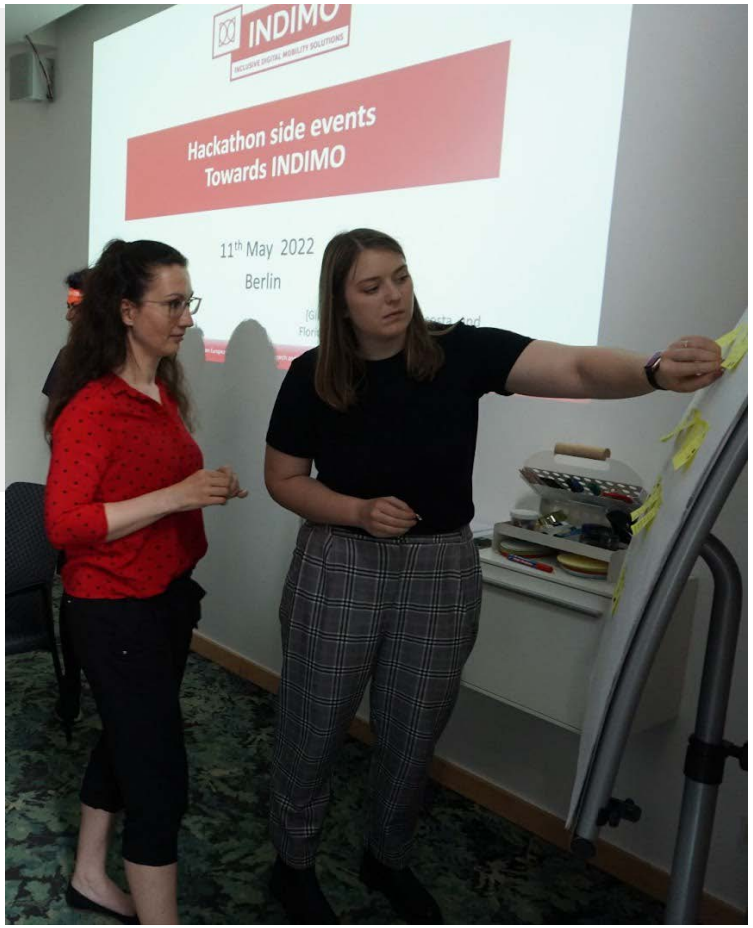
INDIMO UDM Tool

Best practices to transfer

Best practices in Universal Design are defined as building practices and procedures that comply with Universal Design principles and provide affordable design practices that meet the needs of the widest possible range of people who using digital mobility and delivery services. The best practices are context-sensitive and therefore all technical specifications must be carefully considered and discussed together with end-users, local authorities, NGO, developers, UX designers and services operators.

INDIMO collected a set of best practices to foster a broader understanding of accessibility, inclusivity, gender and cybersecurity issues and, if relevant, how these best practices may be used as resources in the development of further European, national or local standards. This document is not intended as an standard itself but rather as a compilation of existing technical specifications.



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Emilia-Romagna: digital lockers

The main requirements for digital lockers focus on the understandable language, including other foreign languages, security, and accessible location of the locker. For facing them a key recommendation is to provide first-use tutorials on multiple channels to register for the service. These main requirements can be satisfied thanks to the implementation of the below INDIMO toolkit recommendations:

Click to read each recommendation online

source UDM	Ensure internal consistency of visual icons	35
source UDM	Increase the quality and accessibility of on-site and in-person interaction with your service	130
source UDM	Learn and apply a design-for-all approach	58
source UDM	Offer an inclusive customer care	162
source UDM	Provide first-use tutorials on multiple channels to register for the service	79
source UDM	Use an understandable language	97

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Emilia-Romagna: digital lockers

Dos and don'ts from the experience	The aim of each tool (UDM, UIL, and CSG) should be clear from the start to all those involved in the co-creation process. Moreover, they should be used in a selective basis based on a case-by-case approach. Technical language should be reduced to a minimum in order to favor the active participation of non-specialists in the (re)design process.
Challenges and how were they overcome (e.g. resistance from developers in following the guideline, difficult of complying with some recommendations)	Some of the challenges that emerged reflect some of the common issues when working with small municipalities: few human resources, delays connected to bureaucracy and the need to be supported in innovative projects. Difficulties in applying the tools were linked to language barriers, the restricted number of potential users of the service, the emergence of new potential target groups not initially considered (e.g. digital natives, young professionals and digital nomads), the resistance to innovation and change by the local community, the resistance from the service provider/developers in redesigning the service in the short term.
Drivers (e.g., previous knowledge of the subject, a good cooperation)	Collaborative approach and goodwill, previous knowledge of the subject and researchers' experience in participatory processes.

