



# INCLUSION Project

D4.7 (Final version)

Innovation Pilot Lab Budapest:  
implementation and results - Final version

Version: 1.0

Author(s): Andor Háznagy, András Vágány (BKK)

The sole responsibility for the content of this document lies with the authors. It does not necessarily reflect the opinion of the European Union. Neither the INEA nor the European Commission are responsible for any use that may be made of the information contained therein.



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 770115

## Document Control Page

Title	Innovation Pilot Lab Budapest: implementation and results – Final version		
Editor	Andor Háznagy (BKK), András Vágány (BKK)		
Contributors	Andor Háznagy (BKK), András Vágány (BKK)		
Nature	R		
Dissemination Level	PU		
Version number	1.0		
Planned Delivery Date	M34		
Version date	02.10.2020		
Abstract	<p>BKK Centre for Budapest Transport as the mobility manager of Budapest is committed to inclusive public transport and mobility service for everyone in Budapest. The aim of the INCLUSION project in Budapest was to increase the service level for the people with reduced mobility. The BKK had 2 pilot actions and 5 target groups (blind and visually impaired, disabled, travellers with luggage or baby buggy, tourists, foreigners staying in Budapest long-term) to reach this goal.</p> <p>A new training program developed and piloted for public transport staff at the first pilot action. This pilot supported and contributed to a more competent public transport staff behaviour and more inclusive environment. An online public announcement platform created at the second pilot action. This platform was open for everyone who had some difficulties, suggestions or recommend good examples in Budapest public transport or public space use. The online platform has helped BKK to understand the needs, barriers and difficulties of people with special needs. The BKK measured the effects of pilot actions before and after the implementations.</p> <p>The outcomes of INCLUSION project resulted more sensitive public transport staff and direct communication between BKK and people with special needs.</p>		
Version	Date	Modified by	Comments
0.1	04.05.2020	MEMEX	Definition of the table of contents and guidelines of D4.2...D4.7
0.2	05.08.2020	BKK	First draft of D4.7
0.3	13.08.2020	MEMEX	Revision of the first draft
0.4	28.09.2020	BKK	Second draft
0.5	29.09.2020	RUPPRECHT	Revision of the second draft
0.6	30.09.2020	BKK	Final version for quality review
1.0	02.10.2020	SOFT	Quality review. Final version.

# Contents

<b>1</b>	<b>Introduction .....</b>	<b>6</b>
<b>2</b>	<b>Recap of the Pilot Lab characteristics .....</b>	<b>7</b>
2.1	Target groups for Budapest Pilot Lab .....	7
2.2	Identification of the Pilot Lab actions .....	8
2.3	Pilot 1: Re-education and sensitisation of PT staff and development of training material.....	10
2.4	Pilot 2: Awareness raising public campaign .....	11
2.5	Main outcomes of the design phase .....	12
<b>3</b>	<b>Pilot Lab implementation activities, timing and milestones .....</b>	<b>13</b>
3.1	Pilot 1: Re-education and sensitisation of PT staff and development of training material.....	13
3.1.1	Preparation stage (November 2018 – April 2019).....	13
3.1.2	Implementation stage (May 2019 – June 2019; December 2019) .....	13
3.1.3	Monitoring and data collection (May 2019 – July 2019) .....	14
3.2	Pilot 2: Awareness raising public campaign .....	14
3.2.1	Preparation stage (November 2019 – September 2019).....	14
3.2.2	Implementation stage (October 2019 – April 2019).....	15
3.2.3	Monitoring and data collections (October 2019 – May 2020) .....	17
<b>4</b>	<b>Deviations from planning and corrective actions.....</b>	<b>18</b>
4.1	Pilot 1: Re-education and sensitisation of PT staff and development of training material.....	18
4.2	Pilot 2: Awareness raising public campaign .....	18
<b>5</b>	<b>Promotion and stakeholders' involvement.....</b>	<b>19</b>
<b>6</b>	<b>Institutional, regulatory and financial issues.....</b>	<b>21</b>
6.1	Pilot 1: Re-education and sensitisation of PT staff and development of training material.....	21
6.2	Pilot 2: Awareness raising public campaign .....	21
<b>7</b>	<b>Main results of the pilot.....</b>	<b>22</b>
7.1	Evaluation activities and target indicators.....	22
7.1.1	Pilot 1: Re-education and sensitisation of PT staff and development of training material	25
7.1.2	Pilot 2: Awareness raising public campaign .....	25

