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Transnational Evaluation Report

Innovative transportation services for blind and partially sighted passengers in Danube region
DANOVA

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1. INTRODUCTION

Most of the time, a person with a visual impairment has eyesight that is so bad that it can't be fixed. This means that even with the use of glasses, contact lenses, medicine, or vision surgery, a full correction is not even achievable. Depending on who is using the term, "vision impairment" might mean different things. Different medical groups, organizations, and clinicians may use the phrase in slightly different ways. Even visually challenged individuals themselves might have different opinions about it.

The major goal of the DANOVA project is to make it easier for blind and partially sighted people to use airports, seaports, railway stations, and bus stops by creating a set of new services and skills that will provide them complete access to all transportation resources, amenities, and services.

The goal of the pilot testing was to see if the technology, service, or way of running a facility really made it accessible. During the testing phase, the partnership put a few of the solutions from the first thematic WP into action and collected data on how well they worked, how much they cost, how long they would last, and how satisfied people were with them. Within this phase, different areas were looked at based on the problems that partners had noticed.

Keeping in mind that the goal of the project is to test new ideas that could quickly improve accessibility and make sure that blind or partially sighted passengers are not left out, the project also wants to find ideas that could be used in other Danube Region facilities. In reality, the partnership set up test visits while the pilot project was going on to show other ports, airports, and towns in the area the benefits, strengths, risks, and challenges that must be faced.

This led to the this document - the evaluation report, which is meant to give feedback on how well the action worked and show how it helped blind and partially sighted passengers. The assessment report is very important for figuring out how well the solutions can be used and implemented.

The goal of this work package is to look at how these solutions can be changed and used in other parts of the Danube area that are similar, as well as testing them in airports, ports, and bus terminals. In order to give relevant information on each testing action's applicability in other areas, this document consists of brief description of the pilot action each partner has implemented, their results, analysis and potential for transferability comments. The last chapter is quality improvement measures for each testing area to address the challenges identified during the testing.

2. BKK - Centre for Budapest Transport

2.1. Summarry of pilot actions

BKK, like the other project partners, conducted an internal assessment of the site's accessibility for blind and partially sighted people. This evaluation was overseen by the WP T1 Coordinator. The findings of the internal study were compiled into a spreadsheet that contained all identified solutions and best practices for blind and partially sighted accessibility. Best practices and solutions are summarized in the catalog of existing solutions and best practices.

As a result, the DANOVA evaluation method was used to identify the most important accessibility sites and to define the scope of intervention at BKK. Based on the findings of the BKK Local Assessment report (an examination of the stops for bus lines 100E and 200E, as well as their surrounding neighborhoods and public spaces) and the BKK Transnational Assessment report, the BKK DANOVA team determined that the most important steps are to make BKK's websites and apps accessible to blind and visually impaired passengers, and to collaborate with Budapest Airport to construct a PRM corridor.

Two of BKK's pilot initiatives are the accessibility audit and the development of the website and BudapestGO journey planner. Every passenger's journey begins on the BKK website, where they can find all of the necessary data and information. People who use Budapest's public transportation can also use the BudapestGO website and mobile app to plan their trips. During the evaluation process, it was discovered that the BKK website (bkk.hu), the BudapestGO website (go.bkk.hu), and the Android and iOS apps are not designed to be usable by blind and partially sighted users. As a result, BKK will assess the accessibility of web pages and make changes based on their findings. By taking these steps, blind and visually impaired BKK website and app users will be able to travel more safely and affordably.

The creation of BudapestGO, which will work with the BUD indoor navigation software for the PRM Budapest Corridor, is another component of the pilot project. BKK designed the BudapestGO route planning app to be compatible with the Budapest Airport Indoor Navigation app. This link connects to the PRM corridor in Budapest. Two applications communicate with one another to allow passengers to easily transition between the two platforms. The entire system will be accessible to people who are blind or visually impaired. A passenger who is blind or has difficulty seeing will be able to travel safely from the city to the airport as a result of this activity.

As an outside expert, representatives from the Hungarian Federation of the Blind and Partially Sighted (MVGYOSZ) have been involved in the accessibility evaluation of the BKK process to determine if any major steps need to be taken. Stakeholder best practices and perspectives were also gathered during the first stakeholder workshop, which took place in September 2021, and will be considered in future BKK development plans.

The second stakeholder workshop, held on March 2, 2022, was an excellent opportunity to discuss how potential project pilot interventions might affect the environment. The parties involved emphasize the importance of app and website accessibility.

2.2. ANALYSIS OF RESULTS AND POTENTIAL FOR TRANSFERABILITY

Accessibility audits and developments of BKK websites and applications were the main results was the DANOVA project from BKK site. The IT accessibility is as important as the physical accessibility on urban public spaces for blind and visually impaired ones. Nowadays, the blind and visually impaired passengers use their mobile phones and other IT devices for everyday route planning and navigation.

IT barrier-free compliance needs to be considered from the first step in the development of digital products (i.e. websites, applications). Managing accessibility websites and applications subsequently is a time-consuming, compromising and resource-intensive task. Fully accessible sites can be ensured by involving IT accessibility professionals in the first steps of development.

