$375,000) and the first two years of rent (\$30,000). The first table shows the breakdown by project (totals have been rounded to the dollar). The second table shows expenses by category.

Expense Category	Total five-year cost in \$CAD
Management Costs	\$6,965,000
Human Resource Costs	\$867,000
Operating Costs	\$2,195,000
TOTAL	\$10,000,000

Table 8-2: Cost Breakdown of Expenses

Management Cost Allocation

Members of the Management Team, while defined in the Governance and Operations project, would allocate their time and work across projects according to their skillsets and expertise. Cost estimates have been allocated in the table below.

Management	Revenue Allocation in %	Annual Salary
CEO	40% Governance and Operations 35% Community Engagement 10% Service Delivery 15% Sustainability	\$150,000 (\$75,000 in-kind by the city)
CTO	40% Governance and Operations 40% Platform Development 10% Service Delivery 10% Sustainability	\$150,000

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Management	Revenue Allocation in %	Annual Salary
Admin	40% Governance and Operations 20% Community Engagement 20% Service Delivery 20% Platform	\$60,000
Marketing and Communications Coordinator	20% Governance and Operations 50% Community Engagement 30% Service Delivery	\$50,000
Chief Financial and Operations Officer (CFO)	50% Governance and Operations 20% Community Engagement 10% Service Delivery 15% Sustainability	\$120,000
Director of Community Engagement & Service Delivery	20% Governance and Operations 40% Community Engagement 40% Service Delivery	\$100,000
Fundraising and Sustainability Manager	10% Governance and Operations 80% Sustainability	\$75,000 starting second year

Table 8-3: Management cost allocation

Assumptions and Cost Estimating Methodology

Cost estimates were developed by breaking down each project into four major categories: (1) conception and planning, (2) implementation and operational results, (3) monitoring performance indicators, and (4) contingency and risk mitigation. The methodology for each element is further described below.

Cost Elements	Assumptions	Estimated % of Costs—five years
Conception and Planning	Final conception and planning of all projects and services are estimated at 85% of the total costs of management, additional resources and operating costs the first year and 25% each year after	\$3,143,350
Implementation and Operational Results	All implementation and operational results are estimated at zero of the total costs of management, additional human resources and operating costs the first 12 months and at 62% each year after	\$5,558,920
Monitoring Performance Indicators	Monitoring and reporting performance indicators per project costs are estimated at 10% of the total costs of management, additional human resources and operating costs for the five years	\$1,002,700
Contingency and Risk Mitigation	Contingency and Risk Mitigation costs are estimated at 3% of the total five-year costs	\$300,810

Table 8-4: Cost Elements and Assumptions

Chapter 8 FINANCIAL

8.3 FINANCING AND REVENUES

8.3.1 Introduction

This section presents the projected funding required to complete the program including projected revenues and assumptions.

8.3.2 Financial Plan Overview

This Projected Financial Plan reflects the planned funding strategy through which the VILLAGE Initiative will be financed. This includes the \$10 million start-up fund financed by Infrastructure Canada through 13 milestone payments and revenue generated from a number of sources to ensure sustainability and scalability in the long-term. These sources include user fees from smart device solution sales, partner subsidies, government grants, planned giving, endowment donations, and premium solution support services.

With the aim of funding for sustainability, we have had a number of active discussions with financing partners who would provide additional capital to a \$10 million prize from the Smart Cities Challenge. For instance, MEDTEQ have strong interest in supporting the VILLAGE Initiative should we be a win-

ner in the Smart Cities Challenge, as evidenced by their letter of support. MEDTEQ is the Industrial Consortium for Research and Innovation in Medical Technologies, which accelerates the collaborative development of innovative technologies for clinicians and patients and their validation and integration into Canadian and international health networks. Their support could include in-kind contributions as well as cash contributions of \$500,000 per project year over three years (up to \$1.5 million per approved project).

The letter of support from Concordia University confirms their strong interest in supporting the VILLAGE Initiative. As a founding partner of MEDTEQ, Concordia University is open to providing in-kind resources, research grants and high-leverage project structuring to offer multiple matching funds to a \$10 million prize from the Smart Cities Challenge.

We have included a full-time Fundraising and Sustainability Manager in our plan, starting in year 2, who would be focused on ensuring the achievement of our fundraising objectives towards short-, medium-, and long-term sustainability of the VILLAGE Initiative.

The following table shows our revenue assumptions in more detail.

Description	Revenue Assumptions	Total Estimated Revenue for five years
Smart Device Solution Sales	<p>Starting the fourth year, we estimate that 600 residents will purchase our smart device solutions at \$1,200 annually for a total of \$720,000, representing 10% of the 6,000 older adults who live alone in our city.</p> <p>Starting the fifth year, we estimate that 1,200 residents will purchase smart device solutions at \$1,200 annually for a total of \$1,440,000, which represents 15% of 6,000 residents + 50% (300) repeat customers from the previous year.</p> <p>We are working, through our partner financing efforts, to put in place a subsidy program for residents to purchase these solutions, based on income level and other factors.</p>	\$2,160,000

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Description	Revenue Assumptions	Total Estimated Revenue for five years
Partner Subsidies, Research Grants, Government Grants, Foundations	Starting the third year, we estimate based on our currently strong level of interested partners that we will be able to confirm three partner subsidy agreements: <ul style="list-style-type: none"> • \$500,000 (third year) • Research and other government grants \$1 million (fourth year) • Foundations: \$500,000 (fifth year) 	\$2,000,000
Planned Giving and Endowment Funds	Starting the third year, we estimate, based on strong existing relationships with foundations that we will be able to set up a planned giving program and a VILLAGE Initiative endowment fund: <ul style="list-style-type: none"> • Planned giving: fourth and fifth year • \$50,000 each year for a total of \$100,000 • Endowments: third, fourth, and fifth year: 20 donations at \$1,000 each for a total of \$20,000 each year 	\$160,000
Solution Support Services	Starting in the fifth year, we estimate that we will generate revenue from providing solution support services to (a minimum of) five cities in Canada at \$50,000 each.	\$250,000
	TOTAL	\$4,570,000

Table 8-5: Revenue Assumptions

8.3.3 Financing Strategy

The projected financing strategy, or combination of financing approaches, will depend on market circumstances. However, we have developed a preliminary financing plan based on currently available program data and market circumstances. To the extent that additional data becomes available or market circumstances change, we will update the financial plan to account for these changes. See below for the financial details per project for the five years as well as the detailed financials of all the costs and the financial analysis summary of the revenues and costs for the five years.

8.3.4 Estimated Revenues Beginning Third Year

We will use the estimated revenue sources to finance additional human and material resources in three key projects: community engagement, plat-

form development and service delivery. We anticipate an increase in:

- the number of older adults who will want to receive information on services and updates both in person and online;
- the number of lower-income older adults who might require subsidies to offset the monthly fees of their smart device solutions including hardware;
- the number of older adults who will want to purchase smart device solutions.

In all three cases, additional occupational therapists, case managers, smart device installers, help desk personnel, platform developers and hardware will be required. Additionally, with the MEDTEQ partnership, research and development of innovative applications and solutions to foster autonomy and a quality of life for older adults and their caregivers will be possible.

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8.4 ASSUMPTIONS, RISKS AND MITIGATION

The projected financial structure for the program includes the revenues that will be raised by the third year and milestone payment proceeds to pay for project conception and planning, implementation and operational results, monitoring performance measurements and contingency and risk mitigation phases by Infrastructure Canada.

The funding available for the project will be subject to risks that cannot be fully known at the time of this writing. The following is a summary of potential risks that may affect the financing of the project as well as the risk allocation analysis when assessing each project's advancement and delivery.

Risk	Mitigation
Liquidity Risk	Clearly define and execute outcomes-based performance agreement with Infrastructure Canada to ensure timely payments at milestones.
Longevity Risk	Clearly define and execute long-term revenue and financing outcomes to ensure sustainability of the VILLAGE Initiative in fundraising and partner subsidy agreements.

Table 8-6: Risks and Mitigation Plan for Financial

8.4.1 Risk Allocation Analysis

The VILLAGE Initiative will use a two-step screening process when assessing each project's advancement and delivery. In the first-step screening phase, project information and data are reviewed and assessed against a set of second-step screening criteria to determine feasibility and readiness of each. A project that does not meet some or all the first-step screening criteria may not advance or still may advance based on other considerations.

Project Deliverables	Is timeline of project activities realistic, with the right target and in allocated budget?
Funding Requirement	Does the project have revenue generation potential to partially offset the initial public funding?
Project Team	Does the project have all the necessary human resources to complete the deliverables?
Project Efficiencies	Is there an opportunity to bundle projects or create economies of scale?
Ability to Raise Capital	Can the outputs/deliverables help free funds or leverage existing sources of funds?
Ability to Transfer Risk	Can project help transfer risks and potential future responsibilities to the private sector on a long-term basis?

Table 8-7: First-step Screening for Risk Allocation Analysis



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Community Need	Does the project address the needs of the community? Does the project support improving the quality of life for older adults?
Community Benefits	Will the project bring wellness and social resilience benefit to the community? Does the project help achieve performance, and safety as outlined in Challenge Statement?
Social and Economic Development	Will the project enhance the City's social and economic development objectives?
Market Demand	Is there sufficient community appetite for the project—isolated older adults, caregivers, healthcare providers, etc.?
Stakeholder Support	What is the extent of support for the project? What strategies are proposed to involve partners, governments, and foundations in the project?
Legislative Considerations	Are there legislative considerations that must be considered?
Technical Feasibility	Is the project described in enough detail to determine the type, size, location, and proposed dependencies?
Project Risks	Are there any risks unique to the project that have not been outlined that could impair project viability?

Table 8-8: Second-step Screening for Risk Allocation Analysis

8.5 REPORT ON THE USE OF THE FINALIST GRANT, INCLUDING REASONABLE JUSTIFICATION OF ANY DIVERGENCES FROM THE PLAN LAID OUT IN THE APPLICATION

We did not fundamentally diverge from the core concept in our initial proposal, the SHARED (Senior Health and Real-time Environmental Data) Initiative, which was focused on leveraging and implementing smart devices and data technologies to keep isolated older adults safer, healthier, and more connected to city services while living at home.

As you will see in the attached Final Revised Budget, we applied the \$250,000 finalist grant towards expenses mainly focused on consulting, professional services and various communications needs. The cost of equipment and technical services are far less than what we originally projected in the preliminary proposal.

Once we were selected as finalists, we set out to find advice from business and technology experts. In keeping with our municipal rules and best prac-

tices, we sought out competitive bids for the principal responsibilities of project management and technology strategy.

The first contract was given to Innovitech, a company with more than 25 years of experience as innovation strategists. We mandated Innovitech to assist us in developing the SHARED concept and mobilize key research, industry, academics, entrepreneurs and clinical partners in the field of medical technology and digital health. Through their initial mandate, we were introduced to a series of academics, researchers and government agencies. As well, we were invited to present and participate in an Innovation Summit on Medical Technology and Digital Health organized by Innovitech and MEDTEQ in January 2019.

In the summer of 2018, we hired Marc Chriqui from Delevante Software Inc. to be our Project Director and direct the development of the final proposal from concept to implementation of the pilot phase. Marc drove the finalist phase and oversaw every detail of the process from developing partner relations to researching technology, to making repeated presentations and participating actively in

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community engagement and drafting and preparing the final proposal. His compensation is based on monthly consulting fee.

Other professionals hired included Amina Inc. for the Privacy Impact Assessment. Erica Botner, Public Engagement Coordinator, was hired to work on engagement and oversee our pilot project. We also hired a public engagement animator for our city-wide engagement consultation and hired a professional business writer to help with the final drafting of the proposal.

Videography, legal fees and translation round out the professional services expenses. As can be seen from the final revised budget, hardware and equipment were not major expenses and this is in stark contrast to the initial budget that was presented in the initial application.

The major variance between the final revised budget for the finalist grant and the initial budget as proposed can be explained as follows:

The budget for the initial proposal of the SHARED project was very focused on sophisticated and expensive environmental, home and mobile sensors. The proposal was to run a “Living Lab” pilot project involving 100 isolated older adults, equipping their home with sensors, and personal GPS/fall sensors to trigger city services using a decision-making server that uses machine learning combined with an expert system. We also budgeted for the installation of an environmental sensor grid to test the solutions ability to monitor air and noise pollution.

Once we were selected as a finalist, it soon became apparent that this initial project was overly ambitious for the relatively short finalist phase. After consultation with our population, it was understood that the environmental monitoring was not a top priority for our residents in the initial phase of the project.

A total of 73 percent of the initial budget was focused on hardware, based on a very optimistic number of pilot participants and environmental

sensors. This number turned out to be a logistical challenge, which we could not address based on the guidelines and recommendations of the Smart Cities Challenge.

As we understood from the start of the finalist phase, the pilot projects could only be implemented once we had conducted a thorough exercise in community engagement of our residents in order to really understand their needs and priorities. As well, we had to assess and evaluate the technical products that were readily available in the market, without the restrictions of licensing, non-compete and NDA agreements. The initial companies who we approached were very reluctant to allow us to integrate their devices in our pilot homes without very restrictive conditions, which we could not accept.

In the time available and based on feedback from community engagement, we preferred to focus on quality over quantity. The DOMUS Laboratory at the University of Sherbrooke offered us their connected home solution, equipment and expertise at a very fair price. This equipment is relatively inexpensive and the platform is based on open technologies that can be adapted to a diversity of older adults and home types depending on their needs.

Furthermore, we had to adopt protocols for the selection of pilot participants, which were also based on consent and privacy considerations that took time to implement. This included home interviews and assessment of needs. In order to customize the devices to the requirements of the users, we relied on the expertise of our Public Engagement Coordinator.

This explains the variance between the original budget and the revised budget. The former was based in large measure on hardware and technology while the later was to acquire professional services for strategic business development, project management and intensive community engagement.



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Finalist grant budget report

Item	Rev. Amount	Comments	QST (5%) Plus taxes	Budget	Actual 2018	Estimates 2019
	Feb. 4/19				Dec. 31/18	Feb. 4/19
02-801-00-114 - Consultants						
Consulting Services	85,000	Delevante Software - September 1, 2018 to May 15, 2019	4,250	89,250	41,995	47,255
02-801-00-112	28,224	Staff - October 19, 2018 to May 15, 2019		28,224	8,680	19,544
Public Engagement Coordinator						
02-801-00-311 - Travel						
Various travel costs (incl. conferences)	15,000	October 2018 and March 2019 trips, etc., 2-3 people per trip. (incl. QST portion)		15,000	5,298	9,702
02-801-00-317 - Meals and refreshments						
Meetings/events/etc.	1,000			1,000	413	587
02-801-00-332 - Communication Expenses						
Mobile phone/network/etc.	500			500	487	13
02-801-00-416 - Legal Services						
Legal Fees	7,250	Robic	363	7,613	7,612	
02-801-00-419 - Professional Services						
Consultant - Privacy	22,175	Amina Services	1,109	23,284	23,282	
Consultant - Animator (Pub- lic Engagement)	4,075	Alambic	204	4,279	4,279	
Videographer	15,000	Bowes Media Inc.	750	15,750		15,750
Business and Innovation Strategists	25,000	Innovitech	1,250	26,250	22,827	3,423
Pilot Implementation & Soft- ware Development	20,000	DOMUS	1,000	21,000		21,000
Drafting of Proposal	10,000	ib2ib	500	10,500		10,500
Translation	3,000		150	3,150	139	3,011
02-801-00-670 - Misc. Materials and Supplies						
Hardware and tele- com (tech supplies)	1,270	DOMUS Hardware, Lai- pac Smartwatches, etc.	64	1,334	1,332	
02-801-00-699 - Equipment						
Servers	-			-		
02-801-00-420 - Misc. Services and Contracts	12,506			2,868	2,406	465
	250,000		9,639	250,000	118,750	131,250

Table 8-9: Accounting of Finalist Grant

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GOVERNANCE AND OPERATIONS

Management Team	TOTAL 5-YEAR COST
CEO	\$150,000.00
CTO	\$300,000.00
Admin	\$120,000.00
Marketing and Communications Coordinator	\$50,000.00
Chief Financial and Operations Officer (CFO)	\$300,000.00
Head of Community Engagement and Service Delivery	\$100,000.00
Fundraising and Sustainability Manager	\$60,000.00
TOTAL	\$1,080,000.00
Operating Costs	
Legal Costs	\$100,000.00
IT Systems	\$150,000.00
Translation	\$25,000.00
Privacy Consulting	\$125,000.00
Accounting Costs	\$175,000.00
Marketing Budget	\$50,000.00
Office Space/Centre of Excellence	\$300,000.00
Travel	\$85,000.00
Supplies and Equipment	\$85,000.00
IT Infrastructure	\$75,000.00
Other G&A incl. Contingency	\$145,000.00
Liability Insurance	\$160,000.00
Fringe Benefits - 20%	\$615,000.00
TOTAL	\$2,090,000.00
Stakeholders	
Partners, CSL: in-kind (\$405,000)	\$-
TOTAL	\$-
TOTAL COST	\$3,170,000.00

