



AgeTech Discussions: Exploring Perspectives on Technology

Ibex Lift | Report
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The authors of this report as noted above have no conflicts of interest to declare.

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Executive Summary

Canada's population is aging faster than ever before and this has many implications in terms of healthcare, social services, and the economy. In response, AgeTech, or Age Technology, a subset of the health technology industry, has emerged in recent years and uses technology to support healthy aging by enhancing and adapting alternative care approaches. Yet, for many older adults, especially those living in northern and rural communities, there exists a disconnect preventing emerging AgeTech from getting to those that need it the most. The Centre for Technology Adoption for Aging in the North (CTAAN) focuses on bridging that technology adoption gap by testing, piloting, adapting, and implementing new and existing technology solutions tailored to address the challenges experienced by older adults and care partners in northern and rural communities in British Columbia. One of CTAANs' key service is AgeTech Discussions: Exploring Perspectives on Technology, heretofore referred to as ADEPT. The ADEPT workshops focus on emerging AgeTech to describe the applicability, usability, and feasibility of a featured AgeTech from end users' perspectives in northern and rural BC.

This report shares the findings from ADEPT Workshops featuring the Ibex Lift. Data collection occurred over four workshops with a total of 13 participants. Each workshop included pre- and post-workshop surveys, a demonstration of the Ibex Lift, question and answer period with Axtion Independence Mobility Inc., and a facilitated discussion period where participants discussed the feasibility, usability, and accessibility of the Ibex Lift in northern and rural British Columbia health and community care settings.

Data collected from the workshops were analysed and five themes arose which are described in this report. These themes include: 1) Empowering independence and meaningful inclusion; 2) A valued resource to support persons across the continuum of care; 3) Novel design underpins extensive functionality; 4) Examining the utility of the Ibex Lift for a northern, rural, and remote lifestyle; and 5) Clarifying the usability, functionality, and sustainability of the Ibex Lift. Theme 1 describes how the Ibex Lift can empower older adults to continue to live independently and facilitate more meaningful engagement with others. Theme 2 discusses how the functionality of the Ibex Lift can support care in various healthcare and community settings. Theme 3 details how the innovative design of the Ibex Lift lays foundation for the wide range of supportive capabilities. Theme 4 explores the fit of the Ibex Lift in northern, rural, and remote BC communities. Theme 5 delves into the end-user requirements to use the Ibex Lift, and operational considerations.

Altogether the findings of this report demonstrate the potential for an innovative multi-function mobility device to transform the quality of life and overall well-being of older adults. Through its intelligent and thoughtful design, the Ibex Lift can support older adult independence and inclusion day-to-day in a range of environments, including in-home, the community, and health care facilities, while also assisting in ambulation and fall prevention. With the promise of a modernized mobility/fall recovery aide, there are opportunities to optimize usability for winter climates and challenging terrain, and provide clearer user requirements and instructions, that would augment appeal in northern, rural, and remote BC.



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Background

Falls are the leading cause of injury for older adults, with 20-30% of aging Canadians experiencing one or more falls per year¹. Falls may result in emergency department visits, hospitalization, and/or injury-related death, and can have lasting impacts on an individual, including chronic pain, reduced mobility, and loss of independence. With half of all older adult falls that lead to hospitalization happening in the home² – this increased risk of falling can curtail an individual's ability to age in place, especially in northern and rural communities when personal and community supports are no longer able to provide a sufficient level of care. Consequently, over one third of individuals entering long-term care are admitted after a hospitalization for a fall³. Fall prevention strategies are crucial for aging Canadians to maintain their independence and well-being.

In recent years, innovative solutions and technologies have begun to emerge from the AgeTech sector. AgeTech, or Age Technology, a subset of the health technology industry, uses technology to support healthy aging and to support care partners and health professionals to improve the quality of life for aging adults. By enhancing and adapting alternative care approaches through emerging technologies, it may be possible to enable and extend the ability for older adults to safely age in place within their own homes, improve long-term care facility experiences, and/or decrease overall care costs/needs.

The Centre for Technology Adoption for Aging in the North (CTAAN) supports aging in northern and rural communities by making Age Technologies more available to older adults, care partners, and the healthcare systems that support them. CTAAN's programs focus on testing, piloting, adapting, and implementing new and existing technology solutions tailored to address the challenges experienced by older adults and care partners in northern and rural communities.

CTAAN is built on a partnership with UNBC, the Northern Health Authority, and AGE-WELL. CTAAN has an extensive network of partners and "Living Lab" sites that allow for evaluation, testing, and validation in real-world settings. CTAAN leads testing, research projects, and evaluation to validate the technology and works collaboratively with our partners to support implementation for at-home and care settings across the continuum of care. This information provides companies with important third-party validation that will not only provide key product insights but will allow the company to achieve a first sale or further reinforce a value proposition that will help the company scale in the region and far beyond. These services are provided by CTAAN staff including researchers, students, older adults, community partners, and healthcare providers.

The first step to introducing AgeTech to the region is one of CTAANs' key services, *AgeTech Discussions: Exploring Perspectives on Technology*, heretofore referred to as ADEPT, which focuses on emerging AgeTech in northern and rural BC to describe the applicability, usability, and feasibility of a featured AgeTech from end-users' perspectives. Supported by NRC-IRAP funding through CTAAN, with contributions from the featured AgeTech company, ADEPT workshops recruit potential end-users to participate in facilitated discussions and provide important insights and recommendations to inform the design and adjustments of the featured

AgeTech. This process provides technology developers and companies with evidence that helps form the next steps to scale their products and services to northern and rural areas. Currently, the government of Canada recommends making changes in the home to reduce the risk of falls, such as decreasing clutter, installing grab bars, and increased lighting². Mobility devices, such as rollator walkers, are another commonly advocated fall prevention tool⁴, however most walker designs have been shown to be cumbersome and hard to move through small spaces, and do not aid with post-fall recovery. Individuals at risk for falls are in need of innovative solutions to maintain independence, mobility, and overall quality of life.