---

7.2	Pilot Lab vs Inclusivity goals .....	26
7.3	Lessons learnt.....	27
7.3.1	Pilot 1: Re-education and sensitisation of PT staff and development of training material 28	
7.3.2	Pilot 2: Awareness raising public campaign .....	28
8	Assessment.....	29
8.1	Benefits of the actions developed.....	29
8.2	Key transferability issues .....	30
	Weak and strong points of the measures implemented .....	30
	Potential transferability of the Pilot Lab measures and approach and related opportunities .....	31
	Expectations for the future.....	31
9	Conclusions.....	32
	The INCLUSION consortium .....	33
	Annexes.....	34
	Annex 1: Questionnaires .....	34
	Pilot 1: survey – on the training .....	34
	Pilot 2: survey – people on reduced mobility .....	35
	Pilot 2: survey - foreigners.....	36
	Annex 3: brief sum of announcements from ‘Without barriers’ campaign .....	37
	Annex 4: BKK short movie at ‘Without barrier’ campaigns .....	38
	Annex 5: INCLUSIVITY goals.....	39
	Annex 6: Extract from the training material in English.....	40

## List of figures

Figure 1: One of the target group is travellers with baby buggy or luggage .....	8
Figure 2: Local stakeholder workshop on 23 <sup>rd</sup> November 2018.....	10
Figure 3: Sensitisation of PT staff training on 4 <sup>th</sup> June 2019.....	11
Figure 4: BKK staff member learns how to assist a person in a wheelchair during the training.....	14
Figure 5: 'without barriers' online announcement platform .....	16
Figure 6: Local online stakeholder workshop on 22 July 2020 .....	20

## List of tables

Table 1 - Participants of local stakeholder workshop .....	9
Table 2 - Indicators, qualified targets, outcomes.....	23
Table 3 - INCLUSIVITY goals, Budapest .....	27

---

# 1 Introduction

Budapest is the capital city of Hungary and one of the most important transportation and economy hubs of Central Europe. The city has a wide transportation network, 4 metro lines, 36 tram lines, 238 bus lines, 15 trolleybus lines and 3 boat lines are available for locals and commuters.

The number of daily passengers in Budapest is 4,535,000 boarding passengers on a working day and approximately 10-15% of all public transport users are somehow reduced in their mobility (i.e. disabled, visually impaired, passengers with luggage, temporarily disabled people, or even people who do not speak the country's language).

BKK Centre for Budapest Transport is the mobility manager and public transport authority of Budapest and the local INCLUSION Pilot Lab coordinator. BKK is committed to inclusive transport; it recognises the diversity of Budapest's residents in terms of their different backgrounds and needs and believes that public transport services should be accessible and inclusive for every resident. For this reason, BKK aims to continuously improve its understanding of people with special needs in order to provide them with a more useful, safe and inclusive service in Budapest. The company already has some experiences in accessible transport, but the INCLUSION project provides a unique opportunity to pilot good examples and to learn more about inclusive mobility.

Within INCLUSION, BKK focused on delivering two measures: 1) training the public transport staff to create a supportive environment for social inclusion (assisting people with reduced mobility during their trips). 2) an awareness raising campaign to better understand the needs of people with reduced mobility. For these measures, BKK cooperated with local stakeholders and NGOs. A further aim of the Budapest Pilot Lab is to encourage cooperation among all stakeholders of people who needs assistance.

## 2 Recap of the Pilot Lab characteristics

### 2.1 Target groups for Budapest Pilot Lab

The public transport system in Budapest is only partly accessible for everyone. BKK would like to improve the service level for every possible traveller, because approximately 10-15% of all public transport users are somehow reduced in their mobility in Budapest, so the BKK focuses on that specific INCLUSION project. The main target groups of the Budapest PL are:

- Blind and visually impaired
- Disabled
- Travellers with luggage or baby buggy
- Foreigners staying in Budapest short-term or tourists
- Foreigners staying in Budapest long-term

The target groups represent a significant proportion of Budapest's residents and visitors. According to the micro-census in 2016, there are 1,713 blind people, approximately 15,000 visually impaired people, and more than 50,000 disabled people living in Budapest. According to the Hungarian Central Statistics Office, 112,255 children under age 6 live in Budapest and every year roughly 16,000 infants are born. Budapest is the education centre of Hungary, and the best Hungarian universities with all kinds of professions are located in the city. These universities are popular with foreign students, with approximately 15,000 studying in Budapest. It is also one of the most popular tourist spots in central Europe, with roughly 4.2 million tourists visiting Budapest in 2018. Foreigners are also attracted to Budapest for work, as it is a major economic centre in Central Europe and is home to several multinational companies. Consequently, thousands of foreigners live in Budapest who do not speak Hungarian.