Table 8-10: Proposed spending—Cost per project: Governance and operations

COMMUNITY ENGAGEMENT

Management Team	TOTAL 5-YEAR COST
CEO	\$131,250.00
CTO	\$-
Admin	\$60,000.00
Marketing and Communications Coordinator	\$125,000.00
Chief Financial and Operations Officer (CFO)	\$120,000.00
Head of Community Engagement and Service Delivery	\$200,000.00
Other G&A incl. Contingency	\$60,000.00
Fundraising and Sustainability Manager	\$-
TOTAL	\$696,250.00
Human Resources	
Facilitators	\$200,000.00
Marketing Support	\$160,000.00
Fringe Benefits - 20%	\$72,000.00
TOTAL	\$432,000.00
TOTAL COST	\$1,128,250.00

Table 8-11: Proposed spending—Cost per project: Community engagement



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Management Team	TOTAL 5-YEAR COST
CEO	\$-
CTO	\$300,000.00
Admin	\$12,000.00
Marketing and Communications Coordinator	\$-
Chief Financial and Operations Officer (CFO)	\$-
Head of Community Engagement and Service Delivery	\$-
Fundraising and Sustainability Manager	\$-
R&D Manager	\$300,000.00
Architect	\$450,000.00
UI/UX Designer	\$325,000.00
Developers/Engineers	\$525,000.00
Integration Specialists	\$325,000.00
Quality Assurance and Testing	\$150,000.00
Technical Writer	\$195,000.00
Tech Support	\$360,000.00
Other G&A incl. Contingency	\$60,000.00
Research Partners	\$-
TOTAL	\$3,002,000.00
Human Resources	
CTO + 12 resources	\$-
TOTAL	\$-
Operating Costs	
Equipment	\$75,000.00
Server Infrastructure	\$225,000.00
Design Tools	\$15,000.00
Development Tools	\$15,000.00
Testing Tools	\$15,000.00
Documentation Tools	\$15,000.00
TOTAL	\$360,000.00
TOTAL COST	\$3,362,000.00

▲ Table 8-12: Proposed spending—Cost per project: Platform development

► Table 8-14: Proposed spending—Cost per project: Sustainability and transferability

SERVICE DELIVERY

Management Team	TOTAL 5-YEAR COST
CEO	\$37,500.00
CTO	\$75,000.00
Admin	\$60,000.00
Marketing and Communications Coordinator	\$75,000.00
Chief Financial and Operations Officer (CFO)	\$60,000.00
Head of Community Engagement and Service Delivery	\$200,000.00
Fundraising and Sustainability Manager	\$-
Other G&A incl. Contingency	\$60,000.00
Case Manager	\$240,000.00
Occupational Therapist	\$210,000.00
Program Support	\$150,000.00
Educational Technician	\$120,000.00
Tech Installers	\$120,000.00
Help Desk Agent	\$120,000.00
TOTAL	\$1,527,500.00
Human Resources	
Employer Mgmt Costs - 20%	\$192,000.00
TOTAL	\$192,000.00
TOTAL COST	\$1,719,500.00

▲ Table 8-13: Proposed spending—Cost per project: Service delivery

SUSTAINABILITY AND TRANSFERABILITY

Management Team	TOTAL 5-YEAR COST
CEO	\$56,250.00
CTO	\$75,000.00
Admin	\$60,000.00
Marketing and Communications Coordinator	\$-
Chief Financial and Operations Officer (CFO)	\$90,000.00
Head of Community Engagement and Service Delivery	\$-
Other G&A incl. Contingency	\$60,000.00
Fundraising and Sustainability Manager	\$240,000.00
TOTAL	\$581,250.00
Human Resources	
Fringe Benefits - 20%	\$48,000.00
TOTAL	\$48,000.00
TOTAL COST	\$629,250.00

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COSTS PER YEAR OVER 5 YEARS

Projected Cost		2019	2020	2021	2022	2023	TOTAL
Cost of management team	CEO * \$75,000 contributed in kind by city	\$75,000.00	\$75,000.00	\$75,000.00	\$75,000.00	\$75,000.00	\$375,000.00
	CTO	\$150,000.00	\$150,000.00	\$150,000.00	\$150,000.00	\$150,000.00	\$750,000.00
	Chief Financial and Operations Officer (CFO)	\$120,000.00	\$120,000.00	\$120,000.00	\$120,000.00	\$120,000.00	\$600,000.00
	Admin	\$60,000.00	\$60,000.00	\$60,000.00	\$60,000.00	\$60,000.00	\$300,000.00
	Marketing and Communications Coordinator	\$50,000.00	\$50,000.00	\$50,000.00	\$50,000.00	\$50,000.00	\$250,000.00
	Head of Community Engagement and Service Delivery	\$100,000.00	\$100,000.00	\$100,000.00	\$100,000.00	\$100,000.00	\$500,000.00
	Fundraising and Sustainability Manager	\$-	\$75,000.00	\$75,000.00	\$75,000.00	\$75,000.00	\$300,000.00
Community Engagement Platform	Facilitator and Marketing Support	\$-	\$90,000.00	\$90,000.00	\$90,000.00	\$90,000.00	\$360,000.00
	R&D Manager	\$-	\$75,000.00	\$75,000.00	\$75,000.00	\$75,000.00	\$300,000.00
	Architect	\$90,000.00	\$90,000.00	\$90,000.00	\$90,000.00	\$90,000.00	\$450,000.00
	UI/UX Designer	\$65,000.00	\$65,000.00	\$65,000.00	\$65,000.00	\$65,000.00	\$325,000.00
	Developers/Engineers	\$-	\$75,000.00	\$150,000.00	\$150,000.00	\$150,000.00	\$525,000.00
	Integration Specialists	\$-	\$65,000.00	\$65,000.00	\$65,000.00	\$130,000.00	\$325,000.00
	Quality Assurance and Testing	\$-	\$-	\$50,000.00	\$50,000.00	\$50,000.00	\$150,000.00
	Technical Writers	\$-	\$-	\$65,000.00	\$65,000.00	\$65,000.00	\$195,000.00
	Tech Support	\$-	\$-	\$120,000.00	\$120,000.00	\$120,000.00	\$360,000.00
	Research Partners	\$-	\$-	\$-	\$-	\$-	\$-
Service Delivery	Case Manager	\$-	\$-	\$60,000.00	\$60,000.00	\$60,000.00	\$180,000.00
	Occupational Therapist	\$-	\$-	\$70,000.00	\$70,000.00	\$70,000.00	\$210,000.00
	Program Support	\$-	\$-	\$50,000.00	\$50,000.00	\$50,000.00	\$150,000.00
	Educational Technician	\$-	\$-	\$40,000.00	\$40,000.00	\$40,000.00	\$120,000.00
	Tech Installers	\$-	\$-	\$40,000.00	\$40,000.00	\$40,000.00	\$120,000.00
	Help Desk Agent	\$-	\$-	\$40,000.00	\$40,000.00	\$40,000.00	\$120,000.00
TOTAL Cost of management team		\$710,000.00	\$1,090,000.00	\$1,700,000.00	\$1,700,000.00	\$1,765,000.00	\$6,965,000.00
Cost of human resources	Employer Management Costs - 20%	\$111,000.00	\$126,000.00	\$126,000.00	\$126,000.00	\$126,000.00	\$615,000.00
	Fringe Benefits - 20%	\$-	\$18,000.00	\$78,000.00	\$78,000.00	\$78,000.00	\$252,000.00
TOTAL Human Resources		\$111,000.00	\$144,000.00	\$204,000.00	\$204,000.00	\$204,000.00	\$867,000.00

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COSTS PER YEAR OVER 5 YEARS (cont.)

Projected Cost	2019	2020	2021	2022	2023	TOTAL
Operating Cost						
Legal Costs	\$20,000.00	\$20,000.00	\$20,000.00	\$20,000.00	\$20,000.00	\$100,000.00
IT Systems	\$30,000.00	\$30,000.00	\$30,000.00	\$30,000.00	\$30,000.00	\$150,000.00
Translation Services	\$5,000.00	\$5,000.00	\$5,000.00	\$5,000.00	\$5,000.00	\$25,000.00
Privacy Consulting	\$25,000.00	\$25,000.00	\$25,000.00	\$25,000.00	\$25,000.00	\$125,000.00
Accounting Costs	\$35,000.00	\$35,000.00	\$35,000.00	\$35,000.00	\$35,000.00	\$175,000.00
Marketing Budget	\$10,000.00	\$10,000.00	\$10,000.00	\$10,000.00	\$10,000.00	\$50,000.00
Office Space/Centre of Excellence	\$-	\$-	\$60,000.00	\$60,000.00	\$60,000.00	\$180,000.00
Travel	\$25,000.00	\$15,000.00	\$15,000.00	\$15,000.00	\$15,000.00	\$85,000.00
Supplies and Equipment	\$5,000.00	\$5,000.00	\$25,000.00	\$25,000.00	\$25,000.00	\$85,000.00
IT Infrastructure	\$15,000.00	\$15,000.00	\$15,000.00	\$15,000.00	\$15,000.00	\$75,000.00
Other G&A	\$5,000.00	\$5,000.00	\$25,000.00	\$25,000.00	\$25,000.00	\$85,000.00
Liability Insurance	\$5,000.00	\$5,000.00	\$50,000.00	\$50,000.00	\$50,000.00	\$160,000.00
Other/Misc.	\$-	\$-	\$-	\$-	\$-	\$-
Facilitators	\$-	\$24,000.00	\$24,000.00	\$24,000.00	\$24,000.00	\$96,000.00
Marketing	\$-	\$36,000.00	\$36,000.00	\$36,000.00	\$36,000.00	\$144,000.00
IT Equipment	\$-	\$-	\$25,000.00	\$25,000.00	\$25,000.00	\$75,000.00
Server infrastructure	\$-	\$-	\$75,000.00	\$75,000.00	\$75,000.00	\$225,000.00
Design Tools	\$-	\$-	\$5,000.00	\$5,000.00	\$5,000.00	\$15,000.00
Development Tools	\$-	\$-	\$5,000.00	\$5,000.00	\$5,000.00	\$15,000.00
Testing Tools	\$-	\$-	\$5,000.00	\$5,000.00	\$5,000.00	\$15,000.00
Documentation Tools	\$-	\$-	\$5,000.00	\$5,000.00	\$5,000.00	\$15,000.00
Contingency Cost 3%	\$60,000.00	\$60,000.00	\$60,000.00	\$60,000.00	\$60,000.00	\$300,000.00
TOTAL Operating Cost	\$240,000.00	\$290,000.00	\$555,000.00	\$555,000.00	\$555,000.00	\$2,195,000.00
TOTAL	\$1,061,000.00	\$1,524,000.00	\$2,459,000.00	\$2,459,000.00	2,524,000.00	\$10,027,000.00

Table 8-15: Proposed spending—Detailed financial analysis over five years



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VILLAGE INITIATIVE 5-YEAR PROJECTED FINANCIAL PLAN

	2019	2020	2021	2022	2023	TOTAL
Projected Revenues	\$-	\$-	\$520,000.00	\$1,790,000.00	\$2,260,000.00	\$4,570,000.00
Partner Subsidies, Research Grants, Government Grants, Foundations	\$-	\$-	\$500,000.00	\$1,000,000.00	\$500,000.00	\$2,000,000.00
Smart Device Solution Sales	\$-	\$-	\$-	\$720,000.00	\$1,440,000.00	\$2,160,000.00
Planned Giving	\$-	\$-	\$-	\$50,000.00	\$50,000.00	\$100,000.00
Endowments	\$-	\$-	\$20,000.00	\$20,000.00	\$20,000.00	\$60,000.00
Solution Support Services	\$-	\$-	\$-	\$-	\$250,000.00	\$250,000.00
Projected Expenses	\$1,006,900.00	\$1,441,900.00	\$2,366,900.00	\$2,706,900.00	\$2,959,400.00	\$10,482,000.00
Total Management, Human Resources, and Operating Expenses	\$1,002,000.00	\$1,437,000.00	\$2,362,000.00	\$2,357,000.00	\$2,437,000.00	\$9,595,000.00
Hardware	\$-	\$-	\$-	\$300,000.00	\$450,000.00	\$750,000.00
Assessment Fees	\$-	\$-	\$-	\$45,000.00	\$67,500.00	\$112,500.00
Admin Fees (Planned Giving)	\$3,500.00	\$3,500.00	\$3,500.00	\$3,500.00	\$3,500.00	\$17,500.00
Admin Fees (Endowments)	\$1,400.00	\$1,400.00	\$1,400.00	\$1,400.00	\$1,400.00	\$7,000.00
Net Income	-\$1,006,900.00	-\$1,441,900.00	-\$1,846,900.00	-\$916,900.00	-\$699,400.00	-\$5,912,000.00
PROJECTED FINANCIAL PLAN						
	2019	2020	2021	2022	2023	TOTAL
Projected Expenses	\$1,061,000.00	\$1,524,000.00	\$2,459,000.00	\$2,459,000.00	\$2,524,000.00	\$10,027,000.00
Cost of Management Team	\$710,000.00	\$1,090,000.00	\$1,700,000.00	\$1,700,000.00	\$1,765,000.00	\$6,965,000.00
Cost of Human Resources	\$111,000.00	\$144,000.00	\$204,000.00	\$204,000.00	\$204,000.00	\$867,000.00
Operating Costs	\$240,000.00	\$290,000.00	\$555,000.00	\$555,000.00	\$555,000.00	\$2,195,000.00
Actual Expenses	\$-	\$-	\$-	\$-	\$-	\$-
Cost of Management Team	\$-	\$-	\$-	\$-	\$-	\$-
Cost of Human Resources	\$-	\$-	\$-	\$-	\$-	\$-
Operating Costs	\$-	\$-	\$-	\$-	\$-	\$-

Table 8-16: Proposed spending—Five year projected financial plan



Chapter 9 IMPLEMENTATION PHASE REQUIREMENTS

Should we be selected as a winner in the Smart Cities Challenge, the City of Côte Saint-Luc intends to work with its existing partners and future partners to identify and meet all regulatory reporting and legislative policy requirements. This chapter outlines our plan with regard to the requirements as outlined in the Finalist Guide.

9.1 DUTY TO CONSULT WITH INDIGENOUS GROUPS

The City of Côte Saint-Luc is located on the island of Montreal, which is situated in Mohawk (Kanien'keha:ka) and Iroquois Territory. The City has already reached out to the Health and Social Services of James Bay (Cree Health Board) to gauge their potential support. The Cree Health Board has shown interest. This will allow us to further offer this program to Indigenous groups and remote communities and involve them in the initial phases of the Initiative. We do not see any potential adverse impact to the Treaty holders in and around our community. On the contrary we see many potential benefits. We have some 40 residents in our community that have self-identified as Indigenous⁷. Should we be selected as a winner, we will reach out to these residents and ask them to participate in the initial phases of implementation if their families and elders see a potential benefit in participation.

9.2 COMMUNITY EMPLOYMENT BENEFIT (CEB)

In compliance with the Community Employment Benefit (CEB) program which applies to the winners of the Smart Cities Challenge, Côte Saint-Luc has already partnered with two organizations that are committed to recruiting and finding employment opportunities for a variety of targeted groups that are included in the CEB program. Both these organizations already collaborate with Côte Saint-Luc in that they directly service our residents with their business counselling and job placement services.

Agence Ometz is a well-established non-profit organization in the west-end of Montreal. It offers a variety of counselling services for job seekers and entrepreneurs. Agence Ometz provides a full range of employment services to special needs

job seekers, from skills training to job search assistance. It also offers services for employers to help them find qualified candidates with specialized skills. Agence Ometz also offers coaching for social enterprises and startups including courses on how to start a business and provides services for newcomers to help new arrivals to Montreal establish their lives in Canada through a range of services, from integration activities to employment services. Agence Ometz is accredited by the Ministère de l'Immigration, de la Diversité et de l'Inclusion (Quebec's Ministry of Immigration) to provide these settlement and integration support services to new immigrants. Please see Appendix for letter of support from Agence Ometz.

We have also partnered with **PME Centre-Ouest** which services Côte Saint-Luc and other west-end cities and boroughs on the island of Montreal. This organization is part of a government financed network of offices on the island that offers coaching, training and financing for entrepreneurs, and training and coaching for job seekers.

As a member city that sits on the Governing Board of the PME Centre-Ouest, Côte Saint-Luc has consulted with their advisors about the Smart Cities proposal and is in close contact with their counselors and advisors who will be able to direct potential candidates to the VILLAGE Initiative.

Once the VILLAGE Initiative is launched we will work with these two organizations in order to meet the requirements of the CEB program. In particular we will:

- Focus on recruiting new immigrants who are often skilled technicians and very well suited to learn how to install and develop smart home devices for seniors;
- Target youth for a variety of employment opportunities, especially in the technology domain and service delivery;
- In our contracts for procurement of services, we will give first consideration to social enterprises.