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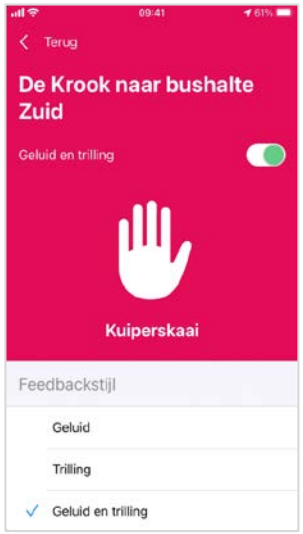
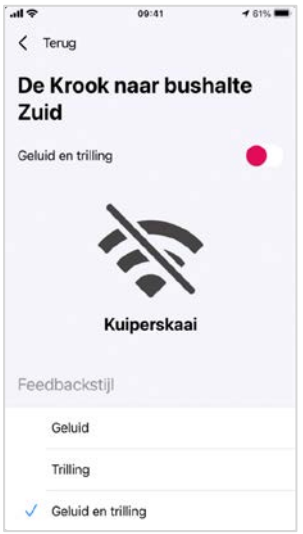
Antwerp: inclusive traffic lights

The main requirements for Inclusive traffic lights focus on developing an easy-to-use interface, including an understandable language. These main requirements can be satisfied thanks to the implementation of the below INDIMO toolkit recommendations:

Click to read each recommendation online

source CS	Adopt shield protection against intrusive cyber-attacks on impaired users' devices	175
source UDM	Increase the quality and accessibility of on-site and in-person interaction with your service	130
source UDM	Use an understandable language	97
source UIL	Assess diverse contexts of use	56





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Antwerp: inclusive traffic lights

Dos and don'ts from the experience	Iterative development with user tests in between development phases allows you to gather feedback and gain insight at a rapid pace. When designing / developing a tool, it is very important to consider the following accessibility standards: c 1. Perceivable 2. Users can detect the content of the page and interface 3. Operable, Users can interact with the components of the page. 4. Understandable: Users can understand the content and how to use the user interface; 5. Robust: The page is accessible to a variety of (assistive) technologies (eg. Android vs IoS...)
Challenges and how were they overcome (e.g. resistance from developers in following the guideline, difficult of complying with some recommendations)	Heterogeneity of the target-group: people that still have limited vision, need a completely other designed interface than people that can't see anymore. You need to test a mobility service with a diverse group of end-users; technical limits of GPS positioning: to accurately determine the exact position of the blind person at the traffic lights, we needed to use beacons. Another difficulty that we encountered had to do with the fact that we developed a proof-of-concept application. Because of that, a lot of guidelines on cybersecurity and privacy were not applicable to our solution. Make sure you set the expectations right from the beginning with your stakeholders: good mutual understanding of what the scope of the project is.
Drivers (e.g., previous knowledge of the subject, a good cooperation)	Involve the end-users of your target group and other stakeholders from the beginning in your project to design something that is tailor made; higher end-user appropriation: people that were part of the co-creation process are also more willing to help with recruitment of end-users, to disseminate and communicate results etc. Also: apply short feedback group, not only at the end of the project, but also intermediate moments in which you evaluate the tool, and then in a next phase adjust the tool based on the feedback you've received

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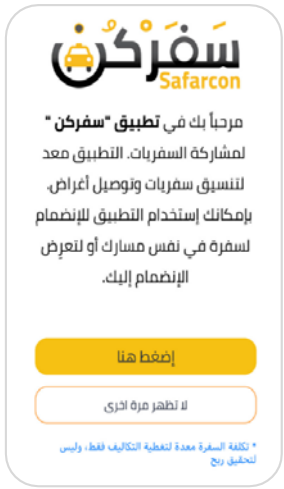
Galilee: informal ride-sharing

The main requirements for Informal ride-sharing focus on the use of an understandable language and on the endorsement from trusted organization. These main requirements can be satisfied thanks to the implementation of the below INDIMO toolkit recommendations:

Click to read each recommendation online

source UDM	Create a positive attitude towards the service through communication	115
source UDM	Increase the quality and accessibility of on-site and in-person interaction with your service	130
source UIL	Invest a part of your time and money from the early phases to build a network of people who will participate in the design process	46



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Galilee: informal ride-sharing

Dos and don'ts from the experience

The dos: to follow a clear design process of a mobility service from conceptualization to implementation, taking into consideration the target audience's needs, limitations, and capabilities. The Don'ts: Implementing all features and recommendations of the tools is not necessary, but rather find what works best for your specific needs. It was relatively easy to implement the tool recommendations once we prioritize and filter out. (context sensitive)

Challenges and how were they overcome
(e.g. resistance from developers in following the guideline, difficult of complying with some recommendations)

When the tool recommendations were prioritized and filtered out, implementation was relatively straightforward. It was challenging to convince developers to learn/use the new tools.

Drivers
(e.g., previous knowledge of the subject, a good cooperation)

Using these tools, we analyzed, evaluated, and redesigned our digital ride sharing mobility app and offered services in the rural region. For those with previous knowledge of the subject, the tools were intuitive. Thanks to the collaboration of the pilot stakeholders, we were able to take the service to a whole new level. It was consequently suggested by the Israeli Ministry of Transportation (MOT) that the app be promoted to other regions that have poor public transportation as a mobility alternative.

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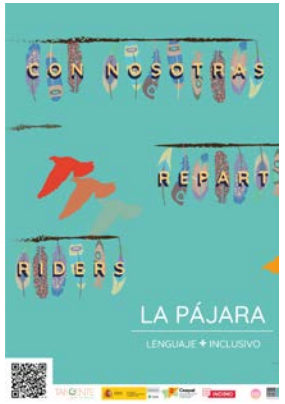
Madrid: cycle logistics platform for delivery

The main requirements for Cycle logistics platforms focus on simplifying language and the registration process and take care of the human contact. These main requirements can be satisfied thanks to the implementation of the below INDIMO toolkit recommendations:

source UDM	Create a positive attitude towards the service through communication	115
source UDM	Include auto-filling suggestions when requiring users' input	71
source UDM	Provide customisation, personalisation and adaptation options	7
source UDM	Simplify the registration process	74
source UDM	Use an understandable language	97
source UIL	Support the launch of a EU level task-force dedicated to inclusion and accessibility	45
source CS	Adopt shield protection against intrusive cyber-attacks on impaired users' devices	175
source CS	Summarize and simplify personal data treatment procedures	108



Click to read each recommendation online

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Madrid: cycle logistics platform for delivery

Dos and don'ts from the experience	**Dos**: 1. pay attention to the data Collection Methods when starting the UD tools elaboration ; 2. What contributes to universality is reaching out to the greatest possible "intersections" of the population, people whose voice tends to be "reduced by the number" in statistically representative samples; 3. to adopt a multi-stakeholders approach (i.e. multi-actors communities of practices) in the elaboration of the digital services improvement based on the INDIMO tools recommendations. **Don'ts**: 1. to not leave NGO, mobility/delivery services providers, developers and policy-makers to use alone the tools, always provide them some contacts for asking what is behind the tool. 2. to not believe that all recommendations are auto explicative, sometimes it is better to be redundant.
Challenges and how were they overcome (e.g. resistance from developers in following the guideline, difficult of complying with some recommendations)	The first challenge concerns the testing and validation of the tools by the end-users' target-groups when they include intersectional profiles of low-income, non-connected and socially isolated people, for example. It was needed to organize a step-by-step process for testing (i.e. ordering on the food delivery platform) and validating by providing their feedback. The second one, to find social organizations to endorse the inclusive food delivery service.
Drivers (e.g., previous knowledge of the subject, a good cooperation)	A key driver includes the cooperation within the safe space of the Community of Practice among different stakeholders including end-users with disabilities, institutional agencies for disabilities, policy makers, NGO, developers was a key driver. The main result was an each-other learning.