BKK held a local stakeholder forum in 23<sup>rd</sup> November 2018, where the participants identified some unmet needs of target groups in the current mobility offer. After discussions with the stakeholders, BKK identified the main barriers in the public transport which are the following:

- Efficient platform for reporting barriers, problems
- Staff behaviour
- Access to customer service points
- Physical barriers at stops, stations and public spaces
- Lack of tactile pavement
- Dedicated place on vehicles for guide dogs
- Awareness raising about the tactile pavement
- Awareness raising about the usage of the elevators at metro stations (lack of clear priority for disabled people)
- English passenger information at vehicle replacement
- Passenger information, penalty fare payment information in English



*Figure 1: One of the target group is travellers with baby buggy or luggage*

*Source: BKK*

## 2.2 Identification of the Pilot Lab actions

Budapest has a wide transportation network and approximately 10-15% of all public transport users are somehow reduced in their mobility. Therefore, it is crucial to **understand** their **mobility needs** and **reveal the barriers** to **improve the accessibility and usability level** of the public transport services. The main Pilot Lab object is to improve the accessibility of public transport specifically for people with reduced mobility. The INCLUSION project helps BKK to create sensitive staff for more inclusive mobility and to identify unmet mobility needs. For this reason, BKK implemented two pilot lab actions in Budapest: re-education and sensitisation of public transport staff, and an awareness raising campaign. These pilot actions cover not only the target groups but also other groups who are reduced somehow in their mobility (i.e. deaf and hard of hearing; temporarily disabled; intellectual impairment; autistic people). Below is a summary of the two pilot actions, with further details in the subsequent two subchapters.

### Pilot action 1: Re-education and sensitisation of PT staff

- The aim of the pilot action was to provide overall knowledge for public transport employees who are in daily direct contact with customers of the public transport system.
- BKK involved local stakeholders to develop and implement an employee training program.
- 85 employees with different job roles in the public transport system were divided into four groups and trained in May and June 2019.
- There were three theoretical and five practical lectures on every sensitivity training.



- The training program was finalised based on feedbacks from the participants of training days, integrated into BKK's employee education program and the supporting training materials were developed.

### Pilot action 2: Awareness raising campaign

- The aim of the pilot action was to identify and understand the mobility needs of the target groups.
- BKK worked with local NGO, Járókelő Association, to develop a public announcement webpage for people with reduced mobility to report specific problems they face with the public transport system.
- BKK analysed the comments and solved as many as possible during the campaign timeframe.

BKK is strongly committed to collaborate with relevant stakeholders and listen to their needs, and approached and engaged with organisations, institutions and associations representing the target groups. The key element of the collaboration was a **local stakeholder workshop**. This workshop was held on 23<sup>rd</sup> November 2018 and included the participation of representatives from the target user groups. This meeting helped to identify and discuss the most pressing mobility problems and topics related to accessibility. The outcomes of the workshop helped to design and implement the pilot activities in Budapest. 25 people were at the local workshop from organisations. Table 1 - contains a list of the participants of the local stakeholder workshop.

*Table 1 - Participants of local stakeholder workshop*

Organisation	Number of delegates
BKK Centre for Budapest Transport	12
BKV Budapest Transport Plc.	1
National Institute for Blind and Visually Impaired People	3
Association of Blind and Visually Impaired in Central Hungary Region	4
Association of People with Disabilities in Budapest	2
Universal Design Information and Research Center of Hungary	3



*Figure 2: Local stakeholder workshop on 23<sup>rd</sup> November 2018*

*Source: BKK*

## 2.3 Pilot 1: Re-education and sensitisation of PT staff and development of training material

This pilot action consists of the **development of training material**, the **implementation of the pilot awareness raising training** and the **completion of a training programme** with the finalised training material based on the pilot training results. The aim of the pilot action was to improve PT staff's overall knowledge and make public transport employees who are in daily contact with the clients with special needs more knowledgeable and able to respond to their needs.

This knowledge qualifies the employees to adequately help and assist the public transport usage of people who have barriers in their mobility. The pilot goal is training a more competent public transport staff to improve public transport usability for people with reduced mobility – not only for the specific target groups of Budapest's Pilot Lab in INCLUSION, but also other citizens with disabilities or special needs. The indirect goal of the pilot action is to make public transport services in Budapest more attractive, more competitive, and improve its usability. It is expected that the measure will improve the level of satisfaction with public transport services for each target group.

Sensitisation training for PT staff requires professional expert and knowledge. BKK cooperated with experts on reduce mobility and had a strong connection with local stakeholders during the development and delivery of the training material. The increased competency level of employees is one of the main outcomes of the training program. It improves the usability of public transport services and increases the satisfaction of our target groups with public transport services.

The competency level of employees was measured by a competency survey before and after a training program. This survey was developed as part of the training program and is available for future trainings to transport providers. The satisfaction of BKK's target groups was also measured by "mystery shoppers" and test trips carried out by volunteers who are part of the target groups.