⁷ Profil Sociodemographique, 2016, <http://ville.montreal.qc.ca/pls/portal/url/ITEM/538113131BC71046E0530A9301321046>

Chapter 9 IMPLEMENTATION PHASE REQUIREMENTS

Women already represent a majority of Côte Saint-Luc city management and are planned to have a significant role in the VILLAGE Initiative non-profit organization as well. We are therefore not focused on affirmative action for women, however we will continue to recruit new staff and employees without any gender bias.

9.3 CLIMATE LENS ASSESSMENT (CLA)

Whereas the VILLAGE Initiative does not deal directly with greenhouse gas mitigation or climate change adaptation, there is no obligation or relevance on our part to undertake GHG mitigation assessment, or the climate change resilience assessment to respond to climate change related disruption or impact. However we would simply add that over the long term our project aims to implement environmental monitoring into the connected network linking seniors to city and social health services. Once deployed these environmental sensors for temperature and air quality will give us better indication of the impact of air pollution and extremes in weather, which would inform our policies and programs regarding GHG reduction and climate change resilience.

9.4 OTHER APPLICABLE LAWS, REGULATIONS, AND POLICIES

Managed by the Société d'habitation du Québec, the Programme d'adaptation de domicile (PAD) provides financial support for the home adaptation projects for people with disabilities. The goal is to allow people with physical disabilities to enter and exit their home, perform their daily routines, and therefore continue to reside in their own home more safely and securely. Financial assistance may be as much as \$16,000 per eligible person. The admissible work is determined by the municipal partner based on the terms of the program and the recommendations made by staff from the Local community services centres (CLSC), which often takes months of waiting, or costs residents out of pocket for a private occupational therapist. We will expedite the process by providing home assessment as one of the services offered by the VILLAGE Initiative. This assessment will be performed by an occupational therapist that we will have on staff. This is, in fact, part of our mandate as we already are partners in the PAD program. In addition, the City of Côte Saint-Luc will ask the Société d'habitation du Québec (SHQ) to include technological devices such as sensors as part of the program, as they are just as useful and important for safety and security as bars and physical adaptation tools.

9.5 RISKS AND MITIGATION MEASURES

Risk	Risk Mitigation Plan
Indigenous population in Côte Saint-Luc not known, difficult to find, potentially reluctant to engage with the City.	<ul style="list-style-type: none"> • Make strong attempts through social media and print media to specifically invite Indigenous residents to a focus group. • Contact Mohawk Nation for community consultation.
As the population being served is vulnerable, this raises issues regarding the quality of service delivery people going into their homes.	<ul style="list-style-type: none"> • Do police checks on all hires. • Create language and use personality tests for service delivery people and ensure that employees receive customer service training related to seniors. • Create a training program for technical skills, since many of the technologies that will be applied are new. • Ensure that each service delivery person receives intensive training on VILLAGE privacy policies.
The Société d'habitation du Québec (SHQ) may refuse to expand the PAD program to include smart home devices, reducing accessibility of VILLAGE services.	<ul style="list-style-type: none"> • Obtain letters of support that document the health and importance of the tech tools from our health and research partners and present them to the SHQ. • Produce a cost benefit analysis showing value of VILLAGE as it reduces costs for government health and social services. • If necessary, create public awareness campaign related to this.

APPENDICES

The following appendices contain additional information in support of the final proposal.

- Project team
- Letters of support from our partners
- Information and consent forms
- Example of activity report from pilot project
- Transcript and textual description of final video



APPENDIX A PROJECT TEAM

The Smart Cities Challenge project team includes elected officials, city staff, and project-specific staff. The names listed here represent the key people, however, the team is grateful to other elected officials, staff, volunteers and external groups who participated in meetings leading to the preliminary proposal. The team also thanks the residents of Côte Saint-Luc who participated in focus groups and public consultations in person or online. Finally, we thank the pilot project participants.

MITCHELL BROWNSTEIN

Mayor of Côte Saint-Luc



Mitchell Brownstein has been the Mayor of the City of Côte Saint-Luc since March 2016. Prior to that, he was a city councillor since 1990. He has played an active role in the Smart Cities Challenge, meeting with potential external partners, speaking at conferences, providing creative input for our video presentation and as the official spokesperson for all media interviews and promotion of our project.

DIDA BERKU

City Councillor, City of Côte Saint-Luc



Dida Berku is an attorney. She has been elected six times to the city council starting in 1990. As the leader of the Smart Cities Challenge project committee, she has overseen the journey from the initial meetings on the preliminary proposal to the final proposal. She is also the council member responsible for Urban Planning, Citizen Engagement, Central City, and Transportation, and chairs the Planning Advisory Committee.

MITCH KUJAVSKY

City Councillor, City of Côte Saint-Luc



Mitch Kujavsky is a city councillor in Côte Saint-Luc. First elected in 2017, he has been involved in the Smart Cities Challenge project since its conception. He is a member of the community engagement team, was involved in pilot project candidate selection, and acted as liaison between technology and social teams.

TANYA ABRAMOVITCH

City Manager, City of Côte Saint-Luc



A librarian by professional training and former Director of the Côte Saint-Luc Public Library, Tanya is responsible for the overall administration of the city, in addition to other dossiers such as public spaces, transportation, public consultation, and policy-writing. She holds a BA and MA in History, a Master of Library and Information Science, and a graduate certificate in Sustainable Urban Agriculture. Tanya is currently working on the city's strategic plan, a mobility strategy, and a neighbourhood development plan and is pursuing training in design thinking. Tanya played a leading role across all parts of our project including the creation of our vision for the VILLAGE Initiative, in particular around the definition and implementation of our strategies for social engagement and transformation during the finalist phase and in our final proposal.

MARC CHRIQUI

Project and Technical Director



Marc was our Project and Technology Director during the finalist phase and led our initiatives around technology strategy, pilot implementation, partner relations, and final proposal preparation. A driven tech entrepreneur, Marc is the Founder and CEO of Delevante Software, a creator of leading-edge technology platforms that drive connectiveness, engagement and commerce for local communities. Delevante is the developer of Numnu, a mobile app for consumer events such as fairs, festivals, and tradeshows. Marc is the former president of Raymark, a global enterprise retail software solutions vendor strategically acquired by Mi9 Retail in 2015. Marc has a Computer Engineering degree and more than 15 years experience as a technology and business leader across various industries including aerospace, invest

DAVID TORDJMAN

City Councillor, City of Côte Saint-Luc



David Tordjman is a city councillor in Côte Saint-Luc. First elected in 2017, he is an engineer and formerly worked for the City as Director of Public Works and Engineering, which gives him knowledge about the workings of the city. He left the City to work for the United Nations

in the relief and reconstruction of Haiti following the devastating earthquake in 2010. He was the coordinator of engineering for the Cree Nation Government and is presently a consultant with Indigenous groups in Quebec.

DARRYL LEVINE

Director of Public Affairs, Communications and Information Technology



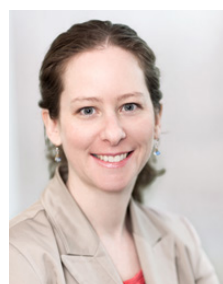
Darryl Levine has been on the Smart Cities Challenge team since the beginning. He and his team have helped produce in-house videos about the initiative, a website and updates on social media. He and his team have supported the final proposal process and helped ensure the document has a profes-

sional feel and design.

NATHALIE BIER

Associate professor in occupational therapy at the Université de Montréal

J2 FRQS researcher at the Research center of the Institut universitaire de gériatrie de Montréal



The main goal of Dr. 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 new technology. She is currently conducting many projects in the field of technology, including two major projects of smart homes to support home care services of persons with severe cognitive deficits (CIHR-NSERC, Brain Canada, Alzheimer International). She also conducted many projects on the use of mobile technology in aging and dementia (Alzheimer Society). For the present project, Dr. Bier will be responsible to coordinate the clinical and technological development, as well as the implementation and evaluation components of the projects, considering her expertise in designing and implementing

technology in ecological settings (living lab).

ERICA BOTNER

Community Engagement Coordinator, The VILLAGE Initiative



Erica Botner, MSc., is a Recreation Therapist and University Lecturer with 20+ years of leadership experience assessing, planning, implementing and evaluating large-scale and federally-funded programs and services for older adults and caregivers. Erica is known for her family-centerer, compassionate and

strengths-based approach to service delivery as well as her ability to provide opportunities for meaningful community engagement.

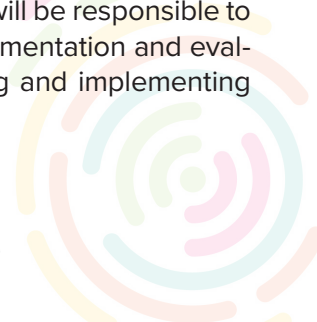
CHARLES GUERIN

Software Architect / CEO of On Board Data Services



Charles Guerin is a resident of Côte Saint-Luc. Charles was instrumental in the writing of the original proposal, helping to choose technologies and architect the technology plan. He runs his own company, which has designed many commercial software services for companies and government use including Kodak, Fujitsu, Bombardier, Textron, Airbus and NATO.

His company ensures that electronic flight documents reach thousands of flight operations around the world.



APPENDIX B LETTERS OF SUPPORT

The following page of this appendix contain the letters of support from our partners. Here is a summary of the partners list.

Technology Partner

- Delevante

Research Partners

- Université de Montréal/Institut universitaire de gériatrie de Montréal
- Université de Sherbrooke/Laboratoire DOMUS
- Concordia University
- Age-Well NCE Inc.

Health Partners

- Ministère de la Santé et des Services sociaux (Quebec Ministry of Health)
- Integrated Health and Social Services University Network for West-Central (CIUSSS West-Central Montreal)

Industry Partners

- LAIPAC
- MEDTEQ
- Privacy and Access Council of Canada

Economic Development Partners

- Agence OMETZ
- PME Centre-West

Community Partners

- Cummings Center
- St Patrick's Square
- B'nai Brith Canada
- Borough of Île-Bizard—Sainte-Geneviève / City of Montreal





March 2, 2019

Mitchell Brownstein
Mayor, City of Côte Saint-Luc
5801 Cavendish Blvd.
Côte Saint-Luc, Quebec
H4W 3C3

Dear Mayor Brownstein,

There are no words to describe the deep gratitude and enthusiasm I feel for The VILLAGE Initiative and the great work we have done together thus far and aim to continue.

With each passing day of our collaboration during the Smart Cities Challenge finalist phase, we as a project team increasingly realized how important and profound our mission to help seniors was, far beyond merely a 'project'.

I recall being interested in the project during our first conversation last year as I was joining the team. As we submit our final proposal at the end of this incredible journey, I am now thoroughly convinced that we are in the midst of a national crisis, and that what we are aiming to achieve is in no way a nice-to-have, but rather thoroughly necessary and desperately wanted by seniors and their loved ones.

We were affected by many events over the past months around our mission. We deeply felt the tragic loss of a senior couple in our community from carbon monoxide poisoning in their home. The news of Gilles Duceppe's mother being stuck outside her residence in the freezing cold was beyond heartbreaking. These and other sad incidents we heard of would have been *completely avoided* had the simple connected technologies of our project been in place.

We also experienced great joy in seeing the incredible turnout and engagement of senior residents at our public consultations and focus groups. We heard about how some seniors had felt empowered enough to take matters into their own hands, acquiring and implementing technology solutions themselves to stay safe and connected, and

Delevante Software Inc.

delevante.net

advocating to others to do the same. As many have said to us repeatedly, they want to live in a Connected VILLAGE *yesterday*, and are counting the days.

I have been part of many, many technology ventures and projects in my career.

For me, this is not a place to share my own or my company's credentials. The matter of aging at home and in community is of critical, national importance, and it speaks for itself. This is about fundamental human principles of personal and community well-being, and in so many instances, about life and death. We are all aging and therefore we are all in this together. I am committed to continuing in my role as the technology lead of this Initiative and contributing my expertise and dedication to seeing it through.

As with others on the Smart Cities team, I feel that we did not choose the mission, the mission chose us - the mission chose Côte Saint-Luc.

Here's to continuing our purposeful journey together with The VILLAGE Initiative and to delivering much needed help for seniors and their loved ones in Côte Saint-Luc and across Canada.

Sincerely,

A handwritten signature in black ink, appearing to read 'M. Chriqui', with a stylized, flowing script.

Marc Chriqui

Founder and CEO

Delevante Software Inc.

Faculté de médecine
École de réadaptation

Montréal, 23 février 2019

M. Mitchell Brownstein
Maire, Ville de Côte Saint-Luc

Objet : Lettre de soutien au projet *The VILLAGE Initiative* dans le cadre du concours des villes intelligentes

Cher M. Brownstein,

La présente lettre est pour vous affirmer mon soutien indéfectible au projet *The VILLAGE Initiative*, mené par votre Ville. Depuis l'automne 2018, nous avons développé un partenariat solide, nous permettant d'accompagner la ville dans de nombreuses étapes de la mise en place de ce projet innovant. Tout au long de notre partenariat, j'ai pu observer et noter de nombreux éléments qui m'amènent à considérer ce projet comme l'un des plus prometteurs dans le domaine du bien-vieillir chez soi.

Tout d'abord, j'ai pu observer à travers des groupes de discussion focalisée que nous avons menés cet automne, mais aussi, via les nombreuses rencontres avec les employés de la ville et les conseillers municipaux, à quel point tous croient en ce projet et souhaitent joindre leurs forces pour réellement soutenir le vieillissement de sa population. Ainsi, le projet mobilise tous les acteurs de la Ville. Chacun se sent concerné par les aînés et souhaite trouver des solutions innovantes pour les soutenir. Cette mobilisation sans précédent me semble porteuse de succès pour que le projet de ville intelligente puisse s'actualiser.

Ensuite, j'ai pu également interagir de façon étroite avec l'équipe de gestion du projet, particulièrement lors de la réalisation du projet pilote. Cette équipe dynamique et engagée a su mobiliser les bons acteurs afin de créer un écosystème autour, et dans la ville, de personnes qui sauront mener le projet à terme. En plus de la recherche, l'équipe a su se joindre de nombreux organismes, mais également les aînés et leurs proches aidants qui ont répondu en grand nombre pour coconstruire le projet avec la Ville. Cette co-construction ardemment souhaitée par la Ville, et l'écosystème créé autour du projet, m'amènent à considérer la Ville comme un véritable laboratoire vivant; une infrastructure sociale et communautaire qui permettra l'émergence d'innovations par et pour les résidents de Côte Saint-Luc. Un laboratoire vivant permet ainsi d'être porteur de nombreux et futurs projets en collaboration avec les résidents, les employés, la communauté, l'industrie et la recherche.

Enfin, d'un point de vue de la recherche, ce projet est porteur de nombreuses innovations : technologiques, certes, mais aussi sociales. Ainsi, l'infrastructure technologique sera entourée d'une infrastructure humaine composée des aînées

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Faculté de médecine
École de réadaptation

eux-mêmes, de leurs proches, de la Ville et de ses employés, des organismes communautaires et privés et des services de santé et de services sociaux. Le travail en synergie de tous ces acteurs permettra d'assurer que les technologies sont intégrées harmonieusement dans la vie quotidienne des aînés, mais aussi dans la vie quotidienne de la Ville et de la communauté qui soutient les aînés.

Notre équipe assurera un soutien important dans l'élaboration de ces innovations, ayant nous-mêmes menés plusieurs projets similaires dans le domaine de la santé. À l'instar de ce que nous avons fait pour le projet pilote, nous saurons accompagner la Ville dans l'ensemble de ses démarches, allant du codéveloppement des solutions à la mesure des impacts de cette solution sur les plans sociaux, humains et économiques. En effet, nous avons développé une expertise spécifique dans le développement de technologies pour le maintien à domicile des personnes âgées. Notre expertise couvre le volet technologique, mais également, les volets couvrant les besoins sociaux et cliniques de cette population et la mise en place de processus d'implantation rigoureux. Nous pourrions également soutenir dans l'obtention de fonds de recherche qui soutiendront le fonds obtenu par Infrastructure Canada, en partenariat avec tous les acteurs de la recherche qui gravitent autour de ce projet. Enfin, nous accompagnerons l'équipe dans la rédaction d'un guide d'implantation d'une telle initiative, pour qu'elle puisse se transférer dans d'autres villes innovantes comme Côte Saint-Luc.

Ainsi, je crois que ce projet a le potentiel de réellement soutenir les aînés de la communauté et présente également un grand potentiel pour se transférer à d'autres villes similaires à Côte-Saint-Luc, qui souhaitent soutenir leurs aînés de façon « intelligente » et innovante.