The following steps are necessary to accessible IT developments:

- Assess the current state of IT before any type of IT development or major maintenance.
- Involvement of an IT accessibility expert in the development steps, consultation
- Check back after the development is completed
- Development requires first an assessment of the current state, followed by IT development and back-testing. The time and human resource requirements for post-accessibility are significantly higher than if an accessibility expert is involved in the development of a website or application from the beginning

The other main transferability result was the DANOVA methodology to involve local participants, stakeholders and association to finalize pilot interventions and jointly understand the meaning of the results. In addition to this, appropriate involvement and consultation of local stakeholders is also useful for other aspects. The experience of blind and partially sighted passengers can support pilot interventions with empirical knowledge that would be very difficult for companies to obtain. Compliance with universal design guidelines will ensure that all groups (e.g. blind and partially sighted, deaf, people with reduced mobility, people with pushchairs, elderly, digitally illiterate) have access to suitable barrier-free public spaces that they can use safely and with appropriate independence.

3. BUDAPEST AIRPORT

3.1. SUMMARY OF PILOT ACTIONS

The first stakeholder meeting at Budapest Airport with many participants from various stakeholders taught them a lot about their perspectives and how supportive they are of their proposed actions. The main goal of the meeting was to hold a roundtable discussion to learn about the terminal's accessibility issues so that we could later determine the best strategy to implement our pilot projects based on the feedback.

Based on stakeholder feedback, the Budapest airport team began to believe that an easy-to-use, hands-on interior navigation software and mobile application would meet the mobility needs of blind passengers at Budapest Airport. In order to jointly establish the PRM Mobility Corridor in Budapest from the city center to the airport's boarding gates, this navigation should be compatible with the BKK Futár mobile application.

The importance of providing usable information to blind and partially sighted people was emphasized in the local assessment report. The Budapest Airport is updating and improving its website so that visually impaired passengers can access it and obtain all of the information they require for their trip. The new website will go live in two years, so it is critical that they understand how to make it fully accessible to blind and partially sighted people throughout the planning and design phases. As a result, as part of the DANOVA program, BA's team carried out a website accessibility audit prepared by a knowledgeable consultant to determine what factors to consider and what types of development steps to initiate.

Budapest Airport wanted to create a hands-on interior navigation software and mobile app to help people who are blind or visually impaired get from the airport to the boarding gates. The software takes the traveler from the time they arrive at the airport (via taxi, car, or public transportation), through the check-in desks and security gates, to the boarding gates. Flight information integration: When a user enters his flight number, the system directs him to the correct location to board his flight.

With the needs of blind or partially sighted people in mind, the system is designed to have both touch-based and voice-based user interfaces. The program will assist people in getting around on foot both outside (from the taxi stand and BKK bus stop to the terminal entrance) and inside (within the terminal's passenger zones). The use of Bluetooth, beacons, and wifi technologies is critical for accurate indoor positioning to within one meter. The user interfaces and application navigation components are designed to adhere to the W3C's WCAG 2.1 guidelines.

Budapest Airport hopes to have a new website by 2024. The current website does not meet the needs of blind or partially sighted people. Budapest Airport intends to test the accessibility of its website in 2022 using what it has learned from the DANOVA project. The audit report will provide a comprehensive picture of the website's accessibility flaws and weaknesses, allowing the suggestions to be implemented by creating a new website. The WCAG guidelines and the EN 301549 standard must be used for the accessibility audit (levels A and AA).

3.2. ANALYSIS OF RESULTS AND POTENTIAL FOR TRANSFERABILITY

BUD pilot action has improved accessibility to BUD infrastructure for blind and partially sighted passengers.

Prior to the intervention of the pilot action, there was no solution for self-orientation using an indoor navigation software. Following the pilot action implementation, the BindiMaps software and beacon infrastructure covered a total of 7070 square metres.

Furthermore, because the web page is considered the starting point of each journey, BUD has performed a web page accessibility check and has implemented the recommendations by designing a new webpage, following a separate session and online presentation held internally at BUD.

There were a total of two high, four medium, and six low priority type interventions identified for BUD, with seven of them being implemented (81%).

The accessibility assessment identified problems that were solved by implementing pilot actions that ensured accessibility for blind and partially sighted people to the extent necessary so that they, as air passengers, could participate and use the service in question much more equally. The accessibility standards required for easier and equal use of the Airport facility for blind and partially sighted people have been ensured by implementing 1/2 defined top priorities and 4/4 defined medium priorities. According to the findings of the assessment, Budapest Airport has identified the following pilot action interventions to be implemented as part of the DANOVA project:

- The use of BindiMaps indoor navigation software and a mobile application to provide voice and speech-based navigation for blind and partially sighted passengers in the terminal's landside passenger areas (medium priority measure number 4)

- run a website accessibility check (medium priority measure number 4).

The accessibility improvement is difficult to quantify, but it can be said that Budapest International Airport is the first in the world to allow blind and vision impaired passengers to navigate safely and independently on landside areas of its terminals, thanks to unique Australian-developed technology from BindiMaps.

It is critical to draw conclusions on project management and implementation at the end of each project. **When it comest to potential for transferability and advice to similar transportation facilities, the BUD team identified the following lessons learned from this project**:

- More time must be devoted to the procurement phase (at least 6-8 months), so the activities must be scheduled so that more time is available for pilot action implementation and testing;

- Collecting and validating stakeholders' opinions on potential partners prior to contracting is critical if you want to select a suitable company. The participation of Blind Unions in the pre-selection process can aid in the identification of potential suppliers;

- Creating a brand new app from scratch requires significantly more effort, time, and money than purchasing and configuring an already existing and well-proven app. With a tried-and-true technology, you can be confident that the system will function properly after the customization period.