*Figure 3: Sensitisation of PT staff training on 4<sup>th</sup> June 2019*

Source: BKK

## 2.4 Pilot 2: Awareness raising public campaign

This pilot action consists of the **development**, operation and evaluation of an **online, public platform for reporting mobility related problems**, barriers and needs in **Budapest**. The aim of the pilot action was to identify and understand the mobility needs and the accessibility conditions of the target groups. BKK as the mobility manager of Budapest is committed with negotiations with NGOs. Járókelő NGO operates jarokelo.hu public announcement website, which ensures connection among citizens and companies that are involved in some way with delivering and maintaining public spaces and they have some property (e.g. transport companies, road operators, utility companies, advertising companies, municipalities, private organizations etc.) to report mobility and public space related problems. BKK made an agreement with Járókelő NGO for the second pilot action to create an announcement platform for people with special needs. With this platform, the target groups are able to report their mobility related problems in a direct and easy way. The new platform has already supplemented the existing report process (i.e. people must send an e-mail explaining the issues they're facing with the PT service to [bkk@bbk.hu](mailto:bkk@bbk.hu) or explain the issue in-person at one of the customer service centres).

The indirect goal of the pilot action was to strengthen the involvement of citizens in improving the PT system by offering a transparent announcement platform, and to collect information on accessibility problems in the city and PT network. This information is useful for the transport provider for future developments.

---

## 2.5 Main outcomes of the design phase

BKK identified four main activities (milestones) for each pilot action during the design phase of the project. These steps formed the framework of the Budapest Pilot Lab, and helped to manage the implementation processes and to solve difficulties, which appeared during the preparation stage, implementation stage, and monitoring and data collections phases of the Budapest Pilot Lab.

Re-education and sensitisation of PT staff (pilot action 1) main steps:

- i. Identification of mobility related problems, issues and demands of the target groups
- ii. Development of a training programme that reflects the needs identified
- iii. Conducting training for selected BKK employees who are in daily contact with the target groups
- iv. Evaluating the impacts of the measure

Awareness raising campaign (pilot action 2) main steps:

- i. Identification of mobility related problems, issues and demands of the target groups.
- ii. BKK and local NGO Járókelő Association as the operator of the online public announcement website have signed a cooperation agreement
- iii. Implementing soft, awareness raising measures in public transport services that reflect the needs identified, with constant communication between the mobility manager and the target groups. Launch 'Without barriers' campaign on the Járókelő online platform.
- iv. Evaluating the impacts of the measure.

## 3 Pilot Lab implementation activities, timing and milestones

### 3.1 Pilot 1: Re-education and sensitisation of PT staff and development of training material

#### 3.1.1 Preparation stage (November 2018 – April 2019)

The training plan and supporting materials for the sensitisation of PT staff needed to be carefully designed and implemented. For this, BKK organised a local Stakeholder Forum on reduced mobility, which had useful outcomes for the pilot actions. The information gathered during the preparation phase of the first pilot action and helped BKK to carefully plan every item of the pilot action in detail, i.e. defining indicators, managing procurement for the training and training materials, organising trainings, decide on the necessary training material, and monitoring the implementation and data collection. BKK defined qualified targets for each indicator and conducted a procurement process with the organisation that would conduct the sensitisation training and develop the training materials before the implementations of the pilot activities.

#### 3.1.2 Implementation stage (May 2019 – June 2019; December 2019)

BKK organised sensitisation trainings between May and June 2019 for public transport employees who have daily contact with public transport users, i.e. ticket inspectors, customer service employees, bus drivers, communication employees. The training was offered during four sessions (28<sup>th</sup> May, 4<sup>th</sup> June, 18<sup>th</sup> June and 25<sup>th</sup> June 2019) and overall 85 employees participated. These training days were organised at the Headquarters of ETTIK (Universal Design Information and Research Centre of Hungary). The trainings were led by stakeholders together with people who are blind and visually impaired, disabled, deaf and hard of hearing. One training day was eight hours long, which had three theoretical and five practical lectures. The aim of the theoretical lectures was to strengthen the empathy and communication with the target groups of the INCLUSION project. In the practical part of the training, the participants had some exercises, which built on the scope of their activities (i.e. how to use a bus with a wheelchair, white stick or covered eyes).

The entrepreneur, the Universal Design Information and Research Centre of Hungary held the training days, developed the training materials for public transport employees. The materials have two parts: a 50-page main training document and its appendix, presentations on different topics (i.e. universal design and accessibility, communications, convention on the rights of persons with disabilities). The authors finalised the materials based on the experiences of the training days and the finalised version of materials are available not just for BKK, but also other public transport operators for inclusive public transport in Budapest. These documents contain current information, but they have to be reviewed every two years.