Je vous prie d'agréer, M. Brownstein, l'expression de mes salutations distinguées,

 Nathalie Bier
2019.02.24 11:23:18
-05'00'

Nathalie Bier, erg., PhD.
Professeure agrégée, École de réadaptation
Faculté de médecine, Université de Montréal

Chercheuse boursière, Fonds de la recherche du Québec-Santé
Centre de recherche de l'Institut universitaire de gériatrie de Montréal
CIUSSS Centre-Sud-de-l'île-de-Montréal



UNIVERSITÉ DE
SHERBROOKE

Laboratoire DOMUS
Département d'informatique
Faculté des sciences
Sherbrooke (Québec)
CANADA J1K 2R1

Sherbrooke, le 22 février 2019

M. Mitchell Brownstein
Maire, Ville de Côte-Saint-Luc,
5801 boul. Cavendish Blvd. Côte Saint-Luc, Québec,
H4W 3C3 tél. : 514-485-6800

Objet : Lettre d'appui au projet The VILLAGE Initiative
dans le cadre du concours canadien des villes intelligentes

Monsieur,

Le laboratoire DOMUS est heureux de collaborer au projet The VILLAGE que vous développez dans le cadre du concours canadien des villes intelligentes. Nous nous associons à votre démarche pour vaincre l'isolement des personnes âgées à domicile, en leur offrant un environnement plus sécurisant et mieux connecté avec la ville. Votre ville a démontré son intérêt à recourir aux nouvelles technologies de communication, de télévigilance et d'assistance afin de mieux soutenir les personnes en perte d'autonomie et ainsi d'intervenir pour faciliter leur participation sociale dans leur communauté.

Depuis 2002, le laboratoire DOMUS de l'Université de Sherbrooke développe des habitats intelligents pour faciliter le maintien à domicile des personnes âgées et des personnes fragilisées par des troubles cognitifs. Notre approche est interdisciplinaire, centrée sur la personne dans une perspective de laboratoire vivant et de conception participative : les personnes âgées et leurs proches sont considérés comme des partenaires à part entière et participent activement à l'orientation et à la conception des technologies. Nos technologies s'appuient sur l'Internet des objets, l'intelligence artificielle et les interfaces humains-machines avancées et adaptées aux besoins. Elles prennent des formes variées (réseaux de capteurs, applications mobiles, réalité augmentée...) et se veulent les plus discrètes possibles pour s'intégrer harmonieusement dans l'environnement social et physique pour compenser les incapacités dues au vieillissement, renforcer l'autonomie et favoriser le maintien à domicile. De plus, l'éthique, la protection des données et le respect de la vie privée sont au cœur de nos préoccupations et guident en tout temps nos décisions. Finalement nous sommes fermement convaincus qu'il doit toujours y avoir un humain au bout du système et qu'il faut s'appuyer sur les aidants et créer des réseaux d'entraide.

Par le passé, nous avons eu l'occasion de développer des projets de recherche sur la facilitation de l'organisation quotidienne, sur des plateformes de monitoring, d'accompagnement de nuit, sur le suivi et la réalisation des activités quotidiennes. Nos systèmes de télévigilance et nos assistants cognitifs sont installés, utilisés et validés en milieu réel, dans des domiciles ou des résidences pour personnes âgées. Par exemple, ils ont permis à des personnes avec des déficits cognitifs de cuisiner en toute sécurité chez elles ou encore aux services de santé de mieux évaluer les personnes dans leur milieu et de personnaliser en conséquence les services offerts, ce qui a prolongé leur maintien dans leur domicile pour longues périodes. Ceci nous a permis, d'une part, de constater le dynamisme et l'ouverture des participants âgés pour les nouvelles technologies et, d'autre part, de voir combien ces personnes âgées et leurs proches étaient engagés pour trouver des solutions pour le maintien dans leur lieu de vie.

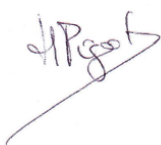
Le projet que vous développez pour accompagner le vieillissement des citoyens et des citoyennes âgés de Côte-Saint-Luc trouve un fort écho dans les recherches que nous développons au laboratoire. Dans le cadre du concours canadien des villes intelligentes, nous pensons que les nouvelles technologies peuvent jouer un rôle important pour favoriser le maintien à domicile des personnes âgées de votre communauté en détectant les situations problématiques, en avertissant les personnes responsables, en renforçant le réseau d'entraide pour résoudre ces situations problématiques et en renforçant le lien entre les aînés et leur municipalité. Déjà, le projet pilote que nous avons mené ensemble a confirmé l'arrimage entre la Ville de Côte St-Luc et le laboratoire DOMUS. Nos rencontres avec vos citoyens âgés et l'installation de nouvelles technologies dans leur domicile a aussi confirmé qu'ils souhaitaient les intégrer chez eux pour améliorer leur confort, leur sentiment de sécurité et être en meilleure connexion avec la ville.

Le laboratoire DOMUS est donc prêt à soutenir ce projet en engageant son expertise dans une démarche interdisciplinaire pour cerner les enjeux, élaborer des solutions appropriées et respectueuses et tester ces innovations sociales auprès des aînés. Le laboratoire DOMUS a un long historique de recherche participative, et cette recherche se situe donc dans cette lignée où les solutions seront élaborées avec les personnes âgées et la Ville de Côte-Saint-Luc pour s'assurer à toutes les étapes de la pleine collaboration de chacun. Concrètement, le laboratoire DOMUS s'engage à appuyer ce projet en participant, entre autres, aux activités suivantes :

- Préciser les enjeux en lien avec l'introduction de nouvelles technologies au domicile des personnes âgées;
- Proposer des solutions technologiques et des services innovants pour diminuer l'isolement;
- Évaluer l'amélioration de la qualité de vie des aînés et leur intégration au sein de la ville grâce à l'apport des technologies.

Nous partageons votre vision. La société canadienne et les villes doivent repenser leur rôle, imaginer de nouveaux services innovants et s'appuyer sur leurs communautés afin de permettre aux personnes âgées de vieillir harmonieusement en toute dignité dans leur milieu, quelles que soient leurs capacités physiques et cognitives.

Veuillez agréer, Monsieur, l'expression de nos sentiments distingués.



Madame Hélène Pigot
Professeure titulaire en informatique,
Chercheuse au Laboratoire DOMUS
Tel: (1)-819-821-8000, poste 63078
Courriel :
helene.pigot@usherbrooke.ca



Monsieur Sylvain Giroux
Professeur titulaire en informatique,
Directeur du Laboratoire DOMUS
Tel: (1)-819-821-8000, poste 62027
Courriel :
sylvain.giroux@usherbrooke.ca



**OFFICE OF THE VICE-PRESIDENT,
RESEARCH AND GRADUATE STUDIES**

Montreal, February 22, 2019

Mr. Mitchell Brownstein
Mayor, City of Côte Saint Luc

RE: Smart City Challenge support letter to the City of Côte Saint Luc

Dear Mayor Brownstein,

Concordia University enthusiastically endorses the “Village” initiative of the City of Côte Saint Luc in the context of the Smart City Challenge of the Federal Government and recognises its major social, economic and scientific impacts for Canadians.

Through its Loyola Campus, Concordia is a neighbour of Côte Saint Luc and aging has been a cornerstone of our recent developments and clearly identified as a priority in our most recent strategic plan¹. In its “Health Hub” strategic directions, Concordia offers communities deeply innovative approaches to health research, education, policy and technology and focuses on the full continuum of issues and interventions across disciplines.

Consequently, a partnership with the “Village” initiative is strategic and inspiring.

Concordia University is ambitious, innovative and research-engaged — cultivating next-generation talent that is focused on transformative learning, convergent thinking and public impact. Located in the heart of cosmopolitan Montreal, Concordia is recognized as Canada’s top university under the age of 50 and one of the most international universities in the world².

We have met with the Côte Saint Luc team and the following research centers will be mobilised to assist the realisation of a truly important project for communities across Canada and the world:

- Our engAGE³ center regroups close to 40 high level researchers dedicated to quality of life for seniors. engAGE aspires to change how we think about aging. Through innovative, collaborative, interdisciplinary research, engAGE researchers work with older people and their communities to address challenges and facilitate opportunities in all realms of life: social, physical, cognitive, emotional, and political.

¹ www.concordia.ca/about/strategic-directions/hubs/health.html

² www.topuniversities.com/university-rankings/top-50-under-50/2019

³ www.concordia.ca/research/aging.html

engAGE brings together researchers from a broad range of disciplines, from fine arts, social sciences, communications, business, psychology and engineering, to explore creative ways and opportunities to study age and to enhance health and wellbeing across the life course. We work together with older people, community groups, health care practitioners, and industry partners to provide thoughtful analysis of the strengths and challenges that we experience in relation to age and then to suggest strategies for change.

- Our PERFORM⁴ Centre, located a few steps from Côte Saint Luc, is a unique infrastructure and research platform, dedicated to new ways of researching better health through prevention. The concept is to rally together researchers from different fields of study, students and the local community, all within a modern clinical and fitness research facility with the intent of creating an environment that will foster the pursuit for healthier living. PERFORM's Heathy Living Program for Seniors' supports participants in acquiring the skills for a path to healthier living. This unique initiative is designed to help autonomous seniors – aged 65 years and older and receiving the guaranteed income supplement – in managing a healthier lifestyle through exercise and diet. During the six-month program, participants are learning to:
 - Discover new ways to keep strong and healthy
 - Shop for and prepare nutritious meals on a budget
 - Acquire the skills for an overall healthier lifestyle

Furthermore, Concordia is currently finalizing the nomination of a Canada Excellence Research Chair (CERC) in Smart, Sustainable and Resilient Communities and Cities⁵ to head the transformative next-gen cities plan. The CERC appointments, which come with \$10 million dollars in funding spread over seven years, are among the most prestigious and generous academic awards available in the world. The program recruits world-renowned researchers and their teams to establish ambitious research programs at Canadian universities.

In addition, our Gina Cody School of Engineering & Computer Science is a leader in IT development, and in conjunction with our District 3 world class incubators, will provide Côte Saint Luc the most advanced technologies and talents to pursue its objectives of a smart city tailored to seniors.

Finally, Concordia is a founding partner of MEDTEQ, the Canadian reference in medical technology collaborative research: through our relationship with its large membership we can provide in kind resources, research grants and high leverage project structuring to offer multiple matching funding to the \$10 million award in the Smart City Challenge.

In conclusion, when Côte Saint Luc gets confirmation of its grant, we eagerly anticipate being with you at the starting gate to help insure scientific, community and economic impacts for Canadians through this bold and exciting project.

Concordia is thus committing its full support to the “Village” initiative, and looks forward to large-scale mobilisation of its unique talents and technology platforms for its success.

From prevention to big data insights to arts-based therapies, our researchers are harnessing the potential of treatments and technologies for better health for seniors and facilitating next-generation solutions to pressing issues facing cities around health and well-being.

Yours sincerely,

A handwritten signature in blue ink, appearing to read 'Christophe Guy', followed by a stylized flourish.

Christophe Guy, C.M., O.Q., Eng., PhD, FCAE, FEC
VP, Research & Graduate Studies
Concordia University



February 26, 2019

Mitchell Brownstein
Mayor, Côte-Saint-Luc
City of Côte-Saint-Luc
5801 Cavendish Blvd.
Côte Saint-Luc, Quebec
H4W 3C3

Dear Mayor Brownstein:

On behalf of the AGE-WELL Network of Centres of Excellence I am pleased to offer this letter in support of your application from the City of Côte Saint-Luc's to the Smart Cities Challenge, The VILLAGE Initiative. Your proposal is very much aligned with the goals of the AGE-WELL Network of Centres of Excellence, with both of our organizations aimed at improving the safety, well-being, and social connectedness of seniors in their own communities and across Canada using emerging digital technologies.

AGE-WELL is Canada's technology and aging network. AGE-WELL is dedicated to the creation of technologies and services that benefit older adults and caregivers. Our aim is to help older Canadians maintain their independence, health and quality of life through technologies and services that increase their safety and security, support their independent living, and enhance their social participation. Our mission is to develop a community of researchers, older adults, caregivers, partners and future leaders that accelerates the delivery of technology-based solutions that make a meaningful difference in the lives of Canadians.

AGE-WELL has an extensive network of Member Universities and Research Centres, including more than 80 universities, 1000 researchers, and 280 industry and community partners. Our commitment to your proposal will be through providing access to our members, researchers, and stakeholders, and by providing your group with consultation on the various issues related to emerging technologies and smart cities.

Once again, I am pleased to offer AGE-WELL's support for this important initiative. We look forward to working with you and exploring your team and the City of Côte Saint-Luc becoming an integral piece of our AGE-WELL network.

Sincerely,

A handwritten signature in dark ink, appearing to read "Alex Mihailidis".

Alex Mihailidis, PhD PEng
Scientific Director & CEO
AGE-WELL NCE Inc.

Barbara G. Stymiest Research Chair in Rehabilitation Technology, Toronto Rehabilitation Institute,
University Health Network/ University of Toronto
Professor, Department of Occupational Science and Occupation Therapy
University of Toronto

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Dr. Alex Mihailidis
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sixsmith@sfu.ca

Ministère de la Santé
et des Services
sociaux



Direction générale adjointe des services sociaux
et des services aux aînés

PAR COURRIER ÉLECTRONIQUE

Québec, 1^{er} mars 2019

Monsieur Mitchell Brownstein
Maire, Côte-Saint-Luc
Ville de Côte-Saint-Luc
5801, boul. Cavendish
Côte Saint-Luc, Québec
H4W 3c3

Monsieur Brownstein,

C'est avec un grand intérêt que le ministère de la Santé et des Services sociaux (MSSS) a pris connaissance du projet de Côte St-Luc puisqu'il tient compte du souhait de plusieurs personnes âgées, soit celui de demeurer à domicile en toute sécurité.

Parmi les nombreux services offerts aux aînés par le réseau de la santé et des services sociaux, les soins et services de soutien à domicile y ont une place prépondérante. À cet effet, votre projet s'inscrit en cohérence avec les orientations ministérielles du réseau de services intégrés pour les personnes âgées et est intégrateur des divers services qui sont offerts dans une communauté impliquée activement auprès de ses aînés.

Nous croyons également que les avancées technologiques en matière de soins de santé et de sécurité à domicile seront des atouts incontournables pour soutenir une offre de service pour les aînés du Québec.

Nous tenons donc à vous signifier l'appui du MSSS au projet et nous nous engageons par notre présence au comité de suivi ainsi que pour discuter des scénarios de pérennisation. Nous sommes convaincus que cette initiative novatrice saura contribuer de manière concrète et positive au mieux-être des aînés concernés.

Québec
Édifice Catherine-De Longpré
1075, chemin Sainte-Foy, 6^e étage
Québec (Québec) G1S 2M1
Téléphone : 418 266-6855
Télécopieur : 418 266-4572
Adresse électronique : natalie.rosebush@msss.gouv.qc.ca

Veuillez agréer, Monsieur Brownstein, l'expression de nos sentiments les meilleurs.

La directrice générale adjointe,



Natalie Rosebush

c.c. Mme Lyne Jobin, MSSS
M. Marc Chiqui, Innovatech

N/Réf : 19-SS-00142

Centre intégré
universitaire de santé
et de services sociaux
du Centre-Ouest
de l'Île-de-Montréal

Québec



Hôpital général juif

CENTRE GÉRIATRIQUE
DONALD BERMAN
MAIMONIDES GERIATRIC
CENTRE

CENTRE D'HÉBERGEMENT
FATHER-DOWD
RESIDENTIAL CENTRE

CENTRE D'HÉBERGEMENT
HENRI-BRADET
RESIDENTIAL CENTRE

CENTRE D'HÉBERGEMENT
ST-ANDREW RESIDENTIAL
CENTRE

CENTRE D'HÉBERGEMENT
ST-MARGARET
RESIDENTIAL CENTRE

CENTRE MIRIAM HOME
AND SERVICES

CENTRE DE RÉADAPTATION
CONSTANCE-LETHBRIDGE
REHABILITATION CENTRE

CENTRE DE RÉADAPTATION
MAB-MACKAY
REHABILITATION CENTRE

CHSLD JUIF DE MONTRÉAL
JEWISH ELDERCARE
CENTRE

CLSC DE BENNY FARM

CLSC DE CÔTE-DES-
NEIGES

CLSC MÉTRO

CLSC DE PARC-
EXTENSION

CLSC RENÉ-CASSIN

HÔPITAL CATHERINE
BOOTH HOSPITAL

HÔPITAL GÉNÉRAL JUIF
JEWISH GENERAL HOSPITAL

HÔPITAL MOUNT SINAI
HOSPITAL

HÔPITAL RICHARDSON
HOSPITAL

**Integrated Health
and Social Services
University Network
for West-Central
Montreal**

February 22, 2019

Mitchell Brownstein
Mayor, Côte-Saint-Luc
City of Côte-Saint-Luc
5801 Cavendish Blvd.
Côte Saint-Luc, Quebec
H4W 3C3

Dear Mayor Brownstein:

I write on behalf of the Integrated Health and Social Services University Network for West-Central Montreal (CIUSSS West-Central Montreal) in strong support of the City of Côte Saint-Luc's Smart Cities Challenge proposal, The VILLAGE Initiative, aimed at improving the safety, well-being, and social connectedness of seniors in your community and across Canada using emerging digital technologies.