Featured Technology: The Ibex Lift

The Ibex Lift is an innovative mobility and fall recovery device developed by Axtion Independence Mobility Inc. for older adults and individuals with mobility difficulties. As a portable, personal lift, the Ibex Lift also doubles as a better alternative to a rollator walker, and offers individuals the ability to maintain their independence, while providing peace of mind. The Ibex Lift helps prevent falls and assists with fall recovery. By improving mobility and safety, the Ibex Lift can facilitate everyday activities such as walking, navigating, moving/transferring to and from different height positions (i.e., toileting, getting out of bed), and prolonged standing or sitting. In the event of a fall, the adjustable seat can be lowered to ground level and lift a fallen person from the floor, eliminating the physical load that care supports must bear to lift and limiting the risk of injury to both parties.

The Ibex Lift has been designed for maximal accessibility with 3 separate sets of controls located on the hand grips and at floor level. For individual transfer ease, the Ibex Lift has rotating arm rests/handles, an adjustable seat that lifts to height of 24” and lowers flush to ground level, and is equipped with both manual and electric brakes. The Ibex Lift can be locked into position to act as a stationary support or seat and has a rotating seat to enable closer access within the walking frame. folds inward and flat for easy storage and transport and weighs 36 lbs. Equipped, the Ibex Lift also. The Ibex Lift. The weight capacity is 300 lbs and a full battery can complete ~30 full lifts at this capacity.



Figure 1. Ibex Lift

*In Canada, the term 'northern' is commonly used in a provincial context to identify the northern and more sparsely populated (e.g., rural, remote) areas, which may experience arctic/subarctic climates, political marginalisation, economic dependency on natural resource development, and larger proportions of Indigenous populations⁵. There is much diversity across northern and rural communities based on socio-spatial characteristics (e.g., population size, population density), social representation, population demographics and resource availability.



Methods

To explore how CTAAN could collaborate with Axtion Independence Mobility Inc., CTAAN offered one of its key services: ADEPT. The ADEPT workshop preparation began with an introductory presentation of the Ibex Lift device by Axtion Independence Mobility Inc. to the UNBC research team. Through discussions, it was highlighted that a more in-depth understanding of the diverse needs of northern and rural BC communities would be beneficial to contextualize the decision-making processes, potential end-user priorities, economic viability, and implementation feasibility of personal lift/walker technology across these unique settings. With a key objective of exploring the “Feasibility and Usability of Ibex Lifts in Northern and Rural British Columbia Health and Community Care Settings”, individuals working, volunteering, or personally engaging in these environments were recruited for ADEPT workshops. Maximum variation sampling techniques were applied to ensure diversity, equity, and inclusion in recruitment. Data collection occurred in November and December 2023 over four 2.5 hour workshops and the target number of participants was reached. Informed consent was obtained from all participants prior to the workshops.

Each workshop followed the same format:

- 1) Pre-workshop survey (either prior to or in first 10 minutes of the workshop)
- 2) Ibex Lift presentation and demonstration
- 3) Question-and-answer session with an Axtion Independence Mobility Inc. representative
- 4) Facilitated group discussion
- 5) Post-workshop survey (last 10 minutes of the workshop)

In the pre-workshop survey, participants provided demographic information and answered questions about their experience with and attitudes towards personal lifts/walker technology in their respective roles/settings. Then, Axtion Independence Mobility Inc. presented the Ibex Lift, detailing the functions, capabilities, current research and outcomes, and the physical design. The facilitated group discussions that followed were led by trained CTAAN staff without Axtion Independence Mobility Inc. present. A discussion guide was used to direct the conversations and focused on soliciting information around personal lifts and walkers, the Ibex Lift, northern and rural BC long-term community and care contexts, decision planning, economic viability, implementation considerations, and required supports. Prompts used to elicit participant views and experiences were open-ended opinion and experience-based questions. In the post-workshop survey, participants shared further insights relating to the Ibex Lift and their satisfaction with the presentation/demonstration, general workshop facilitation, and organization.

Workshops were digitally recorded and the audio was transcribed verbatim and checked for accuracy. All identifying information was removed to ensure confidentiality. Qualitative data was analyzed using a thematic approach guided by Braun and Clarke⁵. This involved following the six-phase process outlined using an inductive approach to code and generate themes:

- 1) Familiarisation with the data: Each transcript was read several times and initial thoughts noted to establish familiarity.
- 2) Coding: Concise initial descriptive codes were generated in a systematic manner and data relevant to each code was collated.
- 3) Searching for themes: A coding framework was developed by adding, removing, and organizing the initial codes into potential themes and sub-themes.
- 4) Reviewing themes: To maximize internal homogeneity and external heterogeneity, each theme was examined and refined in relation to the codes and in relation to the entire data set.
- 5) Defining themes: The “essence” of each theme was identified and described clearly to determine the aspect of the data which each theme captured.
- 6) Producing the report: Extracts were knit together to create an analytical narrative with interview quotes integrated to contextualize the analysis in relation to the objectives of the research and to existing literature.

Quantitative survey data was summarized using descriptive statistics in Excel, while qualitative data was analyzed using NVivo 12. A consensus approach was applied to ensure the findings and illustrative quotes used in this report best represented the prevailing patterns across participants to provide thorough recommendations for Axtion Independence Mobility Inc.

Ethics approval for the ADEPT workshops was provided by the University of Northern British Columbia ethics board (H22-00499), the Northern Health Operations Board (RRC-2022-004) and the National Research Council (2022-56).



Workshop Findings

PARTICIPANTS & PRE-SURVEY

Four ADEPT workshops took place in November and early December 2023, with thirteen participants attending. Around half the participants provided community services in areas of physical and spiritual health, social services, and general well-being. A quarter of participants worked in healthcare, either in the allied health or education sector, with the remaining participants retired or working in an unrelated field. About two thirds of participants had experience in older adult care through a work/volunteer role or as a care partner for a family member. Participants were motivated to attend an ADEPT workshop to learn about emerging AgeTech; around one third of participants had a personal interest for their own or their family/friends future needs, while the remaining reported a desire to learn about technology to help older adults retain their independence and mobility, both at home or in a healthcare setting (please see Figure 2.).

