INDIMO: PROJECT GOAL

The INDIMO project enables developers, policymakers and service operators to advance **inclusive and user-centric digital mobility solutions.**

INDIMO: OBJECTIVES

#1
To improve the understanding of the **users' needs** towards the digital transport system.

#2
To improve knowledge about **users' requirements** in personalised digital transport systems.

#3
To **co-create tools** that help policy makers to generate an inclusive, universally accessible personalized digital transport system.

#4
To foster the **Universal Design** approach throughout the planning and design process of digital application and services, both for accessibility and inclusion.

#5
To influence **future policy** by feeding project results into European, regional and local policy making.

INDIMO:TOOLBOX

Universal Design manual for digital transport services

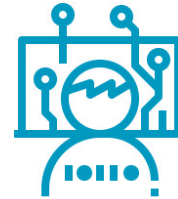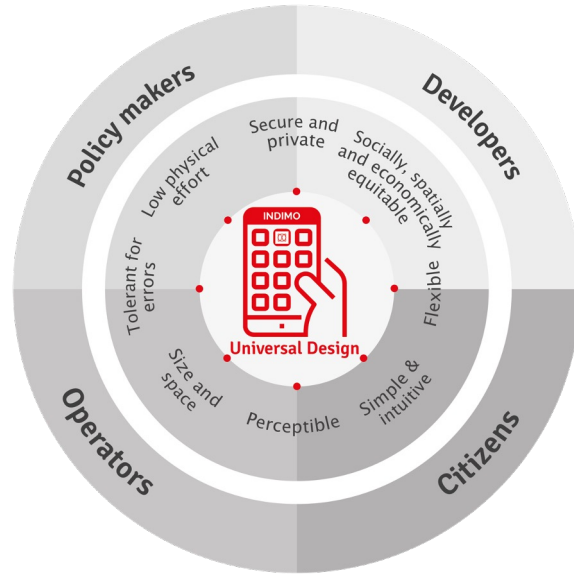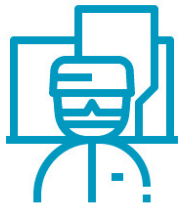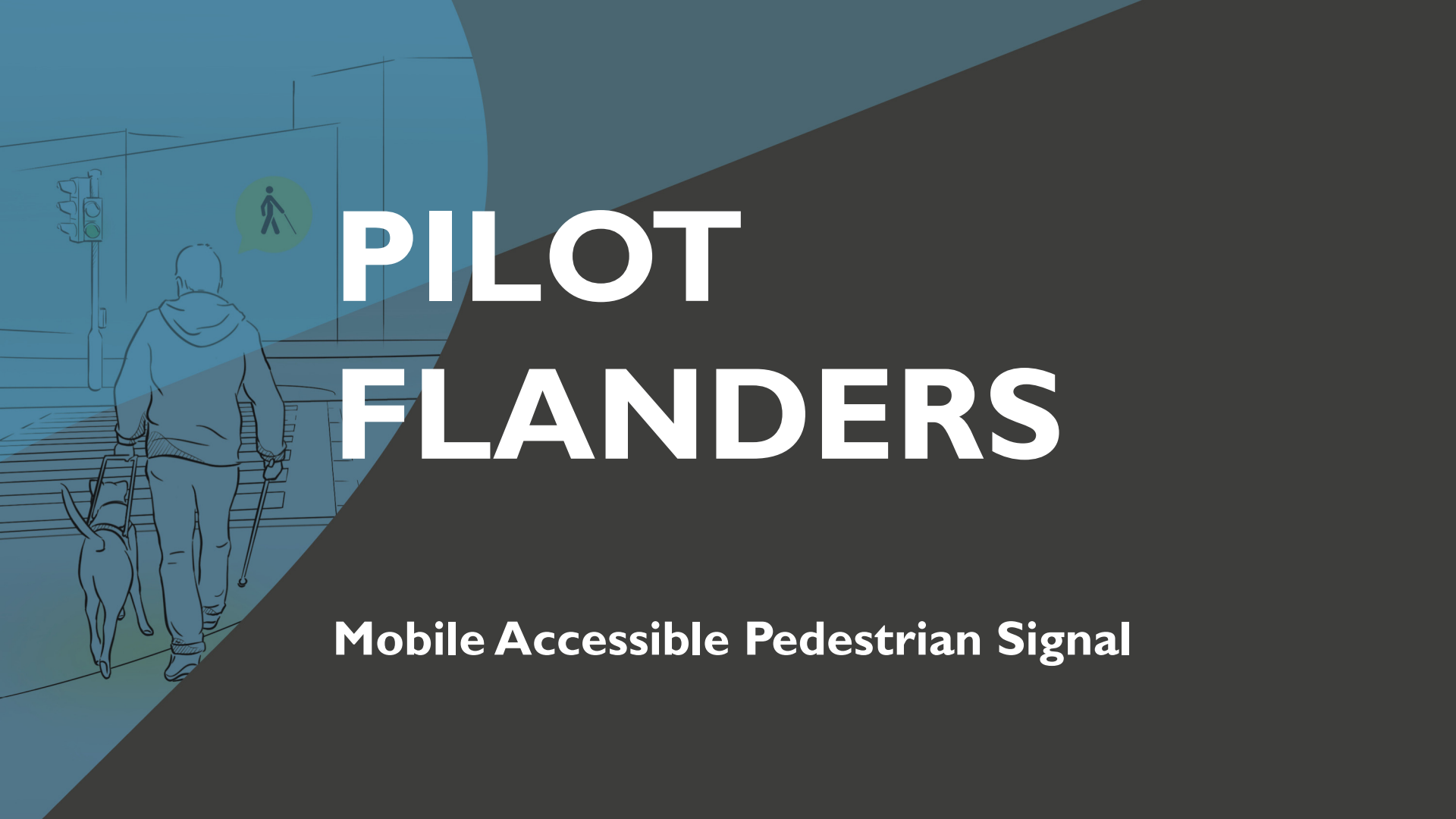Universal interface language icons for digital transport services