BUD's team believes that this pilot project can be easily replicated at other airports because the supplier company has a well-proven, tested technology in a variety of environments such as hospitals, office buildings, shopping malls, transportation company buildings, and so on.

If such an indoor navigation app is considered for implementation, the following recommendations can be made:

- Talk about the installation schedule a few months before the start date. BindiMaps is a rapidly expanding company, and they may already be booked for the coming weeks or months.

- Plan on providing a floor plan of the area to be covered early in the project.

- Implementing mobile navigation does not necessitate a large in-house project or an IT team. BindiMaps handles the entire installation and scheduling process. Their team is in charge of map design, beacon installation, route guidance, and location testing. To stay on track, weekly follow-up project meetings between members are always recommended.

- Bindimaps is a reliable and professional team of passionate individuals; don't be afraid to ask questions or contact the team before making a decision.

4. DUBROVNIK PORT AUTHORITY

4.1. SUMMARY OF PILOT ACTIONS

The pilot action of DPA can be summarized with the installation of Braille labels and large color labels in the passenger terminal. The accessibility of Dubrovnik Port Authority for blind and partially sighted passengers is significantly improved, as all major points in the passenger terminal are covered with Braille labels and large color labels.

Another aspect of the DPA pilot action is web page accessibility. The starting point for every passenger journey is the port authority's website, which has all the information and data passengers need. During the initial testing, it was found that the DPA website is not set up well enough for blind and partially sighted people to use it. As a result, DPA aimed to improve web page accessibility and implemented the majority of the suggestions in it.

4.2. ANALYSIS OF RESULTS AND POTENTIAL FOR TRANSFERABILITY

Nine accessibility issues were identified; pilot action addressed the two with the highest priority, accounting for 22% of the total.

The DPA pilot project has made it easier for blind and partially sighted passengers to use the DPA website. Before the pilot action, passengers who were blind or had limited vision could not use the DPA website.

Also, because the web page is considered the starting point of every journey, DPA has done a web page accessibility check, put in place recommendations, and updated the web page to make it fully accessible to blind and partially sighted people.

Several problems and challenges arose during the pilot action's implementation - they are related to:

• Technical definition of pilot action in public procurement process. DPA lacked the necessary knowledge to determine the design required for Braille labels. As a result, the assistance of CBU experts was required in this regard.

• Technical definition of pilot action in public procurement process. DPA lacked the necessary knowledge to select software for blind and partially sighted passengers' Website accessibility. The assistance of CBU experts in this regard was also critical.

The assessment of accessibility improvement, while difficult and demanding, is generally estimated at 75% given the guidelines for an individual approach to each individual in need.

The DPA team thinks that this pilot action can be repeated in another transportation facility because accessible signage for blind and partially sighted people is standardized, includes expert assessment and creation of optimal accessibility solutions for blind and partially sighted people, and is universal in meeting the needs of the blind and partially sighted population, which should be adapted to the possibilities, limitations, and specifics of each transportation

facility. Website software developed for their website can also be used on other public websites. Examples of good practice, on the other hand, can be multiplied in the same way or with modifications based on professional advice.

The advice DPA's team has to offer is to include organizations representing blind and partially sighted people, experts in relevant fields, and end users in the process, as this will ensure that the transportation facility's actions comply with the needs of targeted users as well as legal requirements and standards. This way, the facility will have the opportunity to implement best practices while avoiding additional costs associated with future adjustments.

5. DUBROVNIK AIRPORT

5.1. SUMMARY OF PILOT ACTIONS

During the process of internal research and collecting best practices, Dubrovnik Airport gained a lot of insight into the accessibility of blind and partially sighted people. The DANOVA project has taught us the most important things, such as how to train staff to work with blind and partially sighted people, how to set up and display tactile walking surface indicators, what facilities are required for assistance dogs (guide dogs) and service animals, how to make the website and mobile apps accessible, and so on.

The pilot action's main goals were to install TWS, place orientation plans and signs in the restrooms within the DBV perimeter (landside area, terminal building), and make the website easier to use.

5.2. ANALYSIS OF RESULTS AND POTENTIAL FOR TRANSFERABILITY

The DBV pilot project has made it easier for people who are blind or partially sighted to use DBV infrastructure. There was only 55 meters of TWS in the DBV check-in area prior to the pilot action. This was only enough to connect the building's entrance to the information desk counter. Following the implementation of the pilot project, there are now 387 meters of TWS in the airport terminal building and in front of the terminal building. This connects the information desk, restrooms, arrivals, departures, public bus station, shuttle bus, information desk, and PRM corners.

Furthermore, because the website is viewed as the starting point for all trips, DBV has conducted an accessibility assessment of the website, incorporated suggestions, and changed the website to make it fully accessible to blind and partially sighted people.

The accessibility issues identified during the accessibility assessment and addressed as part of the pilot action were resolved in such a way that blind and partially sighted people could participate and use the service on an equal footing. The accessibility assessment, in particular, identified and prioritized problems, which greatly contributed to a higher quality and more objective assessment in the selection of actions that will be feasible to implement within the available funds while ensuring the independence, equality, and inclusion of blind and partially sighted people to the greatest extent possible. By implementing 4/6 designated top priorities and 3/6 defined medium priorities, the accessibility standards required for easier and equal use of the airport facility for blind and partially sighted individuals have been ensured. DBV identified six high-priority, six medium-priority, and eleven low-priority interventions, of which seven (30%) were implemented.