Almost all participants reported no personal experience with a portable, personal lift that is also a mobility aide. Around half stated there was need for a technology such as the Ibox Lift in their facility, organization, or personal life. Participants identified that a technology like the Ibox Lift could be used to support independence and mobility to allow older adults to live at home for longer. When asked which features should be prioritized for a personal lift/rollator walker, participants reported that safety, ease of use/intuitive operations, and affordability (initial cost and maintenance) were most significant. Additionally, participants highlighted need for the Ibox Lift to be easy to clean, accommodate a wide variety of user heights and weights, and function on a variety of terrain (both inside and outside environments). Further, participants specified that technology like the Ibox Lift should be reliable and help reduce caretaker worry and physical strain in case of a fall. Further, participants noted values of the Ibox Lift providing increased autonomy to the individual using the device (i.e., minimal support needed).

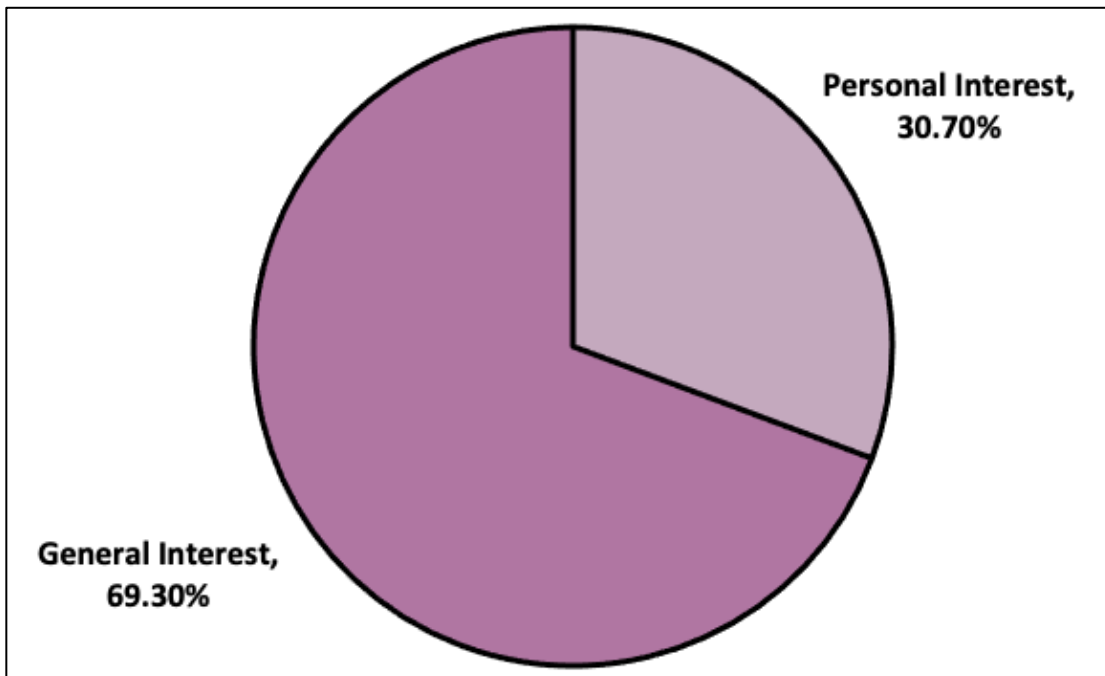


Figure 2. Participant motivation to attend ADPET Workshop

FACILITATED DISCUSSION: KEY THEMES

Over the four ADEPT Workshops, participants shared their insights and perspectives of the Ibex Lift. Five key themes were developed through analysis and include: 1) Empowering independence and meaningful inclusion; 2) A valued resource to support persons across the continuum of care; 3) Novel design underpins extensive functionality; 4) Examining the utility of the Ibex Lift for a northern, rural, and remote lifestyle; and 5) Clarifying the usability, functionality, and sustainability of the Ibex Lift.

The themes, shown in Figure 3, are presented as follows:

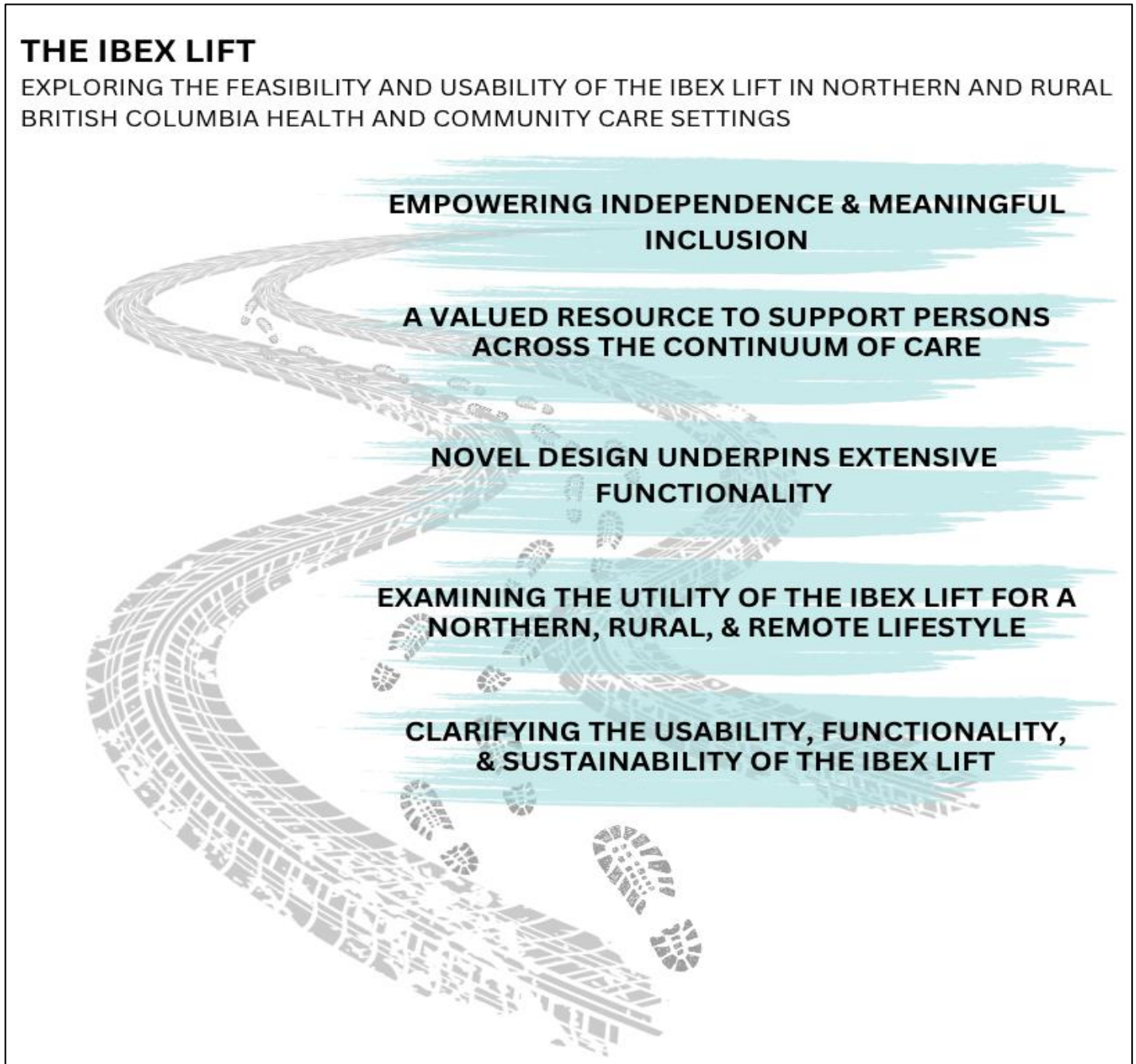


Figure 3. Key Themes

THEME 1: EMPOWERING INDEPENDENCE & MEANINGFUL INCLUSION

Overall, participants initial response to the Ibex Lift was very encouraging and centred on the value and potential of the lift technology to empower and support older adults to maintain their independence. While this was viewed as the most significant benefit, participants anticipated that the Ibex Lift would also impact older adults positively in both quality of life and well-being.

“
| *And I think [the Ibex Lift] would [allow older adults] to still be able to have the independence...I think independence allows people to have more sense of dignity and personal autonomy. And there's more features on [the Ibex Lift] than I would have thought of, I'm so impressed with the research and design. Yeah, it looks great.*

“
| *I think that dignity is a great word and I love the fact that... the Ibex [Lift] could give [older adults] a little more confidence to help to keep their strength up, because when you've got something in your sight that can actually make a huge difference to you...like living independently, then it helps you feel a little more motivated to do things.*

Participants regarded the utility of the Ibex Lift as an opportunity to restore or retain autonomy while aging. By providing the means to independently participate more fully in the home and in the community, participants believed that the Ibex Lift could improve end-users self-esteem.

Illustrative Quotes

“Well, [the Ibex Lift] enables people using it to carry on with much of their ordinary day-to-day lives. The ability to raise and lower the seat to get into cupboards and that sort of [activity] to me is huge around the house.”

“... And same with going out, if you use [the Ibex Lift] going out or shopping, if you need to get something from the bottom, lower shelf in the grocery store...you don't have to bend over to do that... that lowering of the seat [on the Ibex Lift] - I think is huge for being able to participate in more of your daily activities safely.”

“And I think that's a really big thing...[the Ibex Lift] gives [older adults] back a sense of confidence and a sense of self-worth, because it's so easy for anyone to become so depressed when they can't manage on their own, and I think that would be a real boost in that regards – independence, right?”

Related to improved well-being and quality of life derived from increased independence, participants also saw opportunity with the Ibex Lift to support inclusion through meaningful interactions with others in a way that wouldn't be possible without this type of device.

“
| *[The Ibex Lift would] help someone to stand with support and hold someone they love.*

“
| *I was thinking [the Ibex Lift] would be great...with the lowering seat, you can lower it down and get good hugs from your grandchildren now.*

Participants shared how the Ibex Lift could fill a gap along the continuum of care and improve safety for older adults aging in place, as well as for individuals residing in community settings, and those in assisted living and long-term care facilities.

“
I've worked in [health care] my whole life and I know that beds are needed. People get released back into independent living when they really can't live independently.
And I think [the Ibex Lift] would make a 500% difference.

“
[The Ibex Lift] is empowering the resident to be able to live independently and get themselves up off the floor if they can... many times we have people...in wheelchairs because families want them in wheelchairs. But maybe, an Ibex Lift system would be more appropriate for them cause there really is no in-between, you go to a cane to a walker to a wheelchair. So [the Ibex Lift] is kind of an in-between kind of thing.

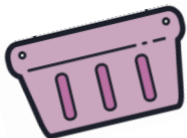
In having a device that can provide a safer alternative to a rollator walker, that can also act as a personal lift, participants predicted that the Ibex Lift would be universally embraced, and also provide relief and comfort to care partners and family of those at risk of falls.

“
Having [the Ibex Lift] as a tool is the number one in my opinion... this this one is the best [options] because...it will be well received not just by the person but the family members will be super excited.

“
I think [the Ibex Lift] is wonderful. Peace of mind is what it gives if you're a caregiver at home - it brings huge peace of mind.

To further empower older adults to remain independent, participants suggested additional accessories for the Ibex Lift.

“
I know seniors love having little carrying baskets and we've been really pushing for like cup holders so people can stay hydrated and have their water bottles.



“
Maybe a removable basket or something that makes it so that you don't lose so much independence. You're able to go do a few things for yourself.

“
One thing to consider soon, because more and more will have them, is a slot that will hold a cell phone. It wouldn't take up room, but you know, so many seniors now have cell phones and with the seat raising and lowering, you don't want it just sitting on the seat - just a little side slot you can put a cell phone.



Overall, participants saw value in the Ibex Lift as a device to empower older adults in their life to be independent for longer, as well as provide the means to more fully engage with family, friends, and the community.

THEME 2: A VALUED RESOURCE TO SUPPORT PERSONS ACROSS THE CONTINUUM OF CARE

Participants felt the dual functionality of the Ibex Lift was innovative and impressive, and considered it to be ideal for in-home care settings, as well as healthcare facility contexts.

Illustrative Quotes
<i>"I'm very impressed and very excited. I think [the Ibex Lift] a wonderful product. I think it's so needed... it meets a lot of needs that aren't addressed in the current market."</i>
<i>"Yeah, I can see huge benefit in the community and in the home setting. Absolutely. The ability to lift yourself from minor falls that are not resulting in injury would be huge."</i>
<i>"Working out the community and working in complex care - I think [the Ibex Lift] would be a fabulous mode of transportation for some of our older population."</i>

This was especially true in northern, rural, and remote areas, where a device with both rollator walker and personal lift capabilities, such as the Ibex Lift, could prevent avoidable ambulance calls.