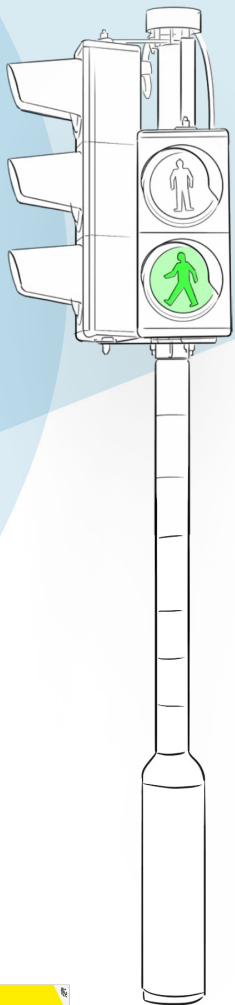Cybersecurity and privacy assessment guidelines

Policy evaluation tool

TARGET GROUPS AND METHODOLOGY

PILOTS

PILOT FLANDERS

Mobile Accessible Pedestrian Signal

CONTEXT

"Bart became gradually blind during his life. While walking towards crossings, he uses his hearing and the accessible pedestrian signals. When there is none, he takes risks so he tries to avoid these intersections."

What if Bart would always be sure that he can get the status of the traffic light, without too much hassle?

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LINK WITH MOBILIDATA PROGRAM

