RNIB

See differently

In partnership with

Motability Foundation

Travel Well with Tech:
Phase One research summary

Leveraging technology to remove barriers and improve journeys for people with sight loss

Contents

Introduction

We know that for many, using a smartphone, app or GPS to move freely and travel confidently is second nature. But, for people with sight loss, the reality is very different. Only 34 per cent of blind and partially sighted people feel able to make all the journeys they want. While a proportion of people with sight loss are embracing technology, there is still a significant risk that others are being left behind. Without intervention, existing gaps in accessibility and inclusion will widen. This is unacceptable. To facilitate true equity, we must all take intentional steps to close this gap.

What makes a good journey?

To understand how different groups of travellers define what a "good journey" feels like, we asked groups of both sighted participants and groups of participants with sight loss. When describing a good journey, the group of sighted participants used the words, "choice," "ease," "enjoyment" and "freedom." Whereas, our participants with sight loss used the words "safety," "comfort," "reassurance and control."

Only **34 per cent** of blind and partially sighted people feel able to make all the journeys they want.

Blind and partially sighted participants told us when certain elements of a journey went well, they felt a boost of confidence and motivation.

We also learned that many participants use different criteria to measure the success of a journey. These include:

Functional criteria
"I left the house."
"I made it to my destination."

Emotional criteria
"I felt safe and calm."
"I felt reassured by staff presence, even if I didn't use it myself."

Cost criteria (human or financial)
"It took less time than I thought."
"I saved money not having to take a taxi."

However, half of our research participants said that limited staff availability, inaccessible information and a lack of confidence were the key factors discouraging them from making journeys on public transport.

Downloading maps at home

Participant case study:

One participant uses Google Maps and writes notes to prepare for journeys. He is reluctant to use his mobile device when away from home due to a limited data plan and concerns about safety.

"I don't use my phone much when I am travelling because I didn't have access to data."

Outcome:

After downloading a specific map area in Google Maps and saving it for offline use, the participant was pleased to find a solution that didn't rely on data usage.

"I love this solution; it is one I plan to adopt."

Introducing the Travel Well with Tech project

In response to these challenges, RNIB and Motability Foundation created Travel Well with Tech – an innovation-led project designed to explore and address the largest barriers to travel for people with sight loss. Our objective was to identify a range of accessible, technology-driven solutions that would empower more blind and partially sighted people to plan, make and enjoy more journeys.

Our approach

While RNIB has long gathered insights into the lived experiences of blind and partially sighted people, and the intersection of technology and travel – for this project, we chose an innovative approach.

We engaged confident blind and partially sighted travellers to understand how they use technology to get out and about and aimed to uncover new strategies that can increase customer awareness, motivation, capability and choice.

Ultimately, we want to help more people understand the value that technology can bring to their everyday lives, enabling them to make more journeys and access more opportunities.

Our methodology

In this project, the word "technology" can refer to personal tech, hardware or software, such as a smart phone, an app, a wearable or a mobility device. It could also refer to third party technology that is embedded in a transport vehicle (such as audio announcements on a bus) or relate to technology used by a companion or a member of staff to support the travellers on their journeys (such as enabling a local indoor navigation system or seat detection app).

To ensure we captured insight from a broad range of lived experience, we created three cohorts:

- **Explorers with tech** – confident travellers and confident tech users.
- **Explorers with low tech** – confident travellers who occasionally used tech for travel.
- **Hesitaters** – travellers with low or no confidence with regards to technology and/or travel.

Ultimately, we want to help more people understand the value that technology can bring to their everyday lives...