“*You know, if you have a minor fall you can't get up, it's not an emergency, but you're still having to wait hours for an ambulance to help – it's ridiculous, so [the Ibex Lift] would be an incredible benefit.*”

In considering assisted living/long-term care facility needs, participants saw the Ibex Lift functionalities as significant, both for continued resident mobility, and reducing staff workload.

Illustrative Quotes
<i>"When I first saw [the Ibex Lift], I thought, 'Oh man, this would be fantastic in long-term care facilities to continue that supported ambulation!'"</i>
<i>"We do have residents that can still get on their knees and pull themselves up, [the Ibex Lift] would be much better than for the staff to have to come in with the big sling lift if the person doesn't have any injuries or broken hips."</i>
<i>"I know that these policy and protocols within long-term care centres are to prevent further injury...but in this case, if it was somebody who was fairly independent, [the Ibex Lift] might actually minimize the need for staff to always be running to respond."</i>
<i>In the care home, [the Ibex Lift] makes it handy to - instead of having to bring the big cost medical lifts over to help get them, [the Ibex Lift] would smooth out... make things a little easier, but I just see a real need in care homes for units like this.</i>

While participants appreciated the full range of capabilities afforded by the Ibex Lift, the personal lift function was viewed as particularly promising to support community-based in-home health care.

“
| *I mean the walking function and the support for the resident...then the lift function for the community would be incredible.*

“
| *For home support workers who do go into the home and same for care givers (when they are alone)... providing care, doing a transfer, a fall happens, and you know, we don't have lifts in every home that we service. So, [the Ibex Lift], staffing-wise, would certainly enhance the scope of what home support workers can do and how they can respond.*

When discussing in-home care challenges, individual transfers were emphasized to be a fraught, high fall-risk task. Participants viewed the integration of the Ibex Lift in a home care setting as a way to improve safety, alleviate care partner stress and injury, and minimize fall risk.

“
| *Transferring from bed to chair or chair to toilet, it was always a scary time. The way these handles move, the seat adjusts, and the braking system works, [the Ibex Lift] would really make the ease of transfers so much better and safer.*

“
| *Yeah, I think the piece that stands out for me...[the Ibex Lift] can be very useful for transfers, for example, this idea of having the armrest move out and allow for a direct transfer from bed to chair or from a chair to the walker itself.*

Participants identified other settings, including seniors activity centres, where the simple and convenient lift feature of the Ibex Lift had potential to improve safety and fall recovery capabilities of the community.

“
| *Well you could have it in any offices where seniors attend or community agencies... where there are a lot of workers, a lot of traffic of people coming in and out, but there's nobody trained to help someone get off the floor.*

Altogether, participants predicted that the Ibex Lift would augment care capacity and safety in the home, in community, and in health care settings.

THEME 3: NOVEL DESIGN UNDERPINS EXTENSIVE FUNCTIONALITY

Underpinned by the innovative design, participants praised the extensive functionality of the Ibex Lift emphasizing that the adjustability, usability, and safety of the rollator walker/personal lift was well thought out.

The ability for the seat to lift was of great importance to participants, in that it facilitated improved mobility and navigation, while decreasing fall risk, and allowed personal adaptation of the device to meet individual end-user needs.

Illustrative Quotes
<i>"I love the way the seat goes out of the way so the person can get to the counter because I know with the current types of walkers, I know for a fact that the walker was the reason for one fall."</i>
<i>"[The Ibex Lift seat] made allowances so that you can navigate around a home easier, which is fantastic."</i>
<i>"Yeah, for me, it was this seat. I loved it and for a different reason. The fact that when you're going through a smaller hallway, you can fold it and still be able to use it. I think that's really the biggest plus because the biggest challenge is sometimes you going to the washroom and the washroom is so tiny and you have to leave your walker outside...so in this case you could actually just bring it in. I think that's really useful."</i>

Additionally, participants explained that social isolation can occur when individuals are experiencing limited mobility. With the seat able to be raised, lowered, and flipped up, the Ibex Lift afforded opportunities for wellness and engagement, such as participating in meal preparations and dining with others.

Illustrative Quotes
<i>"I love the way it goes down if they want to get into a kitchen cupboard. I think there's been some real forward thinking in that regard."</i>
<i>"The handles can raise - how ideal is that for being at a counter or beside a microwave or any number of things? And the seat looks big enough so that if somebody were to walk to a dining room, they could still put their tray on the seat if they wanted to take their meal back to their room."</i>
<i>"And, if they had to raise the seat to be even with their little table, it looks like that seat could raise and [you could] just transfer that tray to the table. There's multi uses there - it serves more than just a purpose of lifting the individual."</i>

Participants observed the seat/frame design of the Ibex Lift to be superior quality to current rollator walkers, in terms of ergonomics and comfort.

“ [The IbeX Lift] - because of the seat design being able to flip up, I was actually thinking that it might assist a little bit with some fatigue because there are a number of users if you think...holding it out in front. So, anything further away from your body is going to be more fatiguing, right, versus closer, if you're able to step into the frame...

“ I do like that you can step into the frame because I would probably say about 30% of what I do as an [allied health professional] is coaching people to step between the wheels and [the seat lifting up] would just make it more intuitive.

Participants were enthused that the user-centric designed IbeX Lift was developed to accommodate a wide range of heights and thought the minimalistic design of the controls, specifically the icons, would broaden the scope of potential end-users.

Illustrative Quotes

“I was really impressed with the adjustability of it, because I am only [shorter height] and my [family member] is [taller height]... so just to be able to adjust for so many different people...”

“And the other [transformative moment] was the height adjustment. I'm [tall] and my height is in my legs, so having that leeway is likewise, amazing.”

“The graphics of the of the controls seem pretty simple and fairly intuitive...I suspect that if a person used it for a few hours...it would be easy to become familiar with, ‘what do I do if I need it to do this or that?’...and I love that they have the controls in 3 different places.”

“I think the fact that they've used [icons] is helpful, you know, in dementia we tend to revert to universal icons and stuff that is fairly recognizable and intuitive. Like the battery logo, I feel like [the icons] are all well done and the contrast with black and white, so it's easier to see.”

However, with a weight limit of 300lbs, participants suggested that offering a bariatric IbeX Lift model to accommodate a larger weight would be important to meet the diverse needs of the older adult population.