The Integrated Health and Social Services University Network for West-Central Montreal (CIUSSS West-Central Montreal) is committed to providing healthcare recipients with timely access to a seamless continuum of care that focuses on individuals' particular needs. The area covered by our network is home to approximately 362,000 people, who are served by a partnership of more than 30 complementary healthcare facilities. Included are one of Quebec's leading hospitals (the Jewish General Hospital) and an interlocking array of three specialized hospitals, five CLSCs, two rehabilitation centres, four residential centres, two long-term geriatric residences, and two day centres. Treatment and care are provided by a staff of more than 10,000, including approximately 700 doctors. Of particular importance, it is noteworthy that CIUSSS Centre-Ouest is also responsible for all homecare services provided in Cote St. Luc.

We believe that in the future, healthcare will increasingly become decentralized. Dependencies on hospitals will be reduced. The point of care will be wherever the patient is, whether at home, in community, or elsewhere. We also believe that Digital Health will continue to drive the way care is delivered and we will continue to see an increasing focus on prevention and prediction with the help of new and advanced technologies.

Côte Saint-Luc's VILLAGE Initiative would lay the digital foundation in which smart cities and healthcare providers could partner to deliver better patient care to the home and improve outcomes along the continuum of care. But this would not only improve care, but could for the first time actually begin to identify and preempt clinical problems before a patient would require treatment.

Our collaboration would involve an advisory role for our organization in Côte Saint-Luc's program governance, alignment of our technology roadmaps, data integration aimed at augmenting Patient Health Records, information privacy protection measuring outcomes (including assuring data quality and validity), innovating to improve Trajectories of Care, and more.

We look forward to working with the City of Côte Saint-Luc's on your highly innovative and exciting initiative, which will continue to strengthen our ongoing partnership and improve the well-being of our shared population in ways that will be impactful and long-lasting.

Sincerely,



Lawrence Rosenberg, MD, CM, MSc, PhD, MEng, FRCSC, FACS

Président-Directeur général / President and CEO

CIUSSS du Centre-Ouest-de-l'Île-de-Montréal | Integrated Health and

Social Services University Network for West-Central Montreal

Professeur titulaire en chirurgie et médecine, Professor of Surgery and Medicine

McGill University

Centre intégré
universitaire de santé
et de services sociaux
du Centre-Ouest-
de-l'Île-de-Montréal

Québec



Hôpital général juif

CENTRE GÉRIATRIQUE
DONALD BERMAN
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CENTRE

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ST-ANDREW RESIDENTIAL
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CENTRE D'HÉBERGEMENT
ST-MARGARET
RESIDENTIAL CENTRE

CENTRE MIRIAM HOME
AND SERVICES

CENTRE DE RÉADAPTATION
CONSTANCE-LETHBRIDGE
REHABILITATION CENTRE

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CLSC DE BENNY FARM

CLSC DE CÔTE-DES-
NEIGES

CLSC MÉTRO

CLSC DE PARC-
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HÔPITAL CATHERINE
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HÔPITAL GÉNÉRAL JUIF
JEWISH GENERAL HOSPITAL

HÔPITAL MOUNT SINAI
HOSPITAL

HÔPITAL RICHARDSON
HOSPITAL

**Integrated Health
and Social Services
University Network
for West-Central
Montreal**

Le 22 février 2019

Mitchell Brownstein
Maire, Côte-Saint-Luc
Ville de Côte Saint-Luc
5801, boul. Cavendish
Côte Saint-Luc, Québec
H4W 3C3

Monsieur le Maire,

Je vous écris au nom du Centre intégré universitaire de santé et de services sociaux du Centre-Ouest-de-l'Île-de-Montréal (CIUSSS du Centre-Ouest-de-l'Île-de-Montréal) pour vous manifester notre soutien entier au projet de la ville de Côte-Saint-Luc pour le Défi des villes intelligentes, l'initiative VILLAGE; celle-ci vise à accroître la sécurité, le bien-être et les contacts sociaux des aînés dans votre communauté et dans tout le Canada à l'aide des technologies numériques émergentes.

Le CIUSSS du Centre-Ouest-de-l'Île-de-Montréal s'engage à offrir aux bénéficiaires de soins de santé un continuum de soins, en temps opportun, afin de répondre aux besoins particuliers de chacun. Ce réseau dessert quelque 362 000 personnes, en partenariat avec plus de 30 établissements de soins complémentaires. On y retrouve l'un des principaux hôpitaux du Québec (l'Hôpital général juif) et un ensemble interrelié de trois hôpitaux spécialisés, cinq CLSC, deux centres de réadaptation, quatre centres d'hébergement, deux résidences gériatriques de soins de longue durée et deux centres de jour. Les traitements et les soins sont assurés par plus de 10 000 personnes, dont environ 700 médecins. Il convient en outre de noter que le CIUSSS du Centre-Ouest-de-l'Île-de-Montréal est responsable de tous les services de soins à domicile fournis à Côte-Saint-Luc.

Nous croyons que les années à venir seront marquées par une décentralisation des soins de santé. Nous serons de moins en moins dépendants des hôpitaux. Le point d'intervention se situera au lieu où se trouve le patient, y compris chez lui et dans sa communauté. Nous croyons aussi que les services de santé numériques continueront de révolutionner la façon dont les soins sont prodigués, et que les progrès technologiques nous permettront de mettre encore plus l'accent sur la prévention et la prédiction.

L'initiative VILLAGE de Côte-Saint-Luc jetterait les bases numériques d'une collaboration entre les villes intelligentes et les fournisseurs de soins de santé, qui nous permettrait de fournir de meilleurs soins à domicile et d'améliorer les résultats tout au long du continuum de soins. Non seulement les soins en seraient améliorés,

mais pour la première fois, nous pourrions identifier et régler les problèmes cliniques avant que le patient ait besoin de traitement.

Notre collaboration supposerait notamment un rôle de conseiller pour notre organisation dans la régie du programme de Côte-Saint-Luc, l'harmonisation de nos plans technologiques, l'intégration des données dans le but d'étoffer les dossiers médicaux des patients, l'évaluation de l'incidence sur la protection des renseignements personnels (y compris la vérification de la qualité et de la validité des données) et des innovations visant à améliorer les trajectoires de soins.

Nous nous réjouissons à l'idée de collaborer avec la ville de Côte-Saint-Luc sur cette initiative des plus novatrices et stimulantes, qui consolidera davantage notre partenariat et améliorera le bien-être de notre population commune concrètement et durablement.

Je vous prie d'agréer, Monsieur le Maire, mes salutations distinguées.



Lawrence Rosenberg, MD, CM, MSc, PhD, MEng, FRCSC, FACS

Président-Directeur général / President and CEO

CIUSSS du Centre-Ouest-de-l'Île-de-Montréal | Integrated Health and
Social Services University Network for West-Central Montreal

Professeur titulaire en chirurgie et médecine, Professor of Surgery and Medicine
McGill University



Laipac Technology Inc.

Locate to protect

Feb. 26 2019

Dear Mayor Mitchell Brownstein:

We are writing on behalf of Laipac Technology Inc. located in Richmond Hill Ontario. We strongly support the City of Côte Saint-Luc's Smart Cities Challenge proposal, The VILLAGE Initiative, aimed at improving the safety, well-being, and social connectedness of seniors in our community and across Canada using data and connected technologies. Laipac Technology Inc. has designed and manufactured mobile Healthcare and Internet of Things products since 1999 and has exported to over 100 countries. Laipac is also an award-winning company with the following accolades;

- "German Design Award Special" by German Design Council 2019
- "Ontario Exporter of the Year" by Export Development Canada 2018
- "Innovator of the Year Award" by Richmond Hill, Ontario 2018
- "Best Security Product Accolades" by ASIS International 2010 & 2011
- CEO named as 50+ leaders by GPS World magazine 2007
- CEO nominated for Canadian Pioneer Award by TD Bank 2006
- "Best Export Company", by Richmond Hill, Ontario 2005

Laipac has strong financial support and record. Here are some of Laipac's corporate experience and track record for our technology commercialization:

- TRIMBLE INC., USA- Laipac provided over 10,000 IoT devices and IoT platform for real time monitoring of expensive optical survey equipment.
- HYUNDAI & KIA, QUITO, ECUADOR- Laipac provided over 80,000 vehicle tracking devices and IoT platform for insurance program
- PEMEX, MEXICO- Laipac provided over 8,000 vehicle tracking devices for oil & gas truck monitoring.
- AIRBUS SPACE & DEFENSE- Laipac provided over 10,000 vehicle tracking devices for public safety application of AIRBUS.
- GSM GPS TRACK, ALGERIA- Laipac provided over 2,000 vehicles tracking devices and IoT platform for fleet management projects.

20 Mural St. Unit 5 Richmond Hill Ontario L4B 1K3 Canada
 Tel: 905-7621228 Fax: 905-7631737
 E-mail: info@laipac.com <http://www.laipac.com>



Laipac Technology Inc.

Locate to protect

- GEO & LOGIC, Dubai, U.A.E.- Laipac provided over 5,000 vehicles tracking devices for fleet management projects
- MEDIC ALERT, ONTARIO, CANADA- Laipac provided S911 Lola and LocationNow platform for elderly care real time care and monitoring
- RIYAD BANK and NCB BANK, SAUDI ARABIA- Laipac provided LocationNow platform and 5,000 IoT devices for ATM monitoring.
- MINISTRY OF HEALTH, MOSCOW, RUSSIA- Laipac provided over 8,000 SOS devices for independent living of elderly in Moscow.
- MINISTRY OF JUSTICE, INDONESIA- Laipac provided over 1,000 electronic monitoring bracelets for house arrest project.

And many other projects of elderly care and PERS (Personal Emergency Response Service). Some reference documents are also attached together with this letter.

We were happy to provide our smartwatch solution and work with Côte Saint-Luc during your pilot project. Should the city be a winner in the Smart Cities Challenge, we would welcome the opportunity to collaborate further on a broader rollout that would meet your program vision and resident needs. We will support the advancement of Côte Saint-Luc's Smart Cities Challenge project through whatever means are available to us and look forward to growing and strengthening our partnership with the City. Thank you for this opportunity.

Sincerely,

Diego Lai / CEO



20 Mural St. Unit 5 Richmond Hill Ontario L4B 1K3 Canada

Tel: 905-7621228 Fax: 905-7631737

E-mail: info@laipac.com <http://www.laipac.com>



MEDTEQ
L'INNOVATION POUR LA SANTÉ
INNOVATION FOR HEALTH

February 22, 2019

M Mitchell Brownstein

Mayor, City of Côte Saint Luc

RE: Smart City Challenge support letter to the City of Côte Saint Luc

Dear Mayor Brownstein,

MEDTEQ is proud to support your “Village” project in the context of the Smart City Challenge of the Federal Government and pledges its commitment to ensure this initiative is a true Canadian collaborative project that delivers tangible impacts to communities across Canada.

MEDTEQ is the Industrial Consortium for Research and Innovation in Medical Technologies, which accelerates the collaborative development of innovative technologies for clinicians and patients, their validation and integration into Canadian and international health networks.

Started in the province of Quebec 6 years ago with the support of the Ministère de l'Économie et de l'Innovation, MEDTEQ federates close to 170 members, most of whom are SMEs, but also multinationals, start-ups and many research institutes and university hospitals. Since its creation, MEDTEQ supports more than 70 research / validation projects involving around 225 researchers, 250 students, 85 SMEs, 21 multinationals, for a total value of projects of over \$ 60 million.

In 2017, MEDTEQ was awarded the mandate of a Center of Excellence for Commercialisation of Research (CECR) supported by the federal government with a 19.5 M\$ budget for the next 5 years. This leadership mandate gives latitude and means to support the integration across Canada of medical health technologies, in key priority sectors such as aging, by providing direct funding to innovative companies and institutions at the final stages of development of innovative products and services.

MEDTEQ's strategy is to accelerate the transformation of the health sector by deploying a fast-tracked adoption program for Canadian medtech innovations by and in collaboration with clinical sites and key strategic projects in Canada with institutions such as the Côte Saint Luc Challenge and large international Life Sciences Clusters internationally.

The aging population is a fast-growing reality for every developed country around the world and Canada is no exception. The increasing proportion of seniors relative to the active workforce represents a society challenge that traditional health networks can not address alone, thus the implication of Smart Cities, the active involvement of communities and the mobilisation of our best talents and innovative technologies.

In the last year, members of MEDTEQ have launched several strategic projects that aim at integrating the Internet of Things, artificial intelligence and human performance enhancement technologies to develop new solutions to foster autonomy and a quality of life for seniors and their care takers. This mobilisation includes companies, universities, public and private institutions, philanthropic foundations, community



MEDTEQ
L'INNOVATION POUR LA SANTÉ
INNOVATION FOR HEALTH

organisations and young entrepreneurs. In our last MEDTEQ SUMMIT in January, aging and community involvement in the future of health care were highlighted as key drivers of our industry.

Our belief is that Canadian talents and entrepreneurs in partnership with our public health care system and communities, can develop and implement substantial cost savings solutions for the well-being and health of seniors and their families, and in parallel generate economic value and quality job creation for the Canadian medtech industry, positioning Canada as a global leader in solutions for aging.

In this context MEDTEQ applauds the Village Initiative of the City of Côte Saint Luc and is keen to mobilise the resources of its national and international membership. If the City of Côte Saint Luc's application to the Smart City Challenge is successful, MEDTEQ's support would take several forms:

- contributions of in-kind expertise via MEDTEQ staff and resources for the structuring of eligible collaborative projects as well as project management support.
- cash contributions, in accordance with the MEDTEQ process and the rules of engagement of its programs supported by the Quebec Government, to support projects for validation and evaluation of innovative health technologies. This financial support from MEDTEQ for collaborative projects with industry can represent a direct contribution of up to \$ 500,000 per project year over three years (maximum \$ 1.5M per approved project).
- In addition, based on our unique track record, for every dollar invested in a qualified MEDTEQ project by the Village Initiative, we can generate with qualified members a leverage of up to 4 times this investment. Considering that most of the 10 million \$ award from the Smart City Challenge could constitute eligible R&D activities, we can foresee a major opportunity to leverage your project.
- direct financing in bold game changing SMEs, in conjunction with other corporate financing and in connection with the implementation of the projects in the Network, still in accordance with the consortium's current program rules (maximum of \$ 1M for the MEDTEQ tranche in a syndicated round of financing).

Concordia University's Center for Research on Aging (EnGage) and PERFORM Center, the Institut universitaire de gériatrie de Montréal and the Le laboratoire Domus of the University of Sherbrooke are indicative of the strength of MEDTEQ's membership for this initiative; in addition, national organisations such as Agewell and MITACS and international institutions such as the Sheba Institute in Tel Aviv are qualified partners that could be mobilised for this project.

We strongly support the candidacy of Côte Saint Luc and are anxious to launch a productive collaboration for the benefit of all Canadians.

Sincerely,

Diane Côté
CEO
MEDTEQ Consortium

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2/2

740, rue Notre-Dame Ouest
Bureau 1400 Montréal (Québec)
H3C 3X6 Tél. (514) 398-0896
info@medteq.ca



Privacy & Access Council of Canada
Conseil du Canada de l'Accès et la vie Privée

21 February 2019

Mayor Mitchell Brownstein
City of Côte Saint-Luc
5801, boul. Cavendish Blvd.
Côte Saint-Luc QC H4W 3C3

Dear Mayor Brownstein:

The increasing presence of “smart” technologies in homes and urban landscapes offers great potential that, if implemented with sufficient and mindful forethought, can provide important benefits for individuals, communities, governments, healthcare systems, and national economies. The mechanics, ethics, privacy-related issues, and unintended consequences of “smart” technologies have been the topic of great discussion among the Board and members of the independent, national, non-profit, non-partisan, and non-government *Privacy and Access Council of Canada* (PACC).

PACC is the voice for privacy and access in Canada, and the certifying body representing leadership and excellence in information privacy, access to information, and data governance. Its members across the public, private, and non-profit sectors represent a cross-section of the many disciplines involved in data protection including privacy, access, compliance, law, government, security, ethics, academia, and public policy.

Given the potential privacy risks that can arise from implementing “smart” technologies, I would like to as a director of PACC, offer the association's support to the City of Côte Saint-Luc's efforts to develop the VILLAGE initiative in a way that genuinely respects privacy. Our confidence in the City's approach is in large measure because you involved Sharon Polsky as your privacy advisor in the project. Sharon has a deep understanding of the multidisciplinary complexities inherent in data privacy and information governance.

As her colleague on the Board of Directors of the PACC since 2007, I am keenly aware that Sharon's expertise relating to the intersection of privacy, law and technology are exceptional. Her grasp of privacy implications that laws and technologies have upon individuals and organizational information governance is evident in the testimony she has given before Senate Standing Committee hearings and in her submissions to the Information Commissioner of Canada and to Legislative Standing Committees. Her insight is also embodied in the governing documents that describe the generally accepted levels of knowledge and skill, and the ethical standards and conduct that define the Information Privacy and Access to Information profession. Sharon's acuity was also recognized in 2012 when she was appointed by the Information and Privacy Commissioner of Ontario to be a Privacy by Design Ambassador. Her views are frequently sought by clients, media, and conference organizers.