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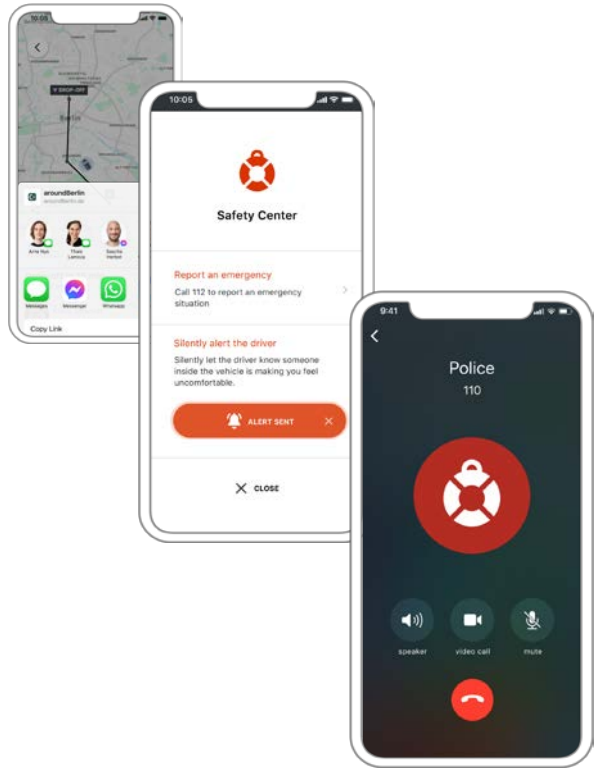
Berlin: on-demand ride-sharing

The main requirement for on-demand ride-sharing services integrated into multimodal route planning is to focus on increasing the safety and security perception through human contact and make the service more inclusive for people with low digital skills and women with children. Such requirements can be satisfied thanks to the implementation of the below recommendations:

Click to read each recommendation online

source UDM	Develop an easy to use interface	66
source UDM	Include auto-filling suggestions when requiring users' input	71
source UDM	Increase safety and security perception through human contact	160
source UDM	Increase the quality and accessibility of on-site and in-person interaction with your service	130
source UDM	Use an understandable language	97
source UIL	Build trust, connect with committed communities and plan periodic and incremental improvements	59



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Berlin: on-demand ride-sharing

Dos and don'ts from the experience

The dos and don’ts of using the INDIMO tools include the valuable experience of the co-creation and co-design processes developed within the community of practices in a nice and online “cozy” context characterized by openness and interaction. A variety of stakeholders such as UX-designer, project manager, users and end-users representatives (e.g. ProBahn) and representatives of women and caregivers deliberatively chose the UDM recommendations to further work on and prototyped ideas. A suggestion from developers was to summarize the recommendations in an easy implementable way, which was promptly applied in the latest versions of the tools.

Challenges and how were they overcome
(e.g. resistance from developers in following the guideline, difficult of complying with some recommendations)

The bigger challenge was to rely on remote testing and validation of the prototyped emergency buttons, hoping the solution could work also in real-life testing once these emergency buttons would be integrated in other ridesharing services.

Drivers
(e.g., previous knowledge of the subject, a good cooperation)

The drivers in this case were the innovation-oriented female UX designer and project manager who considered it important to satisfy female caregivers, as essential end-users’ requirements and therefore prototype three different emergency buttons and proceed with their evaluation and selection.

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Identification of users' satisfaction

The best practices have been evaluated by inquiring involved users through a users' satisfaction survey. Results are summarised below.

Indicator
Change in the users' satisfaction with services (re)-designed with the help of the INDIMO Toolbox

Impact assessment mechanism
Survey of users from pilots D 4.3
Synthesized evaluation report for pilots

Results from INDIMO surveys

Pillars considered in each pilot:

- Accessibility
- Inclusiveness
- Gender
- Acceptance
- Trustworthiness

Averages for all pillars	Survey 1 2021	Survey 2 2022	Change	%
Pilot 1 | Digital lockers	n.a.	4,42		
Pilot 2 | Inclusive traffic lights	4,75	4,97	0,22	5%
Pilot 3 | Informal ride-sharing	4,12	4,35	0,23	6%
Pilot 4 | Cycle logistics platform for delivery	4,69	4,77	0,08	2%
Pilot 5 | On-demand ride-sharing	4,76	5,15	0,39	8%

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Conclusions on best practices

These set of best practices is:

- Context- sensitive
- Service- sensitive
- Target-groups' sensitive
- Universal and inclusive at the same time
- Based on the target audience's needs, limitations, and capabilities
- Based on the collaboration between end-users, researchers and people coming from the target-groups
- Based on common knowledge gathered by the INDIMO Communities of Practice
- Applicable for proof of concept, prototypes and for updating current digital mobility and delivery services.

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