Even though it is difficult to measure because each person in need has different needs, accessibility improvement is given a score of 65%.

The goals, according to DBV, have been met because the activities have ensured that there is good, easy-to-read signage, that officials have been educated on the subject, and that the

public is aware of it. Furthermore, DBV's team believes that some lower-priority priorities, which will be especially beneficial to partially sighted people, will be simple to implement in the future because they will require far less money than the high-priority priorities that have already been implemented. The fact that a blind person can go to the airport alone and board a specific plane without incident is reason to be proud of what has been accomplished and to continue to improve accessibility.

The DBV team believes that the success can be attributed to high levels of engagement and a desire to carry out the planned pilot actions. These actions included a series of joint meetings, consultations, additional information, and counseling, all with the goal of making changes or ensuring the highest level of accessibility possible. Examples include the Croatian Blind Union's field work to determine the type and quality of the surface, as well as the size of the area, in order to provide a professional and accurate conceptual solution based on economic and functional principles; and the provision of information, consultation, and expert teamwork assessment of the development of optimal conceptual solutions for the installation of TWSIs for the blind.

One of the most important lessons the DBV team is believed to have learned is that if you want to change things for a specific group, you must work with them and get to know and understand their needs and differences. Another important thing Ithe team has learned is the importance of easy access and personal mobility for blind people, as well as the importance of improving the knowledge of both administrative and operational staff at the transportation facility. This is also related to the importance of training on how to approach and converse with people who are blind or have low vision, which the transportation facility intends to use in the future.

Several problems and challenges arose during the pilot action's implementation:

• Technical definition of pilot action in public procurement process. DBV lacked the necessary knowledge to determine which TWSs should be placed indoors and which outdoors. As a result, the assistance of CBU experts was required in this regard.

• There was a delay in delivering TWSs to the pilot action site, which resulted in a delay in installing equipment. The original deadline was set at 90 days from contract signage (12.4.2022), but due to a delay in shipment of TWS's from ChIna and the unexpected start of war in Ukraine, the delivery date of TWS's was pushed back and TWS's were implemented on 27.5.2022.

• Because the TWSs used are made of stainless steel (indoor and outdoor), with an anti-slip surface and small holes, DBV had difficulty cleaning them. DBV will need to purchase specialized cleaning equipment as well as chemicals and cleaning products that are not harmful to stainless steel (especially outdoor). Nonetheless, because of the type of TWSs installed, they can easily become dirty and black.

6. MUNICIPALITY OF MARIBOR

6.1. SUMMARY OF PILOT ACTIONS

The Municipality of Maribor gained a lot of knowledge about the accessibility of blind and partially sighted people from the DANOVA project, most notably information about the detailed assessment of the existing level of accessibility at the major bus terminal. The main bus station was made accessible to blind and partially sighted travelers for the first time. As part of a larger plan, the audit team used the DANOVA assessment approach to direct the assessment process at test sites by providing information on all areas that needed to be tested to be considered. As a result, the assessment report was created. It benefits not only the transportation terminal manager but also municipal officials. During this project, more was learned about new recommendations for website and smartphone accessibility, as well as applications and recommendations for improving staff training for partially sighted blind and visually impaired people (from terminal management to public enterprises and municipal traffic departments).

The main goals of the Maribor Municipality's pilot actions were to install a large freestanding interior bus timetable display, acoustic signals for traffic lights, and use contrast signs and stripes within the station (terminal, platforms). The measures aim to make it easier and faster for partially sighted people and those who assist blind people to obtain timetables, as well as to improve and add new audible signals.

6.2. ANALYSIS OF RESULTS AND POTENTIAL FOR TRANSFERABILITY

There were a total of 16 High, 24 Medium, and 36 Low priority type interventions identified for Maribor's main bus station (and two bus stops), of which the Municipality of Maribor has already implemented 10 (13%). All interventions were carried out at Maribor's main bus station.

Although it is very difficult and demanding, given the guidelines for individual approach to each individual in need, the assessment of accessibility improvement is generally estimated at 60%.

MOM pilot action has made MOM infrastructure more accessible to blind and partially sighted passengers at Maribor's main bus station. Prior to the pilot action intervention, travel information about bus departures was displayed on displays at the main station, but the displays were too high (above eye level), making reading the information from a close distance impossible. The data displayed was also not in an appropriate format (size, fonts and colours).

Following the implementation of the pilot action, two large free-standing displays were installed at the main bus station with information in format (size, fonts, and colors) specifically designed for partially sighted passengers. Larger printed versions of bus timetables were also placed on the platforms of local city buses. Previously, timetables were printed in A4 format; now, they are printed in A3 format. Timetables displayed on the website in PDF format have been converted to readable PDF format, allowing blind and partially sighted passengers to read them using reading apps.

In addition, a simplified map of the main bus station was created to help passengers find their way around the station. Maps are available at the bus station's entrances, inside the station, and on the Maribor local bus operator's website. Users can also download the map and enlarge it if necessary.