I am confident that, by implementing all of the recommendations and adhering to the advice given by Ms Polsky, the City will be able to leverage “smart” technologies in a way that produces an enduring and worthwhile Smart Cities Challenge program that serves people, avoids creating a surveillance environment or monetizing individuals' data, and fosters ongoing trust in the City.

With that in mind, the Privacy and Access Council of Canada is pleased to offer its ongoing support of the City of Côte Saint-Luc as it develops its VILLAGE initiative to provide an intelligent, robust, and privacy-sensitive solution that facilitates continued safe and independent living by Canada's rapidly aging population.

Sincerely,

Eric Lawton MAPP
Director of Professional Certification



February 14, 2019

Katherine Korakakis
Agence Ometz
5151 Côte Ste-Catherine Road,
Montreal, Québec
H3W 1M6

Dear Mayor Mitchell Brownstein:

We are writing on behalf of the OMETZ. We support the City of Côte Saint-Luc's Smart Cities Challenge proposal, The VillAGE Initiative, aimed at improving the safety, well-being, and social connectedness of seniors in our community and across Canada using data and connected technologies.

Our organization is committed to providing counselling coaching and guidance to entrepreneurs and job seekers and has been providing services to community for over 150 years.

At OMETZ we are very familiar with the City as this is our target clientele as we service the island of Montreal and have close working relationship with the City in our employment and entrepreneur programs.

If the City of CSL becomes a winner of the Smart City Challenge and proceeds with this project we will be more than happy to assist in the recruiting and training of staff and employees who qualify under the CEB criteria. We will assist in the recruitment and procurement opportunities for the qualified candidates who fall in the groups, identified in the CEB program that is women; persons with disabilities; youth; recent immigrants; and small, medium businesses, and social enterprises. We do have experience in working and promoting diversity and inclusion in recruiting candidates for jobs and social enterprises. Last year 1,820 job seekers used Ometz services, online and in person, to find suitable employment opportunities, 785 mature workers learned new skills essential to succeeding in the changing job market and 124 people with disabilities found jobs, maintained employment or returned to school, 437 people received advice on starting their own business and 125 new entrepreneurs developed their ideas into viable businesses with the help of the accelerator program. Ometz is accredited by the Ministère de l'Immigration, de la Diversité et de l'Inclusion (Quebec's Ministry of Immigration) to provide these settlement and integration support services to new Immigrants.

We will support the advancement of Côte Saint-Luc's Smart Cities Challenge project through whatever means are available to us and look forward to growing and strengthening our long-lasting partnership with the City.

Sincerely,

Katherine Korakakis
Manager of Entrepreneurship

L'AGENCE OMETZ EST
UNE BÉNÉFICIAIRE DE LA





CENTRE JUIF CUMMINGS POUR ÂÎNÉS
CUMMINGS JEWISH CENTRE FOR SENIORS

February 27, 2019

Mitchell Brownstein
Mayor, Côte-Saint-Luc
City of Côte-Saint-Luc
5801 Cavendish Blvd
Côte-Saint-Luc QC H4W 3C3

Dear Mayor Brownstein:

On behalf of Cummings Centre, we strongly support the City of Côte Saint-Luc's Smart Cities Challenge proposal, The VILLAGE Initiative, aimed at improving the safety, well-being, and social connectedness of seniors in our community and across Canada using data and connected technologies.

The Cummings Centre is an organization whose mission is to empower and enhance the quality of life of adults age 50 and over by providing dynamic and innovative programs, social services, and volunteer opportunities in a vibrant, respectful, inclusive and compassionate environment. Building on its Jewish heritage, Cummings Centre embraces people from all ethnic and socio-economic backgrounds. Our mission aligns well with that of the Côte-Saint-Luc's Smart Cities Challenge proposal, and thus fully supports this new initiative.

Cummings Centre is very familiar with the City of Côte-Saint-Luc as a large number of our members and volunteers reside in this borough. The Cummings Centre and the City of Côte-Saint-Luc have successfully partnered together to support the Drop-in Program for seniors with memory loss and/or Dementia, as well as offering new art programs available to seniors. This innovative program can only strengthen our relationship and continue providing tailored activities responding to the needs of our senior population.

If the City of Côte-Saint-Luc is approved for the Smart City Challenge and proceeds with this innovative program, we will be more than happy to assist in areas that would best meet our mission and scope of our services, utilizing our expertise in the areas of aging related to volunteerism, programs and social services.

Sincerely,

Pauline Grunberg
Executive Director

AT THE CENTRE OF IT ALL | AU CENTRE DE VOTRE VIE

5700, avenue Westbury Avenue, Montréal (Québec) H3W 3E8
Tél. 514.342.1234 Fax. 514.739.6899
www.cummingscentre.org





NATIONAL OFFICE/Bureau national

MAX GLICKSMAN & MORRIS GLICK BUILDING/Édifice Max Glicksman & Morris Glick
CHARLES GOLDLUST HUMAN RIGHTS CENTRE/Centre des droits de la personne Charles Goldlust

Mayor Mitchell Brownstein,
Côte Saint-Luc City Hall
5801 boul. Cavendish Blvd.
Côte Saint-Luc, QC H4W 3C3

February 26, 2019

Dear Mayor Mitchell Brownstein,

We are writing on behalf of our organization B'nai Brith Canada. We all strongly support the City of Côte Saint-Luc's Smart Cities Challenge proposal, The VILLAGE Initiative, aimed at improving the safety, well-being, and social connectedness of seniors in our community and across Canada using data and connected technologies.

We are committed to providing a better quality of life to seniors such as our Sunday morning senior brunches. These programs offer them and their children/caregivers a much-needed atmosphere of food, entertainment and interface with other seniors who would otherwise be shut in with no place to go. Most of the seniors we serve are at least occasional, if not active, users of the City of Côte Saint-Luc's many services and facilities. Therefore, we are excited at the prospect of furthering our Côte Saint-Luc seniors' connections to the City while enabling them to age effectively in place.

We will support the advancement of Côte Saint-Luc's Smart Cities Challenge project through whatever means are available to us and look forward to growing and strengthening our long-lasting partnership with the City.

Sincerely,

Michael Mostyn,
Chief Executive Officer
B'nai Brith Canada



15 Hove Street • 15 rue Hove, Toronto, Ontario M5H 4Y8
416-633-6224 • Fax: 416-630-2159 • Email: bnb@bnaibrith.ca • www.bnaibrith.ca



March 1, 2019

Adam Patone
St Patrick Development Foundation
6767 Cote St-Luc Road
Cote St-Luc, Quebec

Dear Mayor Mitchell Brownstein:

I am writing on behalf of the St Patrick Development Foundation and our building famously known as St Patrick Square. We strongly support the City of Côte Saint-Luc's Smart Cities Challenge proposal, The VILLAGE Initiative, aimed at improving the safety, well-being, and social connectedness of seniors in our community and across Canada using data and connected technologies.

Here at the Square, we are committed to providing a safe high-quality, community environment aimed at independent seniors who are looking for a home. We have 252 apartments filled with seniors, all of which are proudly live here at the Square. Our long and rich history is a testament to the quality of our mission, and the involvement of our tenants. Our residents are as unique as they are active. Most of our residents are at least occasional, if not active, users of the City of Côte Saint-Luc's many services and facilities. Therefore, we the administrators are excited at the prospect of furthering our residents' connections to the City while enabling our residents to age effectively in a place they love. We have active volunteers who have installed a variety of smart products in their homes to be used in the development of information for this pilot project. We are currently looking to contribute as much information as we can to help the city in its mission to implement a connected framework, leveraging smart devices and related technologies. This will empower seniors to live more safely, independently, and longer in their homes, be better connected to their communities and city services, and be more socially engaged, improving overall well-being and quality of life for older adults, and reducing stress on families and caregivers, the healthcare system, and long-term care facilities.

We will support the advancement of Côte Saint-Luc's Smart Cities Challenge project through whatever means are available to us and look forward to growing and strengthening our long-lasting partnership with the City.

Sincerely,

Adam Patone
Director of Administration
St-Patrick Development Foundation
6767 Cote St-Luc Road
Cote St-Luc, Quebec H4V 2Z6

ST. PATRICK DEVELOPMENT FOUNDATION
6767 Cote St. Luc Road | Suite 1 | Cote St. Luc, Quebec | H4V 2Z6
t 514-481-9609 | f 514-481-0350 | e info@spsquare.ca



Bureau du maire

Arrondissement de L'Île-Bizard—Sainte-Geneviève

350, montée de l'Église
Île-Bizard (Québec) H9C 1G9

Le 27 février 2019

M. Mitchell Brownstein
Maire de Côte-Saint-Luc
5801, boul. Cavendish
Côte-Saint-Luc (Québec) H4W 3C3

Objet : Lettre de soutien Défi Ville Intelligente

À titre de maire de l'arrondissement de L'Île-Bizard—Sainte-Geneviève à Montréal, il me fait plaisir de signifier notre appui à la Ville de Côte Saint-Luc, dans le cadre du Défi Ville Intelligente. Le projet ``The VILLAGE initiative`` constitue un exemple inspirant d'engagement à l'égard de nos citoyens vieillissants afin de leur assurer des milieux de vie toujours plus sécuritaires, sains et branchés à la collectivité et ce pour le bien-être de tous.

La démarche de la Ville de Côte Saint-Luc témoigne de l'importance du leadership exercé par des décideurs du milieu municipal afin de favoriser l'amélioration de la santé de la population. À titre informatif, plus de 60% des déterminants de santé et de bien-être relèvent de la qualité de l'environnement social et économique et de l'environnement physique des individus. L'implication des gouvernements de proximité peut contribuer à générer des impacts positifs sur ces déterminants. Ainsi, ils se doivent d'articuler leur vision et d'aligner leurs actions afin de contribuer à la santé collective.

À l'instar de la Ville de Côte Saint-Luc, l'arrondissement de L'Île-Bizard—Sainte-Geneviève a aussi engagé son leadership dans une réflexion similaire visant l'amélioration de la santé populationnelle. La mairie réunit actuellement des parties prenantes dans un mandat de mise en commun d'expérience et d'expertise du milieu. Cette approche contribuera à l'émergence de l'intelligence collective au bénéfice de la santé de sa communauté de personnes âgées.

Dans l'éventualité d'une victoire de la Ville de Côte Saint-Luc, notre arrondissement ainsi que nos groupes de travail, seraient honorés de pouvoir collaborer avec celle-ci à d'éventuelles plateformes de transférabilité de savoir-faire technologique.

L'arrondissement de L'Île-Bizard—Sainte-Geneviève serait en effet capable d'offrir à la Ville de Côte Saint-Luc un milieu dont la maturité citoyenne et communautaire pourrait faciliter les échanges pouvant éventuellement mener à l'adaptation, au transfert et à l'accueil du projet VILLAGE.

1. En comprenant le portrait populationnel lié au vieillissement auquel la population est toujours confrontée en dépit des ressources existantes.

2. En articulant les travaux d'un comité santé L'Île-Bizard—Sainte-Geneviève, en partenariat avec le réseau communautaire, municipal, de la santé, scolaire, sécurité publique et autres.
3. En contribuant à une réflexion collective de concert avec les partenaires, afin de comprendre les besoins, les risques et les opportunités en lien avec le vieillissement de la population.
4. En se donnant des orientations ayant comme objectif de favoriser la qualité de vie de la population, dans un contexte de rôle complémentaire.

Ainsi, ensemble et dans l'esprit d'un leadership municipal, nous pourrions agir comme catalyseurs de la vision portée par Infrastructure Canada dans son objectif de soutien aux collectivités et vers un futur où tous les canadiens pourront vivre au sein de ``Villes Intelligentes``.

En réitérant tout notre soutien à l'égard de la Ville de Côte Saint-Luc, veuillez accepter nos meilleures salutations.



Normand Marinacci LL. L.
Maire d'arrondissement
L'Île-Bizard—Sainte-Geneviève

APPENDIX C INFORMATION AND CONSENT FORMS

Centre intégré
universitaire de santé
et de services sociaux
du Centre-Sud-
de-l'Île-de-Montréal



Comité d'éthique de la recherche vieillissement-neuroimagerie

Centre intégré
universitaire de santé
et de services sociaux
de l'Estrie – Centre
hospitalier universitaire
de Sherbrooke



Centre intégré
universitaire de santé
et de services sociaux
du Centre-Ouest-
de-l'Île-de-Montréal



Information and consent form

- Title of the research project :** Home care for vulnerable older adults: co-design and deployment of technology solutions in a living laboratory.
- Investigator in charge of the project:** Nathalie Bier, Ph. D., Centre de recherche de l'IUGM.
- Co-investigator:**
- Patricia Belchior, Ph. D., Centre de recherche de l'IUGM, Université McGill
- Research coordinator :**
- Maxime Lussier, Ph. D., Centre de recherche de l'IUGM, Université de Montréal
- Funding organizations:**
- Canadian Institut of Health Research
 - Natural sciences and Engineering Research Council of Canada
- Participating institutions:**
- CIUSSS Centre-Sud-de-l'Île-de-Montréal.

1. Introduction

We are inviting you to participate in a research project. However, before accepting to participate in this project and signing this information and consent form, please take time to read, understand and consider carefully the following information.

This form may contain words that you do not understand. We are inviting you to ask the principal investigator in charge of the project or any members of the research project staff, any questions you feel are useful for you and ask them to explain any word or information that is not clear.

2. Nature and purpose of the research project

The aim of this project is to develop and implement technologies to support the participation in activities of daily living and aging in place of older adults with a loss of autonomy.

New technologies refer to any device that can receive and share information with a computer; for example, a smartphone, an electronic tablet or a motion detector. More specifically, the aim of this project is to:

- 1) Identify what can support or impair day-to-day activities of older adults who are having difficulties living at home;
- 2) Identify existing technologies and new technologies that can be developed to support these activities;
- 3) Identify the perceptions about technology of all stakeholders involved in home care, i.e. managers, professional caregivers, caregivers and seniors themselves.
- 4) Document stakeholders' interest in the technology the willingness to accept it in their home or work environment;
- 5) Evaluate whether existing technologies, installed in the home, can help support the performance of certain daily living activities in older adults living at home.

For the realization of this research project, we intend to recruit about 300 participants, men and women, aged 21 and over. More specifically, we plan to recruit managers, program managers, professional caregivers, seniors and their immediate caregivers that receive services from the CIUSSS or home support from other organizations or entities.

3. Implementation of the research project

3.1 Nature of the older adults' engagement.

□ 3.1.1 Focus Groups

This part of the research project consists of focus groups with older adults who wish to share their perspectives on the needs of seniors for home care. This will allow us to better understand the needs and to see if technologies can support these needs (objectives 1 to 4). The participation consists of a meeting in small group or in an interview, of about 1h30, in your choice of location. There will be an audio recording of the focus group to allow the transcription of the discussion and facilitate the analysis of the data.

□ 3.1.2 Deployment of technologies

This research project will take place at your home, over a total period of approximately 12 to 18 months. Your participation will consist of:

- Two to four sessions during which you will take quizzes and tests on your memory, your attention and how you perform your activities of daily living;
- An hour-long interview, with or without your caregiver, during which we will ask you questions about how you perceive your functioning at home, what helps you and what can be difficult for you. We will also ask your opinion on the usefulness of some existing technologies that could help you in your daily life.
- Another one-hour session will then be held to take tests and quizzes about your day-to-day functioning before installing technologies at your home. Note that a Videotron installer will install an internet connection that will only be used for the purposes of the research project, in the presence of a member of the research team. This installation will be free and you will not pay a subscription fee. At the end of the project, if the technology stays in your home, you will not pay any fees either. If the technology needs to be removed, the internet connection will be uninstalled.
- We will install technologies free of charge in your home with your agreement and will come once or twice a week to show you how they work and to help you understand their use.

We could come from 5 to 20 times, depending on your needs. These technologies will depend on your specific needs identified during the interviews, but could include:

- a diary to help you remember your appointments and your medication;
- motion detectors installed on the walls that can alert a professional caregiver if you ever have a problem, etc.

During one of these meetings, we will do another test session to determine your ability to carry out your activities. An assistant could also come to your home or call you in case of malfunction of the technology;

- Finally, you will participate in another interview and another test session about 1 month after the installation of the technologies at your home, and then every 3 months until about 18 months after the installation of the technologies, for a total of about 7 meetings.

The sessions will be recorded in audiovisual form, to allow the transcription of the exchanges and facilitate the analysis of the data. Photos of your apartment will also be taken to plan the installation of sensors with the research team.

In addition, we will need access to your medical file to obtain information about your past and present health.