Who we spoke to

Survey respondent demographics

Location

52% Urban

36% Suburban

11% Rural

2% responded "prefer not to say"

Gender

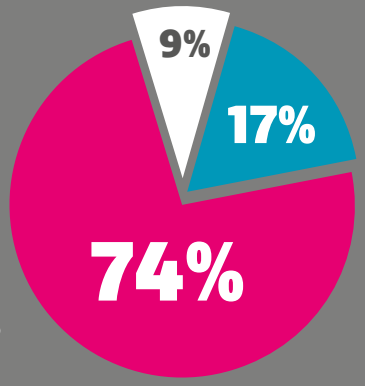
105 Female

91 Male

2 Non-binary / other

Level of sight loss

- Registered Severely Sight Impaired — 9%
- Registered Sight Impaired — 17%
- Unregistered participants with sight loss — 74%



23% of respondents have been living with sight loss for 20 or more years

48% of respondents told us that they have been blind since birth

73% of respondents use a **long cane**

Age range of respondents

18-24	7%
25-34	20%
35-44	18%
45-54	21%
55-64	22%
65-74	8%
75+	4%

18% use a **guide dog**

A total of 200 blind and partially sighted people took part in this survey

Understanding what drives customer behaviour

We want to better understand what factors influence blind and partially sighted people's decisions – such as if, when and how to use technology, when to use it in tandem with more traditional orientation and mobility skills or which app or mode of transport to choose. We want to understand which behaviour – or lack of – has the biggest impact on whether someone chooses to use technology to get around.

To guide this, we employed the COM-B model of behavioural change throughout the project. COM-B stands for Capability, Opportunity and Motivation and Behaviour – four key components that help us to understand what people need to successfully change their behaviour. For example, in the context of online training, people need:

- **The right capability** – knowing how and where to access training resources and the skills to understand and retain the content and apply their learning.

"With the iPhone Magnifier app I thought this is just another app to do my head in. I didn't know it had these add-ons to find the door and people and other things."
Participant

- **The right opportunity** – having internet access, time and a quiet space to focus and learn.

"I realised if I want to get out and about with good mobility efficiency I need to try and use the technology that's available."
Participant

- **The right motivation** – feeling confident it is worthwhile and believing they can succeed.

"I would like to use tech more when I am travelling, and to just be more independent really."
Participant

By designing accessible online learning resources that are engaging and rewarding, we can effectively build awareness, capability and motivation, increasing opportunities to make and enjoy better journeys.

We want to understand which behaviour – or lack of – has the biggest impact on whether someone chooses to use technology to get around.

Research activities

We launched a national engagement survey involving 200 blind and partially sighted participants, representing a broad range of sight loss conditions and durations. Respondents ranged from 18-74 years old, representing a variety of co-existing health conditions and different levels of confidence and experience with technology and travel. The survey incorporated options for travelling on foot, by bus, train, taxi, private car or a combination of multiple modes.

We conducted one-to-one journey planning interviews with 25 participants, discussed how they currently plan journeys, if they use any specific websites or apps to plan, and the personal challenges and barriers they face when deciding if and how to travel.

Ethnographies (field testing): We observed our participants completing a familiar route using familiar technology. We ran 22 ethnographies with our blind and partially sighted travellers – and a set of control journeys with sighted participants – all observed by our research team. These journeys were conducted across urban, suburban and rural environments, using a variety of transport modes. In the first cycle of journeys, our "baseline", we observed participants using familiar technology, completing a familiar route, using familiar transport modes.

After completing the baseline, we identified the participants who could benefit from the introduction of

Directional audio, NaviLens and bone-conducting headphones

Participant case study:

One participant is learning to use technology to find bus stops and road crossings after previously relying on support from her guide dog.

"It can be really difficult to find bus stops and road crossings."

Outcome:

The participant uses directional audio through bone-conducting headphones to navigate using NaviLens, helping them move around more freely and confidently.

"I really like NaviLens, It would be really useful to have them more widely used for bus stops and buses and also in stations."

a new piece of technology – either software or hardware – to overcome a specific pain-point, reduce anxiety or enable them to explore new routes with greater confidence. Participants were excited to increase their technology awareness and try the new tools in a safe, controlled environment.

We then ran a cycle of "agile" journeys. We observed participants travelling from the same start-to-end points as the baseline, but this time introducing new accessible technology options, such as devices or apps, or changing their mode of transport.

Examples of the technologies we introduced:

Bone-conducting headphones: Allows users to listen to audio while keeping their ears free to stay aware of their surroundings for safety and orientation.

Navigational beacons: Provides audio cues or signals that help to identify key locations and safely navigate public spaces with greater confidence.