Goal: create impact in Flanders
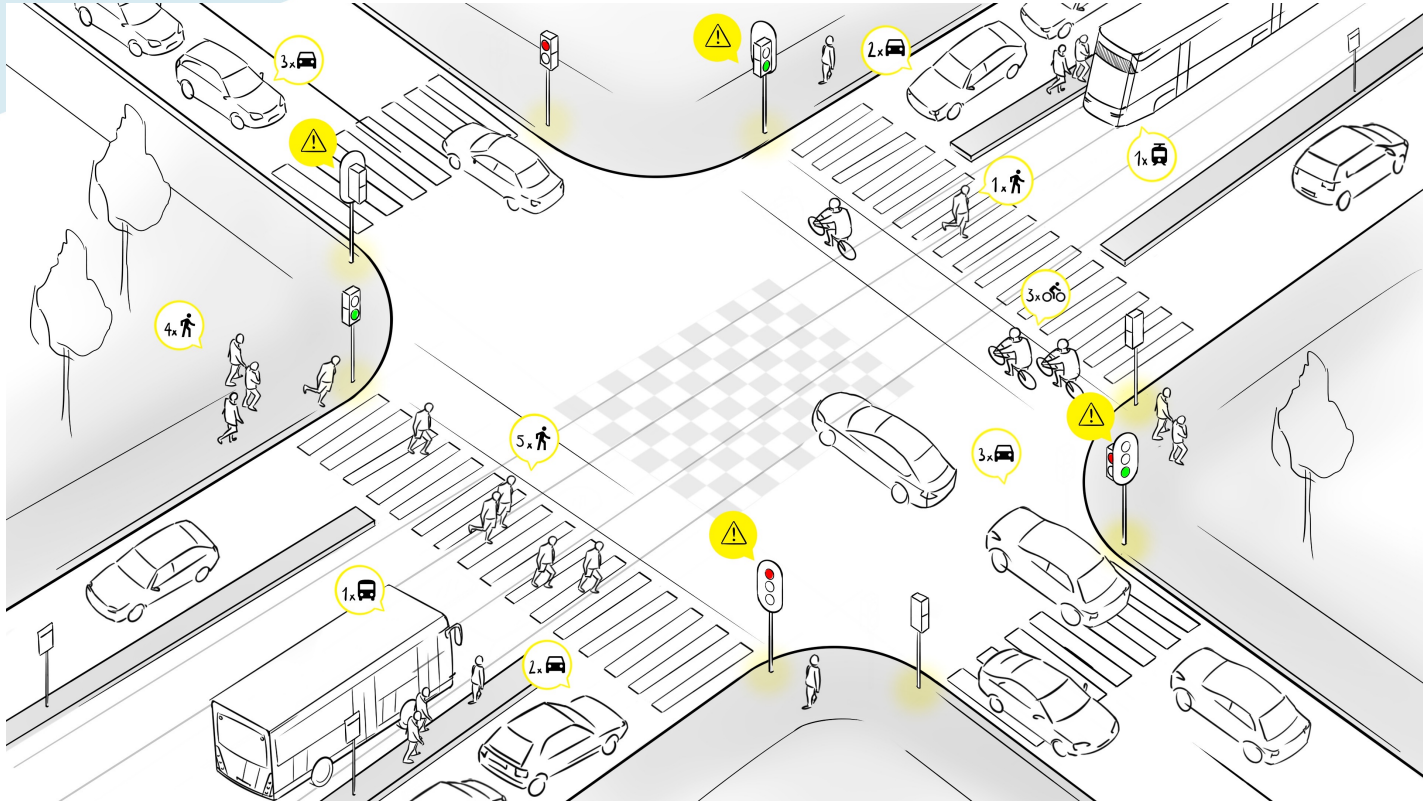
Road safety	Traffic efficiency	Sustainability

LINK WITH MOBILIDATA PROGRAM

By implementing **connected mobility** in Flanders based on the combination of:

- a reliable data-driven interface
- innovative mobility solutions
- intelligent traffic lights
- development of new innovative applications