The main bus station's accessibility was also improved with contrasting warning strips on the entrance stairs, a fixed handrail at the entrance stairs, improved lighting at the entrance, and improved acoustic signals for traffic lights on the crossroads surrounding the main bus station.

MOM lacked the necessary technical knowledge to determine all of the requirements for a large freestanding indoor bus timetable display. As a result, we needed a significant amount of time to study all technical specifications and consult with IT experts from the bus operator in order to procure displays.

There was a delay in the public procurement procedure, which resulted in a delay in the installation of equipment. The public procurement began later than planned due to the lengthy and difficult process of preparing technical specifications for free standing displays. The delivery time for such a custom-made product was much longer because we wanted to order a display that would also be suitable for people in wheelchairs (not in DANOVA time frame). We discovered an option to order "standard" product (two 55" monitors with touch screen option) to reduce delivery time. We were able to discuss this option with representatives of the blind and visually impaired, as well as with the transport operator (the manager of Maribor's main bus station, who will also manage and maintain the monitors), who both supported this solution. The displays were put up in the first half of October 2022.

Consultations and communication with Marprom, the local public transportation operator, and the municipal utility and traffic departments. Representatives of MOM (Service for Development Projects and Investments - project office) met and consulted with representatives of local public transportation operator Marprom on numerous occasions during the pilot's preparation and implementation. The challenge in the communication process was learning the operator's organizational structure and communicating various details related to the pilot implementation to various departments and people. Various departments were involved in the preparation of display specifications, installation, and display function:

MARPROM's IT department, an external Marprom company that manages and operates the bus data that was planned to be displayed on free standing displays, the company's management, and technical operators who will take care of display maintenance after the project is completed.

MOM project office representatives also met with MOM's utility and traffic departments on several occasions. The meetings' topic was to identify various financing options for the measures proposed in the Local Assessment Report. The facility of Maribor's main bus station is divided between two managers/operators: MOM, which is in charge of public space, and MARPROM, which is in charge of the bus station's business. There was much debate about whether some measures could be funded from the municipal budget. According to the findings, MOM could obtain funding from other sources (set up of the Contrasting warning signs on the stairs at the entrance, fixing the handrail at the entrance, improving the lighting at the entrance, improvement of acoustic signals for traffic lights on the crossroads around the main bus station).

Enhancement of data displayed on displays. During the pilot implementation, the operator discovered several opportunities to improve the data displayed on displays in the future. Some data improvement is related to typographical corrections that the operator can make, while others are related to data corrections in the ministry's database.

This pilot action, the team believes, can be replicated in a similar transportation facility. However, the following factors must be considered during implementation: assessing the current state of accessibility

for the blind and partially sighted; prioritizing interventions; involving an expert in the preparation of technical specifications for equipment, benefits for blind and partially sighted passengers following pilot action implementation

It is recommended that organizations representing blind and partially sighted people, experts in relevant fields, and end users participate in the process, as this will allow the transportation facility to ensure that its actions meet the needs of the target users as well as legal requirements and standards. As a result, the facility will be able to implement best practices while avoiding additional costs for future adaptations.

7. PODGORICA AIRPORT

7.1. SUMMARY OF PILOT ACTIONS

Podgorica Airport learned a lot about the accessibility of blind and partially sighted people while conducting internal research and collecting best practices. The most important results of the DANOVA project were instructions for setting up and displaying tactile walking surface indications and tactile orientation plans, as well as ideas for improving signages.

The primary goals of the Podgorica airport pilot actions were to implement tactile walking surfaces, tactile orientation plans, orientation signs, color tape, contrast stripes, Braille signs, tactile warnings, and other associated equipment with TWSis in the landside and airside areas, as well as in the terminal building, as well as to improve web page accessibility and audio announcement quality.

The Podgorica Airport team believes that this will significantly improve accessibility for blind and partially sighted passengers because TWSIs, orientation plans, contrast stripes, Braille signs, and tactile warnings will be installed at all major sites on the ground and in the air. Each passenger journey begins with a visit to the airport's website, which provides all necessary data and information to travelers. The SIA web page was discovered to be insufficiently developed to be accessible to the blind and partially sighted during the assessment process. As a result, SIA will review and update web page accessibility. We intend to install microphones at each desk or counter location in order to provide effective support and clear information to customers, particularly blind and partially sighted visitors (including but not limited to check-in, information, and passport control).

7.2. ANALYSIS OF RESULTS AND POTENTIAL FOR TRANSFERABILITY

The pilot action plan's outcomes have significantly improved the accessibility of Podgorica Airport infrastructure and facilities for blind and partially sighted passengers. There were no TWSs available at the location prior to the pilot action intervention. Podgorica Airport now has 213m of indoor and outdoor TWSs, as well as 57m of tactile warning fields, thanks to the pilot action plan. The addition of large-size number labels, a video wall, and a website accessibility application is expected to improve service accessibility for partially sighted passengers. Local microphones installed at all counters have made communication between front desk staff and passengers easier and more comfortable.

There were 14 interventions identified for Podgorica Airport (5 high, 4 medium, and 5 low priority), with Podgorica Airport implementing 8 of them (57%).

The Pilot Action Plan's priority actions were mostly implemented successfully, and the detected problems were solved or reduced.