Vibrating armbands: Provides tactile navigation cues or alerts without relying on sound, supporting safer, more independent travel.

Wearables such as the BiPed NOA Travel vest: Combining audio, haptic feedback, obstacle detection and GPS functions through user's phone camera and earbuds.

Alternative transport provider apps, in-journey apps or device functions

After using the new hardware or software, they reported an instant boost in confidence and independence, which they found extremely empowering and motivating.

Ideation workshops

To conclude Phase One of the Travel Well with Tech project, we ran a series of ideation workshops, inviting everybody that had been involved in the interviews and field testing to join a workshop. The aim was to foster a series of open discussions and blue sky thinking. We asked participants to create a wish-list of future inclusive technology that could help more blind and partially sighted people travel confidently and independently.

The insights and outcomes from each activity are detailed later in this report.

Our Hierarchy of Solutions model

The Hierarchy of Solutions model is designed to guide how we can better support blind and partially sighted individuals in building greater awareness, knowledge, and skills. The model is adaptable for different customer-facing initiatives. In this version, we focused on enabling and empowering more customers to travel on their own terms – when and how they wish.

It helps us understand where each person is starting from and how best to tailor their training and support. Combining this with the COM-B model of behavioural change, we begin by considering a person's mindset and readiness – whether they feel they can, or want to, engage. From there, we consider four additional factors: level of sight loss, additional physical or mental health conditions, confidence with travel and technology and modes of transport they may use or wish to use.

By working through each element, we create a personalised start point that respects each individual's current situation and mindset, setting the right pace for building awareness and skills. This is not a one-size-fits-all model – it's a flexible tool that ensures every pathway is relevant, supportive and achievable.

Insight headlines

High-level of co-existing health conditions:

- Our engagement survey revealed a high occurrence of co-existing physical and mental health conditions. These must be considered if the individual feels these conditions affect their ability to use technology or travel.

Low awareness of travel-assisting technology:

- Our one-to-one journey planning interviews indicated a substantial lack of customer awareness around the technology that was available to support travel.

Low confidence during disruptions:

- Our field testing indicated that when faced with tech or travel disruption to a familiar route or app, even self-defined confident travellers and tech users would experience a significant loss of confidence.

Knowledge of travel technology and training is poor:

- Our ideation sessions confirmed that the biggest barrier for blind and partially sighted people to use technology for travel is a lack of awareness – of what exists, how to use it, and where to find help or training resources. The vast majority of the wish-list ideas that participants generated already exist in the market today.

RNIB Travel Well with Tech: Hierarchy of Solutions model

Start point / mindset	I won't	I can't	I might	I could	I can	I will		
Sight condition	Sight Impaired	Severe Sight Impaired	Long term / newly diagnosed	Central / peripheral loss	Progressive			
Co-morbidities	None	Mental health	Physical health	Combination				
Awareness / confidence	Tech awareness	Tech confident	Travel confidence (accompanied, assisted, unaccompanied)	Route confidence (familiar, unfamiliar)				
Location	Remote	Rural	Urban	Suburban				
Mode	Walk	Bus	Taxi	Train	Tube	Private car	Hospital / community transport	Air / water

Four "Moments of Truth" from our Phase One research

1. **We need a tailored enablement pathway**
   - A flexible pathway is essential to accommodate different starting points, mindsets, skill levels and goals. This was a consistent theme and a substantial enabler for newly diagnosed, hesitant, or nervous customers. This approach can drive engagement and boost long-term motivation and links directly to the Hierarchy of Solutions model featured earlier.
2. **We need to provide choices**
   - Technology and travel challenges can be highly individual and require a tailored approach, including accommodations for different topics, formats, learning preferences and levels.
3. **We need to encourage personalised definitions of success**
   - Success can look different for everyone. For one person, success could be learning how to use a smartphone; for another, it could mean travelling alone to an unfamiliar country.
4. **We need to motivate**
   - Even the most inclusive transport services and accessible technologies won't lead to change if people are not motivated to use them. If we cannot motivate individuals to step outside, progress will not be made.