Figure 4: BKK staff member learns how to assist a person in a wheelchair during the training

Source: BKK

### 3.1.3 Monitoring and data collection (May 2019 – July 2019)

BKK developed a specific survey for the training days and questionnaire for test purchasing and travel to check the competency level of employees. These surveys were used to collect data before and after implementation of the pilot action to determine its impacts across the chosen indicators.

The participants of the trainings filled the specific survey before and after the training day. This survey helped to check the theoretical knowledge of the respondents on university design and special needs of people with reduced mobility. Test purchasing and travel were conducted with local stakeholders, including blind and visually impaired and disabled people. After test purchasing and traveling, the participants filled a questionnaire about level of service and helpfulness of bus drivers or customer service employees. These activities were implemented before and after training days for selected trained employees. Chapter 7 contains more information and results of the data collection.

## 3.2 Pilot 2: Awareness raising public campaign

### 3.2.1 Preparation stage (November 2019 – September 2019)

BKK as the mobility manager of Budapest has a great responsibility for citizens on sensitive travel. For this reason, BKK launched a citywide public awareness raising campaign on sensitisation at the second pilot action in INCLUSION project. BKK gathered information on accessibility design and transport related problems from public transport users who have reduced mobility. For this reason, BKK designed a public campaign on this topic under the name of 'Without barriers', in cooperation with the local NGO Járókelő.

Preparation of the public campaign was one of the main tasks at this stage. It is designed to open up a direct communication channel between BKK and people with reduced mobility. Járókelő NGO operates the jarokelo.hu website, which is a public announcement webpage for everyday public space use. The website collects information from all types of public space users about public space (i.e. poor public lighting, potholes on carriageways, high curbsides) and sends these problems to responsible companies and authorities. The Járókelő website is transparent, as the announcer is able to track the status of the issue they have reported (e.g. waiting for answer, waiting for approval, waiting for solution, solved, unresolved). Solving everyday problems on public space is easier and quicker with this innovative and bottom-up solution. BKK already had a good work connection with Járókelő before the INCLUSION project.

The INCLUSION project helped to make this connection stronger with bilateral agreements. BKK signed a general and a specific agreement with Járókelő NGO with regard to their cooperation within the INCLUSION project. The duration of the general agreement is two years and it covers a monthly cooperation between the two organisations, exchanging information, common work and communication about future plans. The duration of the specific agreement is a half year, in order to cover the 6-month long 'Without barriers' campaign. Járókelő is responsible for operating the website, collecting announcements, and providing weekly announcements to BKK in an Excel spreadsheet; BKK is responsible for managing and resolving the announcement process and communicating about the campaign.

Making a communication plan and involving stakeholders in the design of a website for announcements were other tasks during the preparation stage. BKK designed a campaign under the name of 'Without barriers' with Járókelő NGO. The public announcement campaign has a designed subpage at [jarokelo.hu/akadalyoknelkul](http://jarokelo.hu/akadalyoknelkul), which is open for every customer who has reduced mobility. Relevant stakeholders and partners helped BKK during the planning process and web design. BKK decided to widen its target groups at this stage so that the public announcement website is open for every person, stakeholder and partner who has reduced mobility, i.e.: deaf and hard of hearing; temporary disabled; intellectual impairment; autistic person. This announcement site helps BKK to identify existing problems and take them into account not only in the short term but also in the medium- and long-term developments of the PT system.

### 3.2.2 Implementation stage (October 2019 – April 2019)

The public campaign started in October 2019 under the name of 'Without barriers' and the dedicated public announcement webpage has been available at the [www.jarokelo.hu/akadalyoknelkul](http://www.jarokelo.hu/akadalyoknelkul) address. During this campaign, the INCLUSION project's target groups and public transport users who have reduced mobility had a chance to report their issues in relation to accessible and barrier-free public transport use and even their best practices. This campaign became a positive platform for BKK to collect mobility related information on accessible needs from people with special needs. Most of the issues that people reported on the website require more time to be adequately addressed by BKK, so only some announcements were solved during the six-month campaign.