LINK WITH MOBILIDATA PROGRAM

FLOW & METHODS OF RESEARCH

Make mock-ups

Iteration on development

Interviews & observations with end-users

Start development

Evaluation + Reach out

Kick-off scoping exercise

Gather feedback

POC-TEST 2

Set up cop stakeholders

Interviews with mobility guides and experts

POC-TEST 1
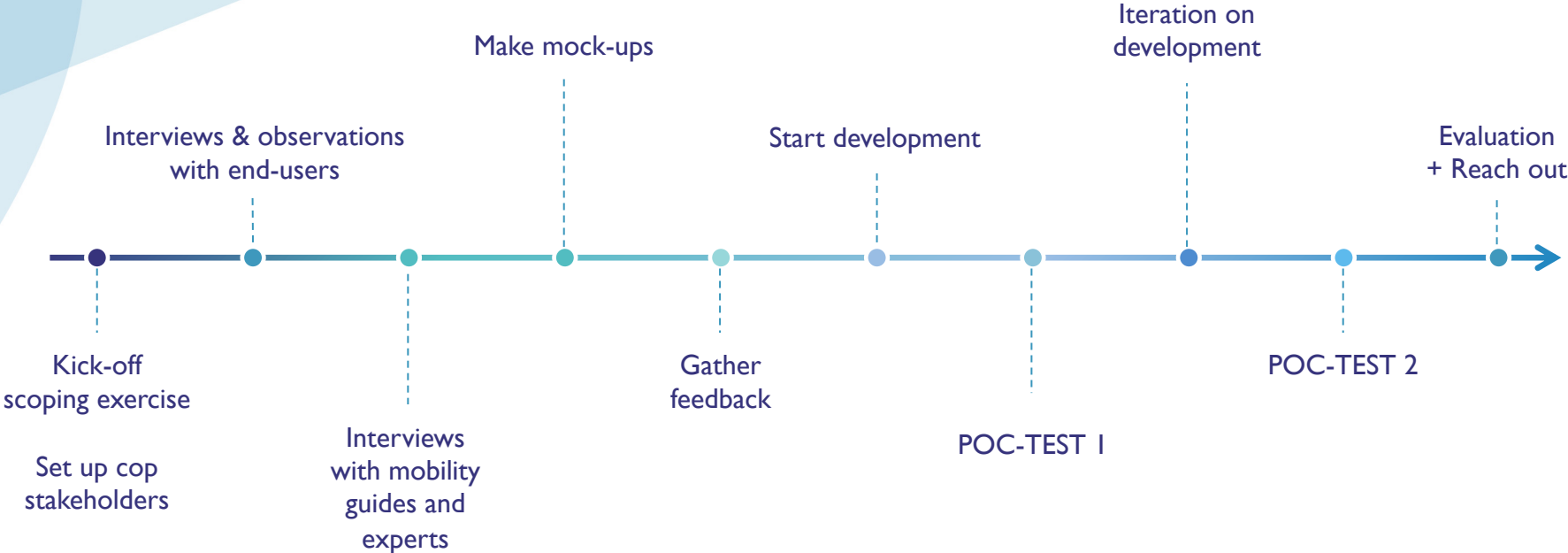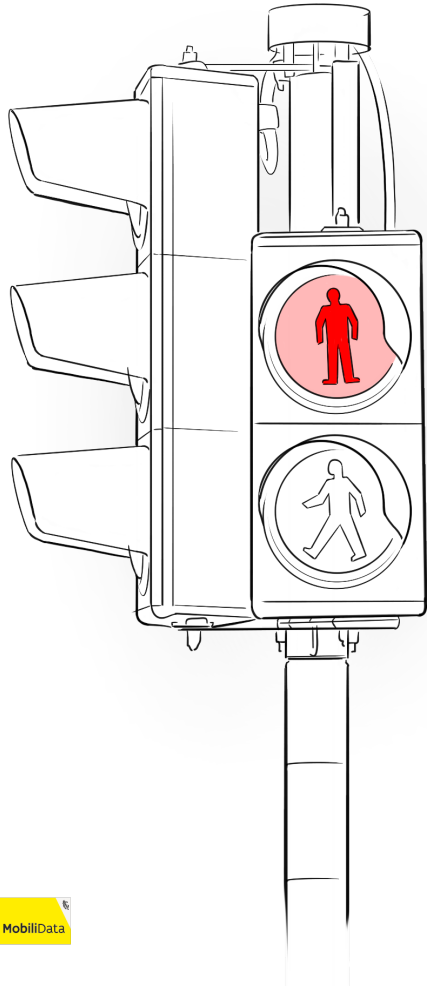
SKETCHING THE EXPERIENCES OF BLIND PEOPLE IN TRAFFIC

› Navigating in the city requires a lot of **concentration** and is very **stressful**

› Streets are full of **hazards** and **obstructions** like
  - E-steps
  - Waste bags
  - Potholes
  - Road works

› Lack of **accessible designed** public space

› Accessible **pedestrian signals**:
  - Only 10-15% of traffic lights equipped with them
  - They do not always work
  - Switched of after 22u