TWSIs were installed in the outdoor area, from the taxi stand to the terminal building's entrance/exit, as well as TWSIs in the building itself in the area "Departures," which lead to the info desk, check in point, toilets, and connect the "Departures" area and the "Arrivals" area on

the ground floor, as well as TWSIs in "Arrivals," tactile orientation plans, braille inscriptions, a large display, and microphone

The accessibility issues discovered during the accessibility assessment were prioritized, which greatly contributed to a more qualitative and objective assessment in the selection of actions that, with the funds available, will be able to be realized while ensuring the independence, equality, and inclusion of blind and partially sighted people to the greatest extent possible.

Although it is very difficult and demanding, given the guidelines for individual approach to each individual in need, the assessment of accessibility improvement is generally estimated at 60%.

Podgorica airport's team, is confident that this pilot action can be replicated in another transportation facility because accessible signage for blind and partially sighted people is standardized, includes expert assessment and creation of optimal accessibility solutions for blind and partially sighted people, and is universal in terms of meeting the needs of the blind and partially sighted population, which should be adapted to the possibilities, limitations, and specificities of each transportation facility. Examples of good practice, on the other hand, can be multiplied in the same way or with modifications based on professional advice.

The advice is to similar facilities is to include organizations representing blind and partially sighted people, experts in relevant fields, and end users in the process, as this will ensure that the transportation facility's actions comply with the needs of targeted users as well as legal requirements and standards. This gives the facility the opportunity to implement best practices and avoid overburn.

8. PORT OF KOTOR

8.1. SUMMARY OF PILOT ACTIONS

The Port of Kotor learned a lot about how blind and partially sighted people can get around while conducting internal research and gathering best practices. The DANOVA project has taught them the most important things, including how to set up and display TWSI and tactile orientation plans, how to improve signage, how to make toilets accessible, where to place high-visibility floor markings, and how to train people who work with blind and partially sighted people.

The pilot action plan for the port of Kotor aimed to install tactile walking surfaces, orientation signs, color tape, Braille signs, tactile warnings, tactile orientation plans, and other TWSis-enabled equipment both indoors and outdoors, as well as in the terminal building.

The Port of Kotor will be much easier to navigate for blind and partially sighted people because all major points will be marked with TWSIs, orientation plans, Braille signs, and tactile warnings.

8.2. ANALYSIS OF RESULTS AND POTENTIAL FOR TRANSFERABILITY

There were a total of 1 High, 4 Medium, and 3 Low priority type interventions identified for Port of Kotor, with 5 of them being implemented (62,5%).

The most significant measure implemented was the installation of TWSs in the following areas:

• In front of the port area, connecting the public bus station with the access points for arrival and departure.

• Inside the port grounds connecting the terminal's entrance/exit point, restrooms, and passenger embarkation/disembarkation area.

• Inside the terminal ground floor leading through security and passport check and in separate ground floor entrance guiding to restrooms and the terminal's second floor.

In addition, two tactile orientation plans were installed: one at the ground floor entrance and another at the second floor entrance of the terminal, both displaying information about the layout of their respective floor areas.

The Port of Kotor pilot project has improved access to port infrastructure for blind and partially sighted passengers. There were no TWSs in the port prior to the pilot action intervention. Following the implementation of the pilot action, there are 480 metres of TWSs inside the port terminal building and in front connecting all critical access points: arrivals, departures, toilettes, security and passport check, and public bus station.

Furthermore, because the web page is considered the starting point of each journey, POK has decided to perform a web page accessibility check and update the web page so that it is fully accessible to the blind and partially sighted.

Several problems and challenges arose during the pilot action's implementation:

• Technical definition of pilot action in public procurement process. POK lacked the necessary knowledge to determine which TWSs should be placed indoors and which outdoors. As a result, the assistance of CBU experts was required in this regard.

• Because the TWSs used are made of stainless steel (indoor and outdoor), with an anti-slip surface and small holes, POK had difficulty cleaning them. POK will need to purchase specialized cleaning equipment as well as chemicals and cleaning products that are not harmful to stainless steel (especially outdoor). Nonetheless, because of the type of TWSs installed, they can easily become dirty and black.

The assessment of accessibility improvement, while difficult and demanding, is generally estimated at 95% given the guidelines for individual approach to each individual in need. Almost all possible surfaces are equipped with TWSIs, with the remaining portion located outside the Port of Kotor premises.

Por of Kotor' team also believe that this pilot action can be replicated in another transportation facility, because accessible signage for blind and partially sighted people is standardized, includes expert assessment and creation of optimal accessibility solutions for blind and partially sighted people, and is universal in terms of meeting the needs of the blind and partially sighted population, which should be adapted to the possibilities, limitations, and specificities of each transportation facility. Examples of good practice, on the other hand, can be multiplied in the same way or with modifications based on professional advice.

9. SARAJEVO AIRPORT

9.1. SUMMARY OF PILOT ACTIONS

During the process of internal research and collection of best practices, Sarajevo Airport gained a lot of insight into the accessibility of blind and partially sighted people. The most significant contributions and knowledge of the DANOVA project are about how to train professionals who work with blind and partially sighted people. Sarajevo Airport's PRM passenger rules and training program are regarded as best practices.

The tactile walking surface indicators and tactile orientation plans were set up and displayed, as well as suggestions for improving signage, restroom accessibility, and the positioning of high-visibility floor markings, among other things.