3.2 Caregivers' involvement

□ 3.2.1 Focus Groups

This part of the research project consists of focus groups with caregivers who want to share their daily life with their loved ones. This will allow us to better understand the need for home support services and to see if the technologies can support these needs (Objectives 1 to 4). The participation consists of a meeting in small group or in an interview, about 1h30, in the location of your choice. The session will be audio recorded, to allow the transcription of the exchanges and facilitate the analysis of the data.

3.2.2 Deployment of technologies

This research project will take place at your relative's home, for a total period of approximately 18 to 24 months. Your participation will consist of:

- An hour-long interview, with or without your loved one, during which we will ask you questions about how you perceive your loved one's functioning at home, what helps him or her and what can be difficult to him / her. We will also present some existing technologies that could help your loved one in his daily life to have your opinion on their usefulness.
- We will install technology free of charge in your loved one's home, as well as a free internet connection that will only be used for the research project, and will come once or twice a week to show how they work. We will meet you during one of these sessions to show you their use. These technologies will depend on the needs identified during the interviews, but could include:
 - ☐ a diary to help remember appointments and taking medication;
 - ☐ motion detectors installed on the walls that can alert a professional caregiver if your loved one has a problem, etc.

During this time, you may have to go to your relative's home if there are any changes in technology, malfunctions, or alerts. However, we cannot predict the number of trips;

- Lastly, you will participate in a maximum of 7 other interviews, one during the technology installation period and another interview about 1 month after the installation of the technologies in your loved one's home, then all three. months to a maximum of 18 months.

The sessions will be recorded in audiovisual form, to allow the transcription of the exchanges and facilitate the analysis of the data.

3.3 Access to technology and long-term project realization.

In the event that we demonstrate that the technologies used in this research project can help you and your caregiver in your daily life, you may be able to keep these technologies at home after the end of the project, as well as the internet connection, linked to the project. However, this decision will be made in consultation with everyone involved in the project.

In the event that the technology remains installed in your home, the research team or one of its representatives may contact you (eg every three months) to continue the evaluation of these technologies via the same questionnaires and interviews presented above, as long as you live in your home.

3.4 Use of audiovisual recordings

The primary goal of audiovisual recordings is to allow us to review the sessions in order to better analyze the different data.

In addition, with your consent, these audio-visual recordings could be used for study purposes, teaching, research or scientific conferences. Your face will be visible on audiovisual recordings, but it will never be associated with your name.

Do you accept that your audiovisual recordings are used for study purposes, teaching, research or scientific conferences? ☐ Yes ☐ No

4. Incidental finding

Although they are not subject to a formal medical assessment, the results of any tests, exams, and procedures that you will have to do during your participation in this project may reveal problems that were not previously known; this is what is called an incidental finding. That is why, in the presence of a particular feature, the principal investigator in charge of the project will provide a follow up by calling you or by notifying the professional or organization that follows you in order for them to ensure a follow-up.

5. Benefits associated with the research project

You may derive a personal benefit from your participation in this research project but we cannot assure it.

Information and consent form approved on November 6, 2018 by the Comité d'éthique de la recherche vieillissement-neuroimagerie. CER VN 17-18 – 10 – participant of legal age - version : November 6, 2018.

Page 3 of 6

Moreover, the results obtained will contribute to the advancement of scientific knowledge in this field.

6. Disadvantages associated with the research project

In addition to the time spent participating in this research project and traveling, there are no disadvantages to participating in this research project.

7. Voluntary participation and possibility to withdraw

Your participation in this research project is voluntary. You are therefore free to refuse to participate. You can also withdraw from the project at any time, without having to give any reasons, by informing the investigator in charge of the project or a member of his research staff.

The investigator in charge of the research project, the Comité d'éthique de la recherche vieillissement-neuroimagerie or the funding organization may end your participation, without your consent, if new discoveries or information indicate that your participation in the project is no longer in your best interest, if you do not follow the instructions of the research project or if the project is abandoned for administrative reasons.

If you withdraw or if you are withdrawn from the project, the information and the material already obtained as part of this project will be retained for as long as necessary to ensure to meet the regulatory requirements.

Any new knowledge acquired during the course of the project that may affect your decision to continue to participate in the study will immediately be communicated to you.

8. Confidentiality

During your participation in this research project, the investigator in charge and his research staff will collect your information in a research file. Only the information necessary to meet the scientific objectives of this project will be collected.

This information may include information contained in your medical records regarding your past and present health, lifestyle, and the results of any tests, examinations and procedures that will be performed. Your file may also include other information such as your name, gender, date of birth and ethnicity.

All information collected will remain confidential within the limits set by law. In order to preserve your identity and the confidentiality of this information, you will be identified only by a code number. The code key linking your name to your research file will be retained by the investigator in charge.

The investigator in charge of this project will use the data for research purposes in order to meet the scientific objectives of the project described in the Informed Consent Form.

The research data may be shared with other researchers. This transfer of information means that your research data may be passed on to countries other than Canada. However, in all countries, the investigator in charge of the research project will observe the confidentiality rules in force in Quebec and Canada.

Moreover, your personal information, such as your name and your contact information, will be kept on file by the investigator in charge and his research for 5 years after the end of the project. After this time, the information will be destroyed.

For purposes of monitoring and control, your research file and your medical records may be consulted by a person authorized by the Comité d'éthique de la recherche vieillissement-neuroimagerie or by a person appointed by authorized public bodies. All these individuals and organizations adhere to a confidentiality policy.

You have the right to access your research file in order to check the information collected and to correct it if necessary, for as long as the investigator in charge of this project holds such information.

9. Secondary use of your research data.

Do you consent to have your research data used by the principal investigator in other research projects, on topics including the neuroscience of aging, or to promote general health and healthcare?

Any such future research projects will be evaluated and approved by the Comité d'éthique de la recherche

vieillessement-neuroimagerie before they can be carried out. Your research data will be kept safely in the secured servers of the IUGM Research Centre. To protect your identity and privacy of your research data, you would only be identified by a code number.

Your research data will be preserved as long as they may have potential use to advance scientific knowledge. When they are no longer useful, your research data will be destroyed. Moreover, you may request the no utilization of your research data at any time by contacting the principal investigator of this research project.

Do you accept the use of your research data under these conditions? ☐ Yes ☐ No

10. Participation in future studies

Do you agree to allow the principal investigator or a member from the research project team to call you to invite you to participate in a future research project? Of course, if ever you are invited to participate in a new research project, you will be free to accept or decline the proposal. ☐ Yes ☐ No

11. Possibility of marketing

The research results stemming from your participation could lead to the creation of commercial products. However, you will not receive any financial benefit from such activities.

12. Funding of the research project

The Investigator in charge of this study has received funding from funding organization to successfully complete this research project.

13. Compensation for harm

Should you suffer any injury whatsoever due to your participation in the research project, you will receive all of the care and services required by your health condition.

By agreeing to participate in this project, you do not waive any of your rights and you do not release the investigator in charge of this study, nor the funding organization and the hospital from their civil and professional liability.

14. Procedures in cases of medical emergency

Please note that this research project does not replace emergency health services or other health and social services. In addition, this research project and the researchers who lead it are not part of an acute care hospital center that provides emergency services and relies on the presence of a local health professional, all the time. Thus, the researchers in this research project cannot ensure the safety of the participants 24 hours a day. In case of an emergency, you must use the medical services according to the usual procedures.

15. Identification of contact persons

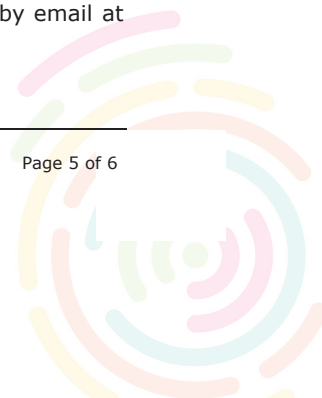
If you have questions about the research project or if you have any problem that you believe is connected to your participation in this research project, you can contact the principal investigator of the research project, Nathalie Bier, at 514.343.6564.

For any questions about your rights as a subject participating in this research project or if you wish to make any complaints or comments, you can contact the quality and complaints commissioner of the the service quality and complaints commissioner of the CIUSSS Centre-Sud-de-l'Île-de-Montréal at 514.593.3600.

16. Monitoring ethical aspects of the research project

The Comité d'éthique de la recherche vieillissement-neuroimagerie has approved and will monitor the research project, for participating institutions in the réseau de la santé et des services sociaux du Québec.

For any information, you can contact the secretariat of the Committee at 514.527.9565, ext. 3223 or by email at the following address: karima.bekhiti.ccsmtl@ssss.gouv.qc.ca



Consent

Title of the research project:

Maintien à domicile des personnes âgées vulnérables : co-conception et déploiement de solutions technologiques dans le cadre d'un laboratoire vivant/ *Home care for vulnerable older adults: co-design and deployment of technology solutions in a living laboratory.*

1. Participant consent

I have read the Informed Consent Form. I acknowledge that the project has been explained to me, that my questions have been answered and that I have had the time needed to make a decision.

I agree to participate in this research project under the conditions set out in this Informed Consent Form. A signed and dated copy of this Informed Consent Form has been given to me.

I authorize the research team to access my medical file.

Signature of the participant

Date

2. Signature of the person who obtained the consent, if different from the investigator in charge of the research project.

I have explained to the research subject the terms of this Informed Consent Form and I have answered all the questions he/she asked me.

Signature of the person who obtained the consent

Date

3. Signature and commitment of the investigator in charge of the project

I hereby certify that the terms and conditions of this Informed Consent Form have been explained to the research participant, that the questions that the research participant had in this regard have been answered and that he has clearly been told that he remains free to terminate his participation, and without prejudice.

I hereby undertake, with the research team, to abide by what has been agreed in the Informed Consent Form and to give a signed copy of this form to the research participant.

Signature of the principal investigator of this research project

Date



Village Smart Cities Pilot Project — Consent to Participate

The City of Côte Saint-Luc (CSL) is a finalist in the Government of Canada's Smart Cities Challenge. The Challenge is an effort to have communities across Canada use technology in innovative ways to improve the lives of Canadians.

CSL has identified several technologies that exist or can be adapted to improve safety and peace of mind — for you and the people who care about you — and enable you to continue living independently and autonomously, for as long as possible.

CSL will be conducting a Pilot Project, starting in December 2018, to gauge how well the technologies might work to meet those goals, and is pleased that you have volunteered to participate.

TECHNOLOGY/DEVICE	PURPOSE
Smart watch	<ul style="list-style-type: none"> • Cell phone and text messaging • Cell phone, WiFi and Bluetooth communications • In-app messaging and reminders • Location tracking inside/outside the home
Pressure sensors	<ul style="list-style-type: none"> • Household routines • Fall detection/failure to get up
Temperature	<ul style="list-style-type: none"> • Household temperature • Bath/shower water temperature
Moisture sensors	<ul style="list-style-type: none"> • Water leaks • Bath water levels
Motion sensors	<ul style="list-style-type: none"> • Unusual activity/inactivity • Increased night-time activity or changes in sleeping patterns • Prolonged or late-night external door open • Reduced use of domestic appliances • Extended shower/bath time • Reduced contact (social isolation warning)
Safety lighting	<ul style="list-style-type: none"> • Nighttime illumination to reduce risk of falling
Technology hub	<ul style="list-style-type: none"> • Event/response tracking • Automated emergency contact (police, fire, EMS, vCop, relative friend)

Participating in the Village Smart Cities Pilot Project is an opportunity to help the City of Cote Saint-Luc help residents enjoy independent and safe living in their own surroundings.

I consent to participate in the Cote Saint-Luc Village Smart Cities Pilot Project and I acknowledge the following:

1. Participating in the Village Smart Cities Pilot Project is entirely voluntary	<ul style="list-style-type: none"> • I may elect at any time to withdraw from the Village Smart Cities Pilot Project. • I may turn off any device, or block any audio or visual recording.
2. All devices and services used in the Village Smart Cities Pilot Project are for demonstration and evaluation purposes only.	<ul style="list-style-type: none"> • Emergency services <u>WILL NOT</u> be contacted, even if a device issues a notice or alert. • Technologies used during the Pilot Project might not identify Medical conditions or emergencies • If an emergency occurs, it will be my responsibility to get help.

Pilot Project — Consent to Participate

I consent to participate in the Cote Saint-Luc VILLAGE Smart Cities Pilot Project and I acknowledge the following:

3. The privacy of my personal and health information collected and used in VILLAGE Smart Cities Pilot Project is governed by Quebec's privacy law — <i>An Act Respecting Access to Documents Held by Public Bodies and the Protection of Personal Information</i> .	<ul style="list-style-type: none"> The City of Cote Saint-Luc will be making its best efforts to protect the information collected during the pilot project, but unauthorized access to my personal information is a possibility.
4. Data, video and audio recording, collected by the devices used in the VILLAGE Smart Cities Pilot Project is intended to be shared with the City of Cote Saint-Luc and members of its VILLAGE Smart Cities Pilot Project team.	<p>Information collected or created from my participation in the VILLAGE Smart Cities Pilot Project (including video and audio recordings):</p> <ul style="list-style-type: none"> WILL NOT be made available to any party involved in a civil or administrative proceeding MAY BE DISCLOSED to address concerns relating to my health, safety, or welfare but is not required to be disclosed for that purpose. Selected video and audio recordings may be used for promotional purposes and may be included in video and/or hard-copy promotional material that will be part of the City's submission for the Smart Cities Challenge; and it will be viewed by the jury and the public.
5. Academic researchers involved in the VILLAGE Smart Cities Pilot Project will contact me directly.	<ul style="list-style-type: none"> Researchers who wish to collect data and information will contact me directly to request my consent to participate in their research
6. The devices used during the VILLAGE Smart Cities Pilot Project are owned by the City of Cote Saint-Luc.	<ul style="list-style-type: none"> Devices used in the VILLAGE Smart Cities Pilot Project might (or might not) be made available for purchase after the Pilot Project has ended.
7. The City of Cote Saint-Luc will be responsible for the cost of acquiring, installing, maintaining, and removing technologies used during the Pilot Project.	<ul style="list-style-type: none"> I will be responsible to reimburse the City of Cote Saint-Luc for the cost of any devices that I use during the VILLAGE Smart Cities Pilot Project that are lost or stolen.
8. The devices and technology used in the VILLAGE Smart Cities Pilot Project might be connected to the Internet.	<ul style="list-style-type: none"> Technology devices used during the Pilot Project might not operate as anticipated, and might fail. I will be responsible for the cost of telephone, Internet access, and data charges incurred by me during the Pilot Project.

I have read this consent to participate in the City of Cote Saint-Luc VILLAGE Smart Cities Pilot Project. I understand the risks and benefits of the Project. Any concerns and questions I had about the Project have been addressed in an understandable manner.

I, _____, consent to participate in the City of Cote Saint-Luc VILLAGE Smart Cities Pilot Project under the conditions outlined above.

Signature: _____ Date: _____

Dear <insert name>

The City of Cote Saint Luc is working with a research team from the Geriatric Institute of Montréal in order to implement a Pilot Project as part of the Smart Cities Challenge. Two members of this team will come to your home on <Insert Date>. **Maxime** will be responsible for the installation of the sensors that compose the smart environment that is currently being developed. **Aline** will be there to 1) explain how the technology works, 2) ask you some questions about your routine, and 3) answer your questions. This visit should last around 2h30m.

Before the visit

Before the visit, we need you to have **your Wi-Fi network name** and **password** to connect the technology we are installing to our servers. Be reassured, this technology requires very little internet bandwidth and will not slow down your internet.

During our visit

Everything will be explained in detail during the visit, but here is a quick overview of what is going to happen.

First, we will install a small box like this one? and connect it to your modem/router. When we are finished, this box can remain discretely tucked behind furniture. **It is very important that you leave it where it is and please do not unplug it.**



Second, we will install **motion** sensors in most of the rooms of your home. These sensors detect if there is a person in the room, and also the temperature and luminosity of a room.

Third, we will install **contact** sensors several doors (e.g., entrance door, refrigerator door, drawer of clothing, food cabinets, etc.). These sensors detect if a door is closed or open.

Fourth, we will install a few **electric** sensors on some appliances (microwave, coffeemaker, television, etc.). These sensors detect the electrical consumption of the appliances.

Finally, in some instance, we will install **water** sensors in the sink or the bath. These sensors detect if they are wet or not.

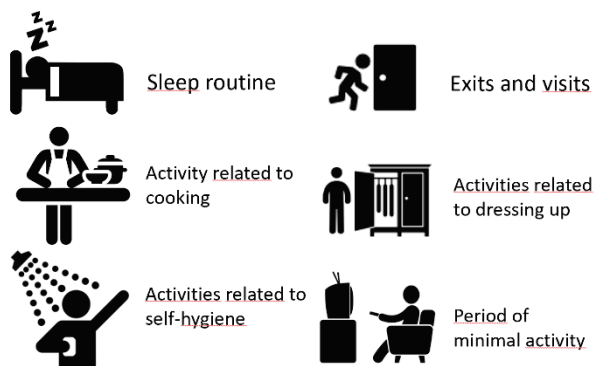
We will try to make the sensor as non-invasive and as subtle as possible. The sensors work on batteries, so we do not need to run wires thorough



your home. Also, be reassured that no image or sound is recorded by the technology, simply the state of the sensors.