SKETCHING THE EXPERIENCES OF BLIND PEOPLE IN TRAFFIC

› A big difference in **confidence** in traffic

› **Crossings** are urgent pain points for blind people in traffic
  - *Finding the traffic pole*
  - Not knowing whether the traffic light is green or red
  - Orientation problems

› Most of the time **fixed routes** are used, not many new trajects

THE SOLUTION REQUIREMENTS

› Should be able **to program a fixed route** that the user can activate when starting that route

› Should have a **confirmation/safety mechanism**

› Should communicate the **status of the traffic light** (green/red) in a user-friendly way

CREATION OF POC APPLICATION

› **Proof of Concept App** that enables blind and visually impaired people to cross signalized intersections safely

› Connects to **intelligent traffic light controllers** through an online data platform

› Gives **real-time information** about signal phase and timing of the traffic light

› Accurately determine the **exact position** of the blind person

› **Interface** that is accessible and user flow that is intuitive
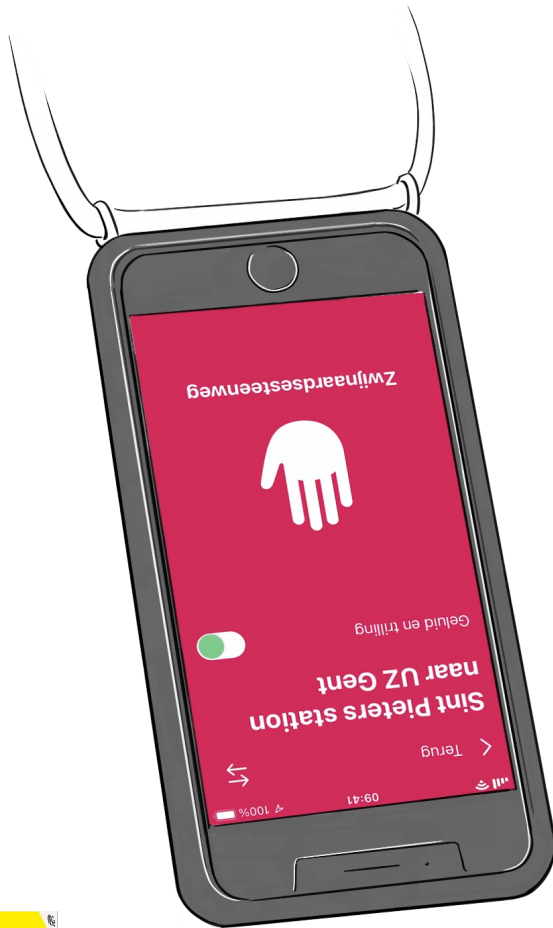
DESIGNING / DEVELOPING / TESTING

› Making **mock-ups**

› Applying INDIMO **guidelines** and Universal Design Principles

› **Testing** with end-users

› **Integrate** finding

› Making **improvements**

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RESULTS

RESULTS TESTING APPLICATION WITH USERS

Participants indicated:

› App has clear added value

› Improves safety perception

› Feel empowered to try new routes

› Would recommend it to their friends

RESULTS TESTING APPLICATION WITH USERS

It is important:

› That app can be used in combination with other services OR is integrated in existing tools they are already using

› To know that people with a visual impairment are not a homogenous group

› Safety feeling at intersections can even more be increased if at intersections:
- *Speed limit for cars and motorized vehicles is limited*
- *Tactile paving*
- *Separation of traffic flows*

› To be able to use application handsfree

› Not provide more information than necessary

TECHNICAL LIMITATIONS AND ASPIRATIONS

› **'Regular' Accessible Pedestrian Signal (APS)**

- *Sound is a guide to find crosswalk*
- *Sound is a guide to cross in a straight line*

› **Smart Accessible Pedestrian Signal (SAPS)**

- *Combination Best of both worlds*
- *Activates automatically, no need to push a button*
- *Activates only when it is needed*
- *Can provide more information through an app*