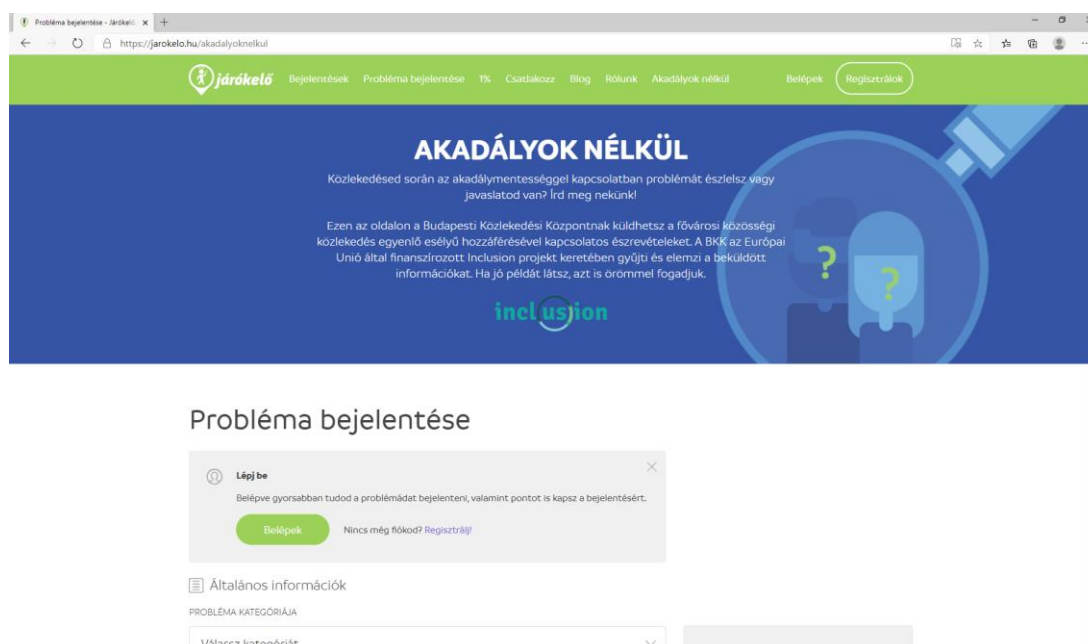


Figure 5: 'without barriers' online announcement platform

BKK already gets notified of mobility related problems via the Jarokelo platform, but this existing agreement was made stronger and more effective with the dedicated 'Without barriers' subpage under the INCLUSION project. The announcements covered several mobility issues, i.e. lack of low-floor public transport vehicles, lack of barrier-free access to public transport stops, lack of lowered curb sides, accessibility problems with pavements and public space, lack of elevators, inadequate passenger information boards. BKK managed the campaign, but the company was only responsible for the reported problems which belonged to it. Jarókelő sent reported problems, observations and good examples to the responsible organisations i.e.: BKK Centre for Budapest Transport, Budapest Public Road (road operator of main roads in Budapest), district road operators, BKV Budapest Transport Plc., MÁV-HÉV suburban railway company, MÁV Hungarian State Railways, VOLÁNBUSZ National regional bus company or Public lighting company. BKK supervised every city level announcement and the organisations had maximum 30 days to respond to them. BKK collected these reports and sent them to Jarókelő. The six-month long campaign finished on 29 April 2020 and altogether 82 announcements arrived. BKK as the city level mobility manager was fully responsible for 36 announcements with professional answers or physical solutions. BKK could not solve every announcement which required more significant infrastructural interventions, i.e. reconstruction of whole squares, buying new low-floor trams. This is because solving most of the transport oriented reports requires more time and money than was available in the campaign. BKK will resolve these reported issues outside of the scope of this campaign. The professional answers gave a detailed description about the announcement, how it fits into Budapest's long term sustainable mobility plan and it included implementation steps. BKK solved the following accessibility main issues that were reported on the platform:

- installed tactile pavement mark next to Central Hungarian Association of the Blind and Partially Sighted HQ,



- 
- planned a braille signs vignette for PT vehicles' stop request buttons,
  - simplified the information provided on how to use student ID,
  - gave professional answers for reported issues, which couldn't resolve during awareness raising public campaign (lack of low-floor-vehicle and barrier-free PT stops, reallocating public space).

Building on the positive experience, the 'Without barriers' campaign is still running, and following the coronavirus pandemic lockdown, BKK also promotes it with a short movie <https://www.facebook.com/bkkbudapest/videos/304514057607715/>.

### 3.2.3 Monitoring and data collections (October 2019 – May 2020)

BKK and Járókelő had regular meetings to monitor the six-month long campaign. These meetings helped to solve difficulties which appeared during the implementation phase of the pilot activity. The members of the meetings evaluated the announcements of the 'Without barrier' campaign and defined a clear way forward for the pilot. Járókelő as the operator of the website sent a summarised spreadsheet to BKK with the detailed announcement information from the campaign. These spreadsheets contained the detailed description, responsible authority or company and status of the reported problems and gave for BKK a complete picture of the pilot activity. BKK managed data collection surveys before and after the campaign to measure its affect. These questionnaires were sent to stakeholders of INCLUSION target groups to fill out and forward them with special needs in October 2019 (before survey) and May and June 2020 (after survey). This process ensured direct communication among stakeholder associations and BKK. Chapter 7 contains more information and results of the data collection.