"Taking part in this research has made me feel more confident during my journeys, and I'd be more confident to go somewhere unfamiliar now."
Participant

"This research made me more aware of the challenges out there with regards to travel, but also the solutions that were available to overcome them."
Participant

Transitioning into Phase Two: solution design

Phase One involved over 300 blind and partially sighted participants, ranging from tech-savvy, confident travellers to tech novices hesitant to venture out. One thing became clear: co-creating a brand-new device or app with our participants was not the answer to build confidence and capability to make better journeys. Instead, the greatest roadblocks are emotional barriers that are often exacerbated by a perceived lack of capability, skills or motivation. Removing these emotional barriers is key to encourage people with sight loss to embrace technology and travel on their own terms.

Engage, educate, empower

We need to increase awareness, capability and knowledge by introducing an enhanced, innovation-led, co-created training offer. This must motivate and encourage more blind and partially sighted people – and their families – to choose and use technology, empowering them to plan, make and enjoy more journeys with confidence. Enabling people with sight loss to travel when and how they want can unlock opportunities previously denied to them.

The journey starts now. We have already conducted a novel piece of research to understand how people with sight loss prefer to learn, and what will encourage them – and their families – to participate in online training to build their

BiPed NOA travel vest

Participant case study:

One participant struggles to walk and navigate around new places. They will find even familiar journeys challenging when the area is difficult to traverse.

"Much of the tech exists, but it still needs to be brought together."

Outcome:

The participant trials the BiPed NOA travel vest, which combines multiple technologies to accurately identify obstacles and guide the wearer around them safely.

"The NOA vest feels comfortable and intuitive".

awareness, skills and choices. An engaging online training experience that can be tailored to an individual's start point, goals, pace and level could become an important precursor. Practical – as well as emotional – training is all that separates someone with sight loss from joining an online tech forum call, buying a new device, choosing an app, signing up for an in-person orientation and mobility course or seeking tech and travel recommendations from people with lived experience.

A series of Training Requirements research incorporating sight loss advisors, digital support staff and volunteers, and customers – all with lived experience of sight loss – alongside an intensive sector mapping exercise, have delivered a long list of 'gaps and opportunities' in the current sector training offer around technology and travel.

During Phase Two – in collaboration with our lived experience network and external partners – we will prioritise, design and test a set of prototype training assets to address the highest priority gaps, and deliver the broadest impact for blind and partially sighted people.

We are stronger together

This project is not about a piece of technology. It is about creating new and inspiring ways to engage and motivate more blind and partially sighted people to build their awareness, skills and confidence. As illustrated in our Hierarchy of Solutions model, it is about meeting each individual exactly where they are and recognising their unique starting points. We need to offer a flexible,

robust platform of training tools and resources that is adaptable. Learning pathways that can grow and evolve with each person on their life-long journey, whether they're moving forward, pausing or navigating new challenges. The support must be there to enable progress, empower choice, and respond with empathy and understanding. This is about people – not products. It is about building enablement pathways that are as individual as the people learning from them – and providing continuous personal development opportunities.

Our broader ambition for this project is to help customers access information that is relevant to their individual needs and navigate with ease between different organisations, signposting to specialist services and providers as needed. Informed by our extensive research over the last 18 months, there is a demand for increasing customer awareness and choice around technologies that could assist in planning, making and enjoying more journeys.

To further substantiate this insight, our extensive sector mapping exercise – both in the UK and internationally – has helped us to better understand the broader sight loss sector training offer, avoid duplication and identify additional opportunities to co-create, test and validate a set of novel, prototype training assets.

The more open the communication between sector partners, the more effectively we can collaborate, align our efforts and collectively enhance the end-to-end customer experience around technology and travel.

The Motability Foundation and RNIB

The Motability Foundation and RNIB launched a three-year innovation partnership in October 2024. Through this partnership, both organisations combine their expertise and work collaboratively on a series of projects that will develop and trial new accessible transport solutions for blind and partially sighted people. All solutions developed through this partnership are co-designed with blind and partially sighted people. Phase Two of Travel Well With Tech is one of the key projects that will be delivered through this partnership.

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Get in touch

We welcome approaches from sight loss sector partners, transport providers and technology developers.

To learn more about our work and get involved in creating a world that is inclusive by design, contact us at:

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