TECHNICAL LIMITATIONS AND ASPIRATIONS
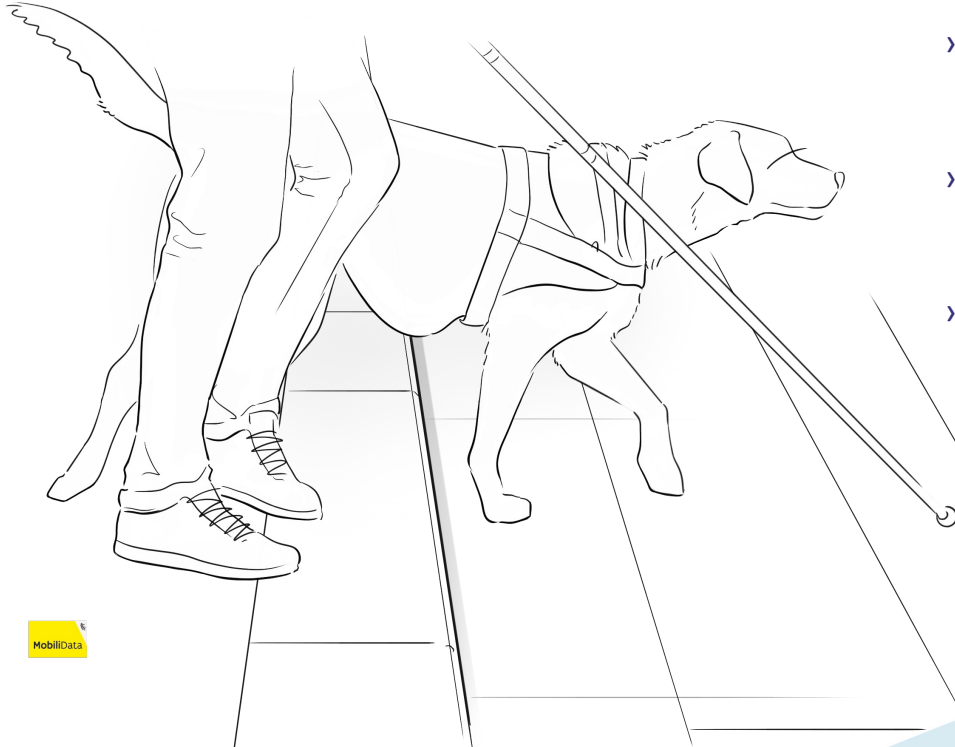
› **Standardization**
  - *Make inclusive design part of the smart intersection*

› **GPS not accurate enough**
  - *Use of Bluetooth beacons to overcome this problem*

› **Lack of available data**
  - *Location of (smart) traffic lights*
  - *Real-time info on roadblocks*
  - *Design of intersection*
  - *...*

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LESSONS LEARNED

Involve all stakeholders from the beginning to the end
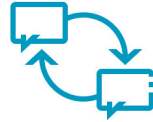
Apply short feedback loops

Search for hidden needs, dare to dig deeper

Reach out to others, communication is key

Set the expectations right

Don't forget the vulnerable road users

RECOMMENDATIONS FOR POLICY MAKERS

ROAD WORKS

Ask your contractors to restore the original pavement after works

GIS DATA

Offer APIs to mobility service providers with useful data about traffic lights, position of urban elements etc.

FEEDBACK

Make it easier for citizens to provide feedback or to report a problem

REAL TIME DATA

Update regularly data about maintenance, broken infrastructure, road works, ASP's etc.

USER ENGAGEMENT

Before investing in solutions consult citizens about the relevance of this solution

INTERSECTIONS

Make sure they are equipped with tactile pavements, guidelines, …

DESIGN FOR AUTONOMY

Think the design of your city and technology to support vulnerable people in conducting an autonomous life.

TOOLBOX

Use the INDIMO-toolbox and guidelines

DISSEMINATION STRATEGIES

Think about better dissemination and communication strategies in order to reach and engage With VRU's

SUPPORT PROGRAM

Support creation of volunteer buddy programs and apps that assist people in being able to go to unknown places

NEXT STEPS

› **Reach out** to mobility service providers to share our research findings and results

› **Write** policy brief with our main findings and conclusions for decision makers

› **Draw** guidelines for app developers and service providers

› **Develop** other tools that can empower ALL citizens to move around safely

MORE INFO

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