## 4 Deviations from planning and corrective actions

There were some changes during the implementation phase of the actions compared to the original plan. The date of pilot activities and scope of involved participants also changed.

### 4.1 Pilot 1: Re-education and sensitisation of PT staff and development of training material

The trainings were originally planned to take place in May 2019 with 50 participants in four courses. During the implementation phase, the original planned action deviated a bit. The trainings were held in May and June 2019 with more participants (85) than planned. The participants of the first training enjoyed the course and it helped to involve more employees of BKV (one of the important public transport operators). Therefore, this is viewed as a deviation with very positive outcomes.

### 4.2 Pilot 2: Awareness raising public campaign

There were two main deviations during the awareness raising public campaign. Originally, BKK wanted to manage the 'Without barriers' campaign between June and December 2019. The campaign started at the end of October 2019, after needing to be postponed due to two issues:

Summer is not a good period of time to start a new public campaign on reporting problems from urban life, because people's travel habits are different in the summer compared to other seasons.

Furthermore, a municipal election was held on 13<sup>th</sup> October 2019. As a result, BKK decided in September to postpone the start of public campaign until after the election. The 'Without barriers' campaign launched on 29<sup>th</sup> October 2019, aimed at additional target groups.

The campaign was open to every transport service user who has reduced mobility (i.e. people with temporary disabilities, deaf and hard of hearings, autistic people), not just the defined target groups of the project.

The Coronavirus pandemic also had an effect on the pilot activity. BKK wanted to start the communication campaign in spring 2020 to boost the number of announcements, but it had to be postponed, because of the lockdowns. The mobility manager of Budapest did not want to encourage people to use public space, especially vulnerable groups.

The campaign ended on 29<sup>th</sup> of April 2020. BKK and Járókelő had positive experiences during the campaign. Building on it, the 'Without barriers' campaign is still running, and following the Coronavirus pandemic lockdown, BKK has started to promote the campaign via Facebook ads and a short movie which can be viewed here:  
<https://www.facebook.com/bkkbudapest/videos/304514057607715/>

## 5 Promotion and stakeholders' involvement

BKK has involved local stakeholders since the start of the pilot activities and organised a kick-off meeting for them on 23<sup>rd</sup> November 2018. The ideas of the stakeholders were taken into account by BKK during the design phase of the pilots and BKK incorporated these ideas into the implementation of the pilots. Continuous communication was facilitated by the already good cooperation relationship. During the implementation of the project, BKK expanded the range of target groups in the project at the request of the stakeholders, so that in addition to the original target groups, deaf and hard of hearing people, people with autism, etc. appeared in the pilot actions in Budapest.

Stakeholders participated not only in the preparation of the pilot activities in Budapest but also in their implementation. BKK involved the stakeholders in carrying out the first pilot activity, and these associations participated in the compilation of both the training and the development of the training materials. The second pilot action, the 'Without barriers' public announcement platform, started with the BKK communication campaign, which also involved the stakeholders involved. Based on their feedback, BKK expanded the range of people involved in the campaign.

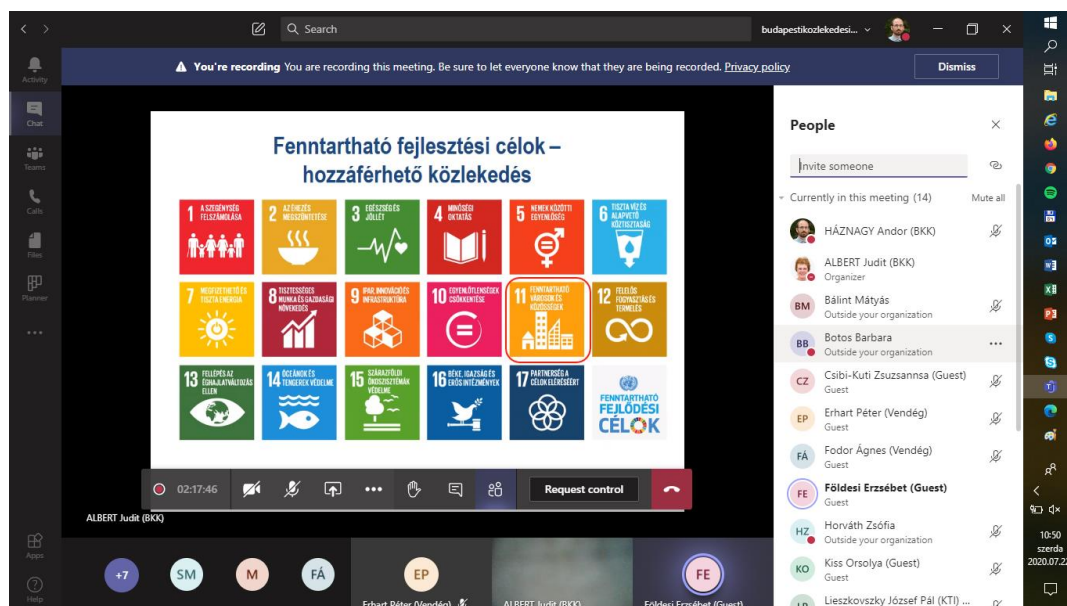
BKK wanted to promote the 'Without barriers' campaign in March 2020, however, BKK postponed the planned communication campaign due to the appearance of the Coronavirus and the subsequent pandemic situation. BKK, as the transport organiser of Budapest, had and still has a great responsibility in the fight against the virus. BKK did not want to promote the use of public transport for people with special needs during lockdown period.