“ I'm thinking about seniors who are having challenges being mobile who will want to invest in something like this and...the seniors who are immobile would probably, possibly be large or overweight...have issues with upper body, weight management, stuff like that.

Some participants voiced concerned with the placement and size of the handle controls and the potential for mistakes or confusion to occur.

Illustrative Quotes

“I was imagining, because they have to go over top of that paddle to grab the handlebars... if somebody bumps it...the locks or the brakes [engage] and they get kind of confused - I want to walk, but now the brakes have hit automatically, and I don't know how to release it - so just making sure that usability piece is really clear and how to troubleshoot it.”

“If they're sitting down...and the buttons...is there any issue with a counter or their elbows catching the lock or the buttons?”

“But the buttons on the handles, I would just wanna make sure that they were a good size for other fine motor issue. Just want to make sure it's this big enough size that they can push it quite easily.”

One participant suggested a simple addition to decrease the chance of unintentionally hitting the controls.

“
| *I do appreciate the point of fingers [mistakenly] hitting the controls or the paddle. You know, just to add a plastic cover shield over it so you can see the lights... that might alleviate that.*

In addition to the controls, participants shared other concerns around design features that could impact the functionality, and consequently, usability of the IbeX Lift.

“
| *One of the things that always makes me a little bit nervous when I'm looking at equipment, especially during travel, and it's one of the reasons I never recommend any rollator device that has external brake cables, are those are things that can get caught.*

“
| *Using [the IbeX Lift], probably would lead to that arm and hand fatigue on the road because of the design, there's no shock absorbing from the tires and hard tires like that [on the IbeX Lift] aren't the most friendly on rough surfaces.*

In sum, participants appreciated the thoughtful design of the IbeX Lift and the adjustability of the device for a range of users, however some concerns around user-friendliness were highlighted especially for the older adult population.

THEME 4: EXAMINING THE UTILITY OF THE IBEX LIFT FOR A NORTHERN, RURAL, & REMOTE LIFESTYLE

Participants reflected on northern and rural settings, describing the unique challenges that individuals within these communities face, and discussed how the IbeX Lift may or may not function in these environments.

A main concern raised by participants was the capability of the Ibex Lift to negotiate the varied range of terrain that is common to northern and rural locations. Participants emphasized the need for at least one set of tires to be much larger, in order to navigate rough, uneven, and gravel surfaces outdoors.

“*I think everything should have...big pneumatic tires up north because...what do you do when there's no side walks and you live on a dirt road? You know, you want to go down the driveway to check your mail or things like that or in the spring...when people start clearing all of the rocks and debris and whatnot off of their lawns and they push it all on the sidewalk. So, I think these tires will be a little bit more limiting that way.*”

Participants also mentioned the challenges of using wheelchairs and walkers on vinyl, and carpeted flooring, and questioned if the Ibex Lift would be able to function safely on these surfaces.

“*Larger wheels definitely make pushing or maneuvering anything much easier because even in supposedly wheelchair friendly places there will be a little lip and if you got small wheels, you're tugging and pulling and trying to get over, so this is for I speak as a caregiver pushing somebody, someone pushing [the Ibex Lift] themselves and trying to get over it...I don't know.*”

Another concern raised by participants was the suitability of the Ibex Lift's tires for icy and slippery conditions common in northern communities. Participants explained that many older adults do not go outside in the winter due to the lack of a reliable winterized mobility aid. With tires that could support ambulation in winter conditions, the Ibex Lift would offer more older adults the ability to safely age in place.

Illustrative Quotes

“And I wondered if we had rubber on those wheels that was similar to the little rubber curling shoes that wouldn't allow you to slip on ice, if that would help [the Ibex Lift] to grab the [ground] better.”

“Especially if [the Ibex Lift] had non-slip rubber tire options on it, [participant's friend] would still go outside and that would be a big change.”

“Yeah, I think the part that needs to be thought through for us, specifically in the north, is the harsh environment, it tends to snow longer than other places...is there an option of adding chains to the wheels, for example, to walk through ice.”

Likewise, the climate of northern BC also had participants apprehensive of the Ibex Lift to function in cold temperature, specifically the durability of the battery and overall robustness in cold and wet climates, and on rough surfaces.

Illustrative Quotes

“Yeah, I mean, we plug in our cars for them to operate...is that something that might affect the battery life, or even the battery itself, would it still function in 40 below, in a blizzard?”

“I was thinking about... how friendly is [the Ibex Lift] around a lot of moisture? If you're going to go outside and take it for a walk, how weatherproof are the components?”

“We still have places up here that we only have gravel, so if you're taking [the Ibex Lift] on gravel, the life of it is not going to be near as long.”

Together, in reflecting on the functionality of the Ibex Lift in challenging northern, rural, and remote climates and road infrastructure, participants offered suggestions for improvement and potential barriers to consider when further developing the device, and accompanying resources.

THEME 5: CLARIFYING THE USABILITY, FUNCTIONALITY, & SUSTAINABILITY OF THE IBEX LIFT

While participants saw great value in the Ibex Lift enabling independent fall recovery and continued ambulation, they underscored the need to clearly identify who and who would not be able to utilize the Ibex Lift safely.

Illustrative Quotes

“[The Ibex Lift] does require that the person is able to bum scoot themselves over, sit, and then the visual acuity to find the buttons or whatever and the cognitive capacity to learn how to use it safely.”

“If you're going to lift yourself up, do you know if you get into the seat and you lift yourself up to the whatever height you need, do you have the knowledge of how to maneuver your body and how to shuffle your feet to do that full turn and shift your weight? Because that's one of the leading causes of falls in long-term care - that inappropriate weight shift.”

“The training...is also a second important part of it and if it is being used in whatever setting - that piece really needs to be.... clear... I think who can and who's not recommended to use it. I think it's important because I can imagine people who have different mobility use, if you can't bend your knees or if you have no ability to push yourself up.”

Correspondingly, participants emphasized that having clear and accessible instructions would be paramount to the successful adoption of the Ibex Lift, with one participant suggesting having a small instructional diagram directly on the device itself.

“

I imagine the Ibex Lift developers themselves would have a piece of information that is attached to the walker that says, ‘to use this equipment, you're going to have to have a little bit of information about how do you safely get yourself on and off of it and easy one, two, three steps of doing that’, I think that would be an important part of it.