What do sensors do?

The sensors allow the system to understand where you are in your home and whether you are doing any basic activity of daily living such as sleeping, cooking, answering the door, etc. Simply, put, the system aims at better understanding your daily routine.



Why are we interested in this information?

The system is still in development but knowing the routine of people living alone can lead to important outcomes. First, health practitioners can have a better idea of your health simply by knowing how regularly you eat, sleep, go out, etc. But even more interesting is to know how these habits change over time. Do you wake up more often or earlier? Do you go out less or cook less? In the present project, this information will not be shared with any medical staff, but you are helping us perfect this technology so that it can be a new tool for health practitioners in the future.

Second, we also wish for the system to be able to send alerts in case of a dangerous situation, for example if a person has not moved in a room for several hours or if an oven burner has been working without supervision for several minutes. This may help to promote independent living in a secure environment. Again, during this pilot project, nobody will receive an alert with the system you currently have, but you are helping us develop such a technology.

Finally, we will want to know more about your experience cohabiting with the technology.

What's next?

Following this first visit, another member from our research team, **Hubert**, will schedule a visit with you to install the second half of the technology we are using for this project: the Alexa interactive virtual assistant. Further details will follow. Occasionally, we might also come back to change batteries or recalibrate a sensor. We will always contact you before doing so to schedule a convenient time.

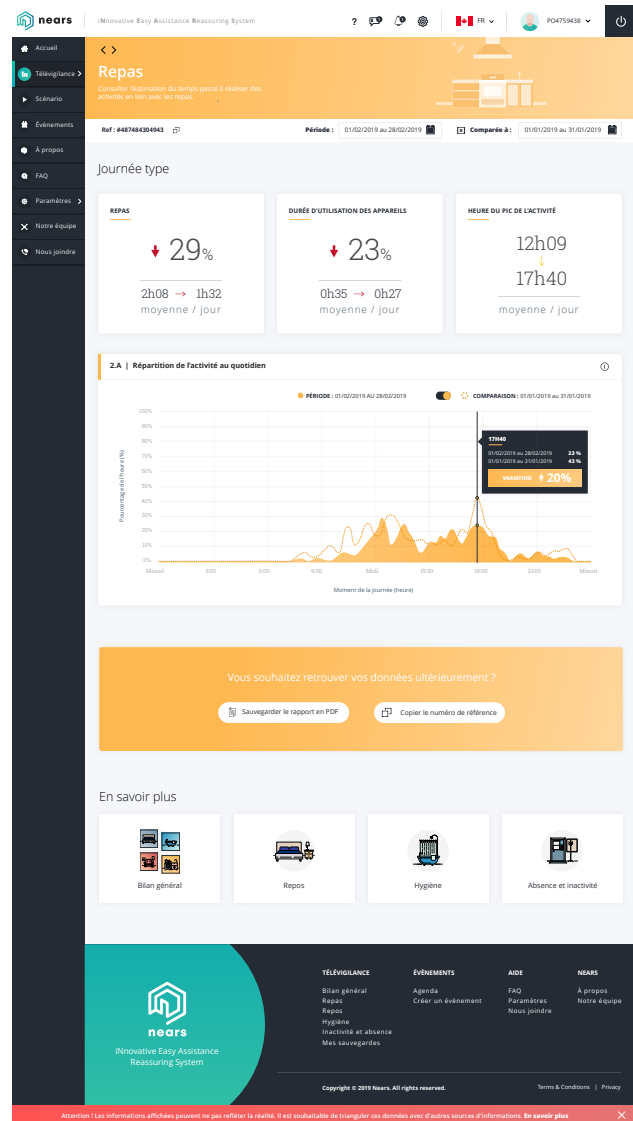
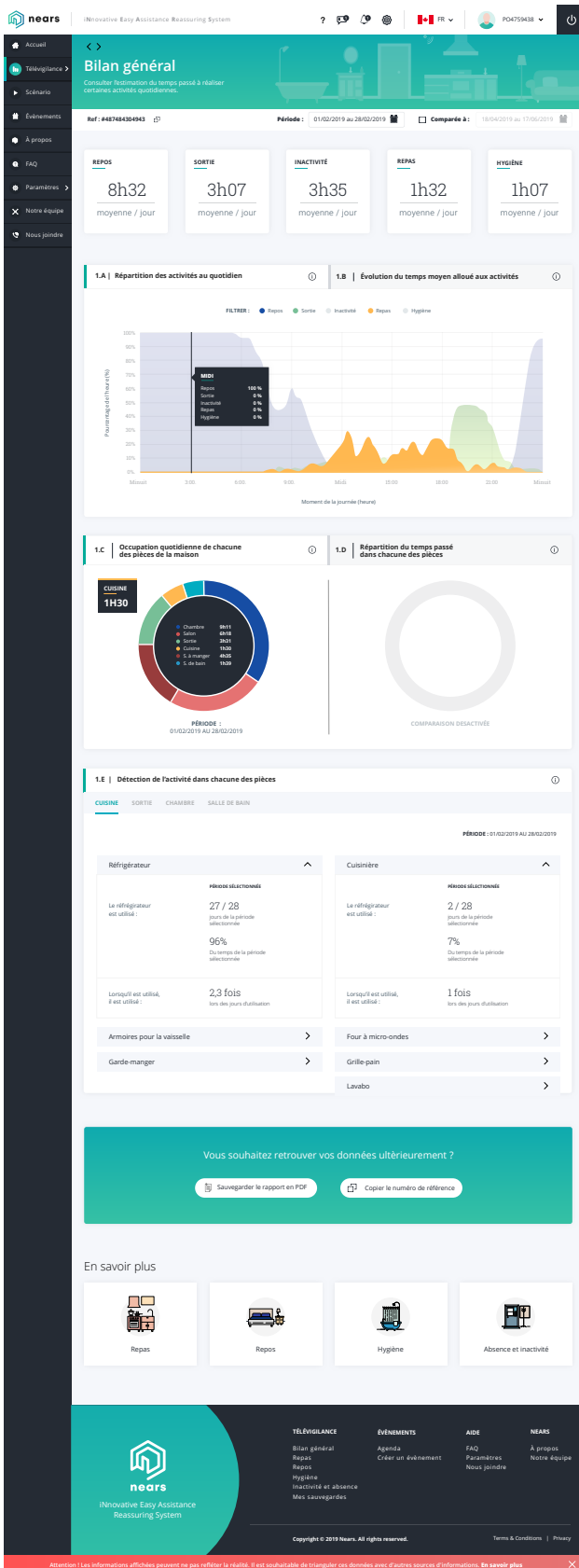
Contact information

If you are experiencing any trouble with the technology, if you have any questions regarding the Cote Saint Luc Smart Cities Challenge or this pilot project please contact Erica Botner at ebotner@cotesaintluc.org or 514-452-6472.

Thank you for your participation!!

APPENDIX D

EXAMPLE OF REPORT FROM PILOT PROJECT



APPENDIX E TRANSCRIPT AND TEXTUAL DESCRIPTION OF FINAL VIDEO

Text on screen: The City of Côte Saint-Luc presents

Image on screen: 1960s home movie showing grandfather, family gathering

Mayor Mitchell Brownstein, Côte Saint-Luc: You know, my grandfather always told me that he grew up in a small village. And in that small village, his job was to take the hot cooked meal that his mom made and bring it to his grandfather.

Text on screen: Our vision for the Smart Cities Challenge

Image on screen: 1960s home movie showing grandfather, family gathering

Mayor Mitchell Brownstein, Côte Saint-Luc: They were taken care of by their children and grandchildren, living in three generational homes. That's something that we lost. And the Smart Cities Challenge basically is to bring that back from technology.

Text on screen: The VILLAGE Initiative

Image on screen: Modern image of a street in Côte Saint-Luc

Tanya Abramovitch, Côte Saint-Luc City Manager: When we speak to the residents about this project they are really, really excited.

Image on screen: Image of large banquet hall with 100+ people around round tables.

Tanya Abramovitch, Côte Saint-Luc City Manager: We did a public consultation and we asked them to draw their Care Map.

Image on screen: Images of hand-drawn stick figures on white paper

Tanya Abramovitch, Côte Saint-Luc City Manager: Basically, you draw yourself in the middle and put who in your entourage will come and help you if there something wrong. Who will know if something happens to you? And some of them had grandkids, kids, friends, and all sorts of people.

Image on screen: Image of hand-drawn stick-figure image of people all alone

Tanya Abramovitch, Côte Saint-Luc City Manager: And then there's one in particular that I remember, there was little stick figure and a sad face and a big tear and it said Nobody. And yet this person still had enough hope and trust to come to a consultation because they believe that something can change for them. And this is why we are going this.

Words and image on screen: City Hall, Côte Saint-Luc

Mayor Mitchell Brownstein, Côte Saint-Luc: Côte Saint-Luc is the greatest place in the world to live, I believe.

Image on screen: Video from 1960s and 1970s of crowd of people gathered in park plaza, high school football practice with school in background, man and woman joggers run by, smile, and wave to the camera. Parents and children go by in wagon at winter festival in park.

Tanya Abramovitch, Côte Saint-Luc City Manager: There's a personal touch, there's a community touch.

Image on screen: Side of EMS first responder vehicle

Mayor Mitchell Brownstein, Côte Saint-Luc: We have over 500 volunteers that help in so many of our different programs. Which makes our city unique and great.

Image on screen: Mothers and toddlers at a city program

Mayor Mitchell Brownstein, Côte Saint-Luc: In Côte Saint-Luc, 30 percent of the population is seniors.

Tanya Abramovitch, Côte Saint-Luc City Manager: Where the rest of Canada is going, we have been for decades.

Image on screen: City bus pulling away from stop

Dida Berku, City Councillor: We are now the living lab for the future.

Image on screen: Mail truck drives by. City street sign.

Mayor Mitchell Brownstein, Côte Saint-Luc: And, so what we do here in Cote Saint-Luc will help all cities throughout the country.

Image on screen: Outdoor pool. Swimmers swimming laps. Books on library shelves.

Dida Berku, City Councillor: The city is in the business of delivering service. We do it well but it's not enough.

Tanya Abramovitch, Côte Saint-Luc City Manager: The society that we live in is not designed for seniors.

Dida Berku, City Councillor: And that became our challenge.

Image on screen: Duplex

Marc Chriqui, Project Director, The VILLAGE Initiative: We will implement a connected framework that will enable seniors to live more independently in their homes and communities such as motion sensors, a fall detection device, our connected mobile app, and more.

Text on screen: Université de Montréal Research Lab, Montréal, QC

Image and text on screen: An apartment living room. A kitchen with overlap text labels: Connected home: Smart Home Automation, Voice Assistance, Passive Devices, Sim-

ple Touch Interfaces, Connected VILLAGE Apps.

Text and image on screen: Air Quality, Motion Detection, Heat Detection, Smart Stove, Door Sensor, Touch interface

Words and image on screen: Water Detection

Marc Chriqui, Project Director, The VILLAGE Initiative: Say you live alone. You may only have limited resources for help. The connected VILLAGE allows you to access resources when you need them.

Text and image on screen: Increased Connectedness Though The VILLAGE App

Image on screen: Person at centre of Care Map. Landline phone: 911 and daughter, Home Device: Voice Assistance

Marc Chriqui, Project Director, The VILLAGE Initiative: Imagine getting out of bed at night and having the lights turn on automatically, reducing your risk of injury.

Image on screen: Woman walking in a dark room and a strip of LED lights along the bottom of the wall goes.

Text on screen: Automated lighting

Marc Chriqui, Project Director, The VILLAGE Initiative: What if you're walking outside and happen to fall? A simple wearable could monitor the situation and trigger an alert to city services, or even better to someone who might be physically closest to you in the moment and can respond to you quickly.

Image on screen: Smart Watch

Text on screen: **Wearables:** Fall Detection, Voice Assistance, SOS Button, GPS Positioning, Vitals Monitoring.

Image on screen: Person at centre of Care Map. Landline phone: Friend, 911 and daughter. Home Device: Voice Assistance, Wearable: SOS Button, Vitals Monitoring, Fall Detection

Marc Chriqui, Project Director, The VILLAGE Initiative: Or perhaps you left the stove on.

Text and image on screen: Smart Stove

Text and image on screen: Hot Element Alert

Marc Chriqui, Project Director, The VILLAGE Initiative: A level of response could be anything from a device that automatically shuts it off, to a call to check in on the situation making sure that you and the residents around you are safe and sound.

Image on screen: Person at centre of Care Map. Increased Connectedness Though The VILLAGE App. Wearable: SOS Button, Vitals Monitoring, Fall Detection; Home Device: Voice Assistance, Superintendent, Passive Monitoring, Alerts, vCOP; Mobile Phone: Neighbour, Grandchild, Transport, Caregiver, VILLAGE App; Landline Phone: Friend, 911, Daughter]

Marc Chriqui, Project Director, The VILLAGE Initiative: The

connected VILLAGE could also help you with your social engagement. You could receive reminders of upcoming activities at the library or local theatre. And even arrange for a lift. All of this could be made part of your personalized plan in the Connected VILLAGE.

Image on screen: Senior lady waving at her daughter via video conferencing app. Person at centre of Care Map: Increased Connectedness Though The VILLAGE App.

Image on screen: Smart watch

Text on screen wearable: SOS Button, Vitals Monitoring, Fall Detection; Home Device: Voice Assistance, Superintendent, Passive Monitoring, Alerts, vCOP; Mobile Phone: Neighbour, Grandchild, Transport, Caregiver, VILLAGE App; Landline Phone: Friend, 911, Daughter]

Dida Berku, City Councillor: There are opportunities to save people here who are healthy, who just have one moment of inattention.

Image on screen: Researcher in white lab coat speaks to group at the smart apartment lab

Nathalie Bier, Associate Professor, Université de Montréal, Institut Universitaire de gériatrie de Montréal: Technology could play the role of a good neighbor. Someone who is there in support, without being intrusive.

Dida Berku, City Councillor: And connect our seniors to the social services, the medical services.

Image on screen: Man talks to two volunteer patrollers. Patroller van drives by. EMS first responder closes door to back of truck. Man sitting on couch speaking to his tablet.

Marc Chriqui, Project Director, The VILLAGE Initiative: Seniors want data from technology to be used properly and according to their wishes.

Image on screen: Outside the Université de Montréal, Institut Universitaire de gériatrie de Montréal building

Nathalie Bier, Associate Professor, Université de Montréal, Institut Universitaire de gériatrie de Montréal: The city has a responsibility to protect its senior residents. It has an established credibility with its population that allows it to put in place this innovative project, while maintaining the confidence of its citizens.

Image on screen: Outside of the Jewish General Hospital in Montreal.

Dr. Lawrence Rosenberg, President and CEO, Integrated Health and Social Services University Network for West-Central Montreal: With the Smart Cities project we will be able to keep patients at home. Keep them in a healthy, secure environment. Keep them out of the hospital if they don't need to be here.

Dida Berku, City Councillor: We have to adapt to those seniors who want to have the confidence that they can stay in their homes and still feel comfortable and safe.

Image on screen: Hands typing on keyboard. Man looking at computer screen. Man with cane walk in his apartment. Man speaks with senior around a table.

Words on screen: Our Pilot Project

Adi, Pilot Project participant: I prefer living at home. I tried out one of the residences. I didn't love it, so I came back home.

Herbert, Pilot project participant: The future is technology. I would like to see that. I'm counting the days.

Walter, Pilot project participant: Today, you know, we can start to do something to make everybody's life better.

Adi, Pilot project participant: I think, anything you can help, any little thing is so appreciative.

Marc Chiqui, Project Director, The VILLAGE Initiative: There are situations where people might not need these solutions today, but they will need them tomorrow.

Image on screen: Single family homes. High-side apartment buildings. Low-rise apartment buildings.

Dr. Lawrence Rosenberg, President and CEO, Integrated Health and Social Services University Network for West-Central Montreal: I think the City of Côte Saint-Luc's and our vision of moving care to wherever the patient happens to be are totally aligned,

Nathalie Bier, Associate Professor, Université de Montréal, Institut Universitaire de gériatrie de Montréal: We'll be able to tell the story of Côte Saint-Luc's project in a way that would allow the initiative to be replicated.

Image on screen: Montage of seniors speaking at public consultation meeting

Tanya Abramovitch, Côte Saint-Luc City Manager: Nobody should ever have Nobody written at the top of their care map.

Image on screen: People in peddle boats on lake. Crowd at Canada Day festivities in park.

[Image on screen: Mayor Mitchell Brownstein talking]

Mayor Mitchell Brownstein, Côte Saint-Luc: We're the perfect place to implement this technology, to ensure safety, good health, connection to community, through the Smart Cities Challenge.

Image on screen: End of old film reel

Text on screen: Logo of The VILLAGE Initiative: The Future of Aging in the Community. Logos of City of Côte Saint-Luc, Smart Cities Challenge, Government of Canada