It was critical for Sarajevo's airport to have tactile walking surfaces, tactile orientation plans, orientation signs, color ontape, contrast stripes, Braille signs, tactile warnings, and other TWSis equipment in both the landside and terminal building areas. It was critical for Sarajevo's airport to have tactile walking surfaces, tactile orientation plans, tactile orientation signs, color ontape, contrast stripes, Braille signs, tactile warnings, and other TWSis equipment in both the landside and terminal building areas.

TWSIs, orientation plans, contrast stripes, Braille signs, and tactile warnings will be installed in the most critical areas of Sarajevo International Airport's landside and airside. This will make it much easier for people who are blind or partially sighted to get around. Furthermore, the airport's website serves as the starting point for every passenger's journey, providing them with all of the necessary data and information. The SIA web page was discovered to be insufficiently developed to be accessible to the blind and partially sighted during the assessment process. As a result, SIA will review and update its web page accessibility.

9.2. 9.2. ANALYSIS OF RESULTS AND POTENTIAL FOR TRANSFERABILITY

The accessibility of SIA to blind and partially sighted passengers was assessed in May 2021 using the prescribed methodology. Recommendations and improvement measures are prioritized into three categories: high, medium, and low priority. The assessment in DANOVA is organized into modules, which makes the assessment process and outcomes easier to understand. The assessment is divided into two parts: off-site and on-site evaluation. The former is made up of eight modules dealing with information access and rules of conduct, whereas the latter is made up of eleven modules dealing with the built environment. The evaluation procedure was divided into three major steps:

1. Examine the national environment (regulations),

2. An off-site assessment that included eight modules: a review of existing site accessibility policies, a disability training program, customer service standards, and access to information before and after travel.

3. On-site evaluation, which consists of eleven modules: approach and departure to and from the site, entrance to the site, inside circulation, security screening and customs, sanitary facilities, waiting areas, departure and arrival pints, evacuation routes, and site exit.

Parking (car, taxi), public transportation, wayfinding (signage and displays), horizontal and vertical circulation, counters, machines, sanitary facilities, and evacuation routes are all built using DANOVA building blocks.

Each area's accessibility has been graded on a scale of 1 (dangerous, inaccessible, and unsatisfactory) to 5. (Accepted as a Best Practice). According to the results of the assessment, three types of interventions and improvement areas were identified: Interventions with high, medium, and low priority.

There were a total of six High, six Medium, and eleven Low priority type interventions identified for SIA, of which seven were implemented, accounting for 31.8%.

Blind and partially sighted passengers now have better access to SIA infrastructure thanks to a pilot project. Prior to the pilot action intervention, there were no TWSs in the indoor or outdoor areas. Following the pilot action, there are 130 metres of TWSs in the airport terminal building and 70 metres in front of the terminal building connecting all critical access points: info desk, toilettes, arrivals, departures, public bus station, shuttle bus, info desk, and PRM corners.

Furthermore, because the web page is the starting point for each journey, SIA performed a web page accessibility check, implemented recommendations, and updated the web page to make it fully accessible to the blind and partially sighted.

SIA faced several problems and challenges during the pilot action's implementation: • The public procurement process was fraught with difficulties, partly due to the specialized equipment being acquired and partly due to a lack of market competition in the region willing to place bids. • The hired contractor failed to adhere to the contract scope and delivery schedules in the case of SIA. The contractor's use of defective, improper, and low-quality materials was also an issue that had to be addressed. These issues put a significant strain on both the project timeline and the additional time invested by SIA team members to mitigate their effects on the project.

Recent global events, such as the Ukraine war and rising inflation rates, had a direct impact on the supply chain of required materials, resulting in unexpected price increases as well as late delivery of TWSI and tactile orientation plans.

• Another issue that arose was the upkeep of stainless steel TWSI (indoor and outdoor) that had been installed. Specialized chemicals and cleaning products that are not harmful to stainless steel products must be used. Furthermore, specialized equipment that will not damage or separate the TWSI from the floor material to which it is attached must be acquired in order to maintain it. The latter is especially important during snow removal from TWSI paths during the winter season.

Although very difficult and demanding, the assessment of accessibility improvements, taking into account reconstruction works and the construction of a new part of the terminal building "B," is generally estimated at 25%.

The pilot action plan can be replicated at similar transport nodes as a document and a good starting point. Nonetheless, the period for action implementation must be realistically planned, taking into account both potential risks and problems.

The accessible signage for the blind and partially sighted population is standardized, includes expert assessment and creation of optimal accessible solutions for the blind and partially sighted population, and is universal in terms of meeting the needs of the blind and partially sighted population, which should be adapted to the capabilities, limitations, and specificities of each transport node. Examples of good practices, on the other hand, can certainly multiply in the same way or with adjustments based on professional advice.

The advice is to include organizations representing blind and partially sighted people, experts in relevant fields, and end users in the process, as this will ensure that the transportation facility's actions comply with the needs of targeted users as well as legal requirements and standards. This way, the facility will have the opportunity to implement best practices while avoiding additional costs associated with future adjustments.

10. ŽILINA AIRPORT

10.1. SUMMARY OF PILOT ACTIONS

During the process of internal research and gathering best practices, Zlina Airport gained a lot of insight into the accessibility of blind and partially sighted people. The most significant contributions and knowledge of the DANOVA project are about how to train professionals who work with blind and partially sighted people.

Standards, recommendations for improving signage, accessibility and safety of toilet facilities, placement of high-visibility floor markings, and other topics were covered.