“

I think a good point was made: you may be dazed or you may not be thinking well enough and if somebody thinks, ‘I have a [walker/lift] that actually can help me to get up’, but they don't think through, ‘what are the things I need to do to get up safely?’...I wonder could there be something that can be maybe added to the walker that helps with that?

To that end, providing potential end-users with barrier-free access to clear instructions/ education for operating the Ibex Lift would be necessary when entering the retail market.

“

I imagine if [the Ibex Lift developers] make sure that they're intentional around who their distributors are. If they're being sold through medical equipment stores, their staff are always trained and always have close contact with the product reps on how to provide instruction and make sure things are being used appropriately.

In discussing how to raise awareness and effectively demonstrate the value of the Ibex Lift to potential end-users, participants agreed that in-person presentations and demonstrations of the range of capabilities and individual suitabilities would be ideal.

Illustrative Quotes

“From my point of view, focusing more on home use and individuals...once it's in production I'd be going to senior centers during lunch hours, where they provide meals for seniors and all the people that attend those lunches are usually independent living...and it would be really important to do on site...when you bring the [Ibex Lift] on site to show demos, that would really get the word out there amongst the senior populations and eventually through other communities... you have to approach seniors' organizations - once they see how it works - get them excited then the excitement will carry it itself.”

“If [end-users] are covered, then I would go through the rehab community and the organizations that are going to be applying for coverage who would make the recommendation...but also recognizing that our seniors tend to connect with our healthcare system a little bit [later] into their health journey. I would love to see it accessible earlier on, before they have the fall, before they really need rehab. Yeah, get into the senior centers and community settings.”

“The (resource center for seniors), like the activity centers, that's where Ibex [Lift developers] want to go in and have a have a presentation with an actual walker and have people try - it'd be amazing, right?”

When asked what kind of barriers older adults may encounter in acquiring and using the Ibex Lift, participants primary concern was the initial cost, as well as maintenance accessibility and associated costs.

“

My first thoughts: very, very excited immediately followed up and probably just from years of being [in health care] is just some fear that it may potentially be a piece of equipment that's out of reach to a lot of persons.

Participants questioned whether coverage would be sought by the Ibex Lift developers and what alternate funding provisions may be put in place to establish equitable access to this type of device.

“ I'm sure organizations can afford a few of [the Ibex Lifts], but what is that cost to a senior? How does a senior cover it? Most of the seniors I work with will not be able to afford that at all on their own. My question would be is [the Ibex Lift] going to be covered in any way?

“ So, I'm super, super excited, but just sort of thinking about...the funding piece to make sure that people can access the equipment they need.

In recalling instances of unexpected maintenance costs, participants identified the importance of practical, convenient, and minimal cost repair/care solutions.

Illustrative Quotes

“I just went to my [family member] to fix the cable breaks for my friends walker and it took under a minute cause it's so easy to do. I've never done one before and [family member] showed me - I couldn't believe it, but if you had to get the brakes maintained and you went to a certain place in (northern city center) that has a name like... I think the word (medical equipment store) is in their name. They want \$50 to do an under 1 min adjustment on the brakes, which is a crime.”

“And I mean with the financial piece, if they do get approved for coverage, that'd be huge, but also just making sure that all the pieces are replaceable or repairable so you're not having to buy the whole Ibex Lift every time or if you just have to replace a paddle, I'd like to be able to replace just the paddle.”

“Even my fridge and my stove and my dishwasher and my microwave hook up to my phone to tell me if there's a problem, I can actually do a diagnosis on it but yeah, I don't want to see a \$3,000 machine become a \$4,000 machine.”

Further, participants advocated for the Ibex Lift to come with comprehensive warranty, and suggested that a maintenance schedule and guide/pack with the required tools to facilitate independent repairs should be included with purchase.

“ About the warranty on that and maintenance and like maybe you need specific tools - would they be provided with the purchase? A simple instruction book on things that should be tightened up or repaired and cleaning, how waterproof is it if you forget and leave it outside Is that going to affect the pads on the arm, the controls on the arm, is there a waterproof aspect to them?

“ I worry a little bit... sometimes the walkers we have today will come with tools that you can use to adjust manually if something fails, because there needs to be a manual option if something fails. Otherwise, anything could fail at some point and you don't want to be stuck in the middle of nowhere without any other option.

This was especially salient for those living in northern, rural, and remote communities where maintenance support may not always be available, geographically convenient, and/or prompt.

“Most of the folks in smaller communities have no option of going to the equipment store...if something breaks down, they would have to come to (northern city center) and coming to (northern city center) is, it's an exercise that takes days planning and sometimes impossible to do so. And if it's in the middle of winter and you really need to get up and you've been used to [using the Ibex Lift]...one thing that we always forget about equipment is that if you introduce innovation, you get so attached...so if you get this thing and it becomes part of you and if it breaks down it really affects your day-to-day life.

“The other thing that I always try and think about, especially for my northern clients, is sometimes there's fantastic equipment and...what types of persons would be authorized to repair this type of equipment? Let's say you live in (remote BC community) and your [Ibex Lift] breaks down and you need it to be fixed. How timely is that going to be?

In considering the sustainability of the Ibex Lift, participants discussed how environmental factors, such as harsh winter conditions, may impact the longevity and maintenance of the device. Participants suggested that real-world testing be conducted as a way to continually adapt and improve the Ibex Lift.

Illustrative Quotes

“The only thing that comes to mind, you don't know until the unit has been product tested over a great deal of time...does it break down often? Does it need repairs? But you don't know that till we're a year or 2 down the road of having daily use in various circumstances...you assume that everything is going to be reliable and work well for a length of time, but until it's actually in use, that's an unknown. So ensure that there is adequate feedback from people that have got them so that that the company is made aware of any issues that seem common amongst the unit.”

“What is the life expectancy of the product and in what environment? So, I would say when they're testing the products in real life... if they are intending to have it on the market in different conditions, different populations... it should be tested in a rural [area], it should be tested in winter, it should be tested in these kinds of different settings...so we can have a bit of an idea of sustainability...in different environments.”

“So, if you're thinking about trialing it in facility, sometimes I find what happens is we trial a lot of like really great things in (northern city center) which is really central, and we have lots of access to great resources. I think sometimes it would be amazing if we put some of this equipment through a real test find a champion at a smaller site like and I'm pushing (coastal BC town) a little bit, I did a trip up there and they're so under serviced and under-resourced. So, I think of, you know, and their climate is quite a bit different as well. Right?”

Overall, participants emphasized the need for the user requirements of the Ibex Lift to be concise, and clear, while also ensuring the optimal delivery and format for operational instructions. Cost and ongoing maintenance were also highlighted as potential barriers to use, and real-world research trials were suggested to solicit user-experience feedback for opportunities to tailor and adapt.

POST-SURVEY

Overall, participants rated the workshop as excellent and enjoyed the open and inclusive discussion style of the workshops. All participants reported that they would recommend the Ibex Lift to either a colleague, client/patient, family member, friend, or older adult group. Participants identified that individuals with mobility impairments or living independently, and family members or caregivers who are supporting an individual with mobility impairments, would benefit most from the Ibex Lift. Almost all participants would use the Ibex Lift to assist with mobility, either personally or professionally (see Figure 4.).

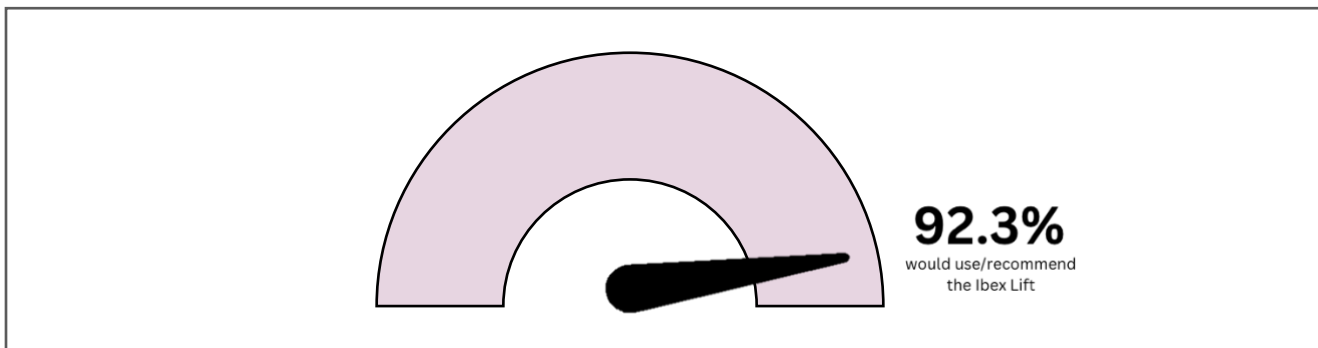


Figure 4. Post-survey results of participants that would use/recommend the Ibex Lift

Participants reported that the best features of the Ibex Lift were the fall recovery capabilities, accessible design, and the ability to improve mobility and independence. The majority of the participants agreed that to create awareness around and advertise the availability of the Ibex Lift in northern and rural communities, in-person and hands-on demonstrations to older adult community groups and services, and health care environments (include both staff and residents/patients), would be essential in an implementation process. Additionally, participants foresaw that the decision-making process to implement or acquire an Ibex Lift would likely fall on the individual or family, rather than a healthcare facility or community service. The main barriers to implement the Ibex Lift in community and healthcare settings that were shared were overall cost, followed by the uncertainty around usability in winter conditions. To overcome these barriers, participants recommended funding support to avoid the exclusion of low-income individuals from acquiring an Ibex Lift and larger wheels/traction control tire materials for navigating ice/winter conditions. Participants also suggested including a removable basket for groceries and offering an Ibex Lift model that accommodates a higher weight capacity. Additionally, including adjustment options that would allow an individual to be pushed on the Ibex Lift (like a wheel chair) and ensuring large and distinctive symbols on the button controls.



Summary & Recommendations

This report presented the perspectives of northern and rural residing participants who took part in ADEPT Workshops featuring the Ibex Lift in November and December 2023. Through qualitative analysis of the facilitated workshop discussions, five key themes arose and included: 1) Empowering independence and meaningful inclusion; 2) A valued resource to support persons across the continuum of care; 3) Novel design underpins extensive functionality; 4) Examining the utility of the Ibex Lift for a northern, rural, and remote lifestyle; and 5) Clarifying the usability, functionality, and sustainability of the Ibex Lift.

The following are a list of recommendations based on the findings of this report:

- Explore developing a range of accessories to complement the Ibex Lift, including: removable basket, cell phone holder, cup holder, seat cushion, and secure tray holder
- Consider creating a bariatric model for future iterations of the Ibex Lift
- Improve suitability for winter conditions by increasing the tire size and using slip resistant material for tires, such as curling shoe type material
- Examine ways to improve design, such as securing or streamlining manual break cords for safety or adding an easy to move cover for the lift control on handles
- Conduct real world trials to highlight any inefficiencies or issues with using the Ibex Lift in northern, rural, and remote settings, i.e., battery life in cold temperatures, water resistant/proof, handle material on rough terrain
- With the battery life, explore how best to advertise, i.e., 50 lifts may not be practically understood by end-users – is there a way to quantify hours, or have a display with battery lift life left?
- Consider how best to provide accessible user guidance to both end-users and their supports
- Collaborate with community groups and healthcare facilities to develop innovative maintenance solutions in remote and rural areas
- To raise awareness about the Ibex Lift, provide communities with live, in-person demos to ensure end-user education and fit
- Create videos of the Ibex Lift being used by individuals with a range of abilities, and on a variety of surfaces, including vinyl, gravel, and ice covered
- Update promotional product images to show the Ibex Lift with the seat lowered, lifted, and flipped up, also highlight locations of controls (as some participants could not discern from the images that both handles have the controls), and include close up of handle controls

Altogether the findings of this report demonstrate the potential for an innovative multi-function mobility device to transform the quality of life and overall well-being of older adults. CTAAN is committed to continued collaboration with Axtion Independence Mobility Inc. to increase awareness and engagement with partners in the region around the Ibex Lift. To enhance partner engagement, when the Ibex Lift becomes available, CTAAN could facilitate on-site product demonstrations in the region to further increase awareness and establish site(s) for trials in settings that are of interest to Axtion Independence Mobility Inc.



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