The main goals of Zlina Airport's pilot action plan were to implement TWSIs and improve urbanism features for partially sighted passengers in the inside and outside areas, more significant marking, improved toilet accessibility and safety, and improved web page accessibility.

All major sites in the landside and airside areas were planned to be covered by TWSIs, high visibility, and Braille labeling signage, increasing accessibility for blind and partially sighted passengers. Every passenger's journey begins with a visit to the airport's website, which provides all of the necessary information. During the assessment process, it was discovered that the Zlina Airport website is not well-developed enough to be accessible to the blind and partially sighted. As a result, Lina will assess and upgrade the accessibility of her website.

10.2. ANALYSIS OF RESULTS AND POTENTIAL FOR TRANSFERABILITY

The accessibility of Zilina Airport to blind and partially sighted passengers was assessed in August 2021 using the prescribed methodology. There were a total of 2 High, 6 Medium, and 2 Low priority type interventions identified for Zilina Airport, of which 8 were implemented, totaling 80%.

Following implementation, the infrastructure at Zilina Airport is more accessible to blind and partially sighted passengers. There were no TWSIs or other implementations that would benefit the blind and partially sighted prior to the pilot action implementation. Following the pilot action implementation, there are a total of 132,4 metres of TWSIs in the outside and inside sections of the Airport Terminal, all doors in public space are marked with Braille, and an Orientational Beacon is installed in the Departure and Arrival sections. A Braille orientational map was also implemented in the Departure section.

Also, because the web page is considered the starting point of each journey, Zilina Airport performed a web page accessibility audit and implemented recommendations and updated the web page to make it fully accessible to the blind and partially sighted.

Some of the problems faced were tied to the delivery of Indoor TWSIs to the pilot action site. It was delayed due to a delay in public procurement and delivery of equipment. The original deadline was set until the end of November, but due to a delay in procurement that was not

caused by the Zilina Airport, as well as a delay in material delivery from China, the deadline was extended.

It is difficult to quantify progress in percentage terms, but all of the authors of this document agreed that the expected improvement is around 70%.

This concept and pilot action can be easily implemented in other modes of transportation, such as train or bus stations. Replication is simple to implement because the entire concept has been developed and almost all potential problems or complications have been identified.

Zilina Airport's team hopes that other transportation facilities in the region will follow suit, and that there will be a greater number of accessible facilities for the blind and partially sighted in the ilina Region in the near future.

The recommendation they can share is for the organizations to work closely with the respective Blind Union because their members and employees can easily develop the entire concept from infrastructure to website. Also, because the price of Indoor TWSI is relatively high, and in case of implementation of sufficient amount will be necessary to use public procurement process which consume enormous amount of time and the delivery of material which is usually produced in China can take around 3 months, a good point to keep in mind would be to procure Indoor TWSI's as soon as possible.

11. QUALITY IMPROVEMENT MEASURES

Overall, data show that 33% of accessibility issues identified during the testing process for blind and partially sighted people were addressed. According to the project methodology, the average accessibility improvement in pilot partners accessibility for blind and partially sighted is approximately 59% - without taking into account the impact of the specialised training for the personnel, which gave them new competences for working with passengers, the developed concept for totally accessible transport facility, or the fact that this topic has been agreed by all partners and disseminated as such to the stakeholders as important one.

This means that after international testing identified the high priority measures, the pilot partners decided to focus on them and achieve greater impact by implementing fewer measures.

This is not to say that only a subset of the measures can be useful; rather, by identifying and addressing the most important ones, a large number of accessibility issues for blind and partially sighted people using transportation facilities can be tackled with a small number of procedures.

In this regard, it is safe to say that testing visits successfully demonstrated the benefits, strengths, risks, and problems that must be overcome to other Danube region ports airports municipalities, successfully addressing the project's needs and achieving the desired project output. During the testing phase, the partnership agreed that the assessment - both of national regulations, off-site assessment, as well as the one, conducted on-site - organized with the building blocks, provides an in-depth, easy-to-implement analysis tool.

The pilots shared common difficulties, which were primarily logistical in nature - the delay of transportation from Asia due to a lack of European manufacturers providing competitive cost of materials; the need for consultation from relevant stakeholders, particularly Blind unions - which assisted the partners in identifying and selecting the most viable options; and the procurement procedures, which pose a challenge that is likely underestimated by most - with the need of personnel with higher than average experience and knowledge of the relevant legal requirements.

Because the necessary accessibility improvements are simple and readily available, the project's pilot actions can benefit a wide range of transportation facilities.

The simple method developed by the partnership, especially the Maribor University, Croatian and Austrian blind unions, provides a methodology that could be used not only in the Danube region, but by any transport facility in the EU and around the world. It possesses the necessary characteristics for objective accessibility screening. Even though the accessibility improvement percentage is difficult for people outside of the Blind unions to calculate, the evaluation grid can help quantify it for the purposes of analyzing it in relation to the identified with testing needs.

When developing services or new products, undergoing architectural modifications or construction work, it is necessary to educate oneself on the existing standards of services and products with which we wish to comply in order to meet the needs of various groups while also remaining competitive and sustainable.

In order to develop new services or products that meet the needs of a specific group of people, it is necessary to include them in the process and consider their suggestions. This ensures that the final products are usable and don't require costly modifications.