When the Coronavirus lockdown ended, BKK made a short movie to promote 'Without barriers' platform in cooperation with the Association of the Blind in Central Hungary and Járókelő NGO. BKK posted this movie on its Facebook page on 27 June 2020 (<https://www.facebook.com/bkkbudapest/videos/304514057607715/>).

Following the pilot activities, on 22 July 2020, BKK organised a local INCLUSION project closing workshop. The meeting's topic was the results and main outcomes of Budapest pilot activities, and it was a great opportunity to pursue further collaborations between BKK and stakeholders. Ms. Erzsébet Földesi<sup>1</sup> gave a presentation on the international situation of equal access and universal planning.

---

<sup>1</sup> In 2002 Ms. Erzsébet Földesi was elected as the President of Association of People with Physical Disabilities, Budapest. She is a board member of the Hungarian Council of Federations of People with Disabilities (FESZT), responsible for EU policies and EDF contact. From 2005 to 2009, she was the executive committee member of the European Disability Forum. In 2009 she was elected Vice President of EDF.



*Figure 6: Local online stakeholder workshop on 22 July 2020*

Building on the good experience, the ‘Without barriers’ campaign is still running, and BKK and Járókelő will refresh their agreements in the near future. With this cooperation, people with special needs can report their problem in an easy way and BKK has a direct connection with them. This long-term agreement also will be useful for Járókelő, as the NGO will be able to use some communication channels of BKK.

## 6 Institutional, regulatory and financial issues

### 6.1 Pilot 1: Re-education and sensitisation of PT staff and development of training material

Without the INCLUSION project the staff training measure is unlikely to have been implemented in this period. The project helped to seat the actors at a roundtable and managed the sensitisation training. Stakeholder engagement, understanding the needs of target groups and trust building were also important drivers and results of the pilot activity. Strong commitment was the key behind the entire measure. Public transport staff were able to understand the special needs of people with reduced mobility. Developed training materials will be used in the future, and employees will be trained using these materials at public transport companies in Budapest. The sensitisation training for public transport staff is a soft measure. Therefore, it was difficult to monitor and evaluate the results. The participants of training days filled a survey before and after the training, and BKK managed ghost travels and mystery shops that were conducted by volunteers who are part of the target groups.

### 6.2 Pilot 2: Awareness raising public campaign

The main drivers of the awareness rising campaign were the collaboration with Járókelő NGO to develop a platform for people with special needs to report their everyday transportation problems. This pilot activity fostered a strong connection among BKK, Járókelő NGO and relevant stakeholders. People can report their problems in a transparent way and BKK and other responsible companies solved them or gave a professional answer. Trust building and an open-minded attitude were other main drivers of the pilot activity. The Coronavirus pandemic lockdowns created some barriers for the communication of the campaign, but based on the good relationship and results of the project, the 'Without barriers' online announcement platform is still available after the six-month long campaign has finished.

The platform is open for all transport and street use related announcements and is transparent, but more time is needed to resolve many of the reported issues (e.g. lowering curbside, buying new low-floor public transport vehicles, reallocating streets and public spaces). BKK always provides professional answers for every announcement and has solved as many problems as the company could. BKK had a new CEO at the mid-point of second pilot activity, who supported every connection with measures especially for people with reduced mobility.

BKK has benefitted from the INCLUSION project: going forward, public transport companies will continue to use the training materials which were developed in the project, and Budapest has a good working bottom-up platform to report transport oriented problems. All of this has and will continue result in more sensitive staff and citizens and a much deeper understanding of the problems faced by people with reduced mobility.

## 7 Main results of the pilot

The INCLUSION project helped BKK to strengthen its relationship with stakeholders and associations of people with special needs, who will continue their fruitful work in the future. The 'Without barriers' platform is another important result of the pilot, as this platform has remained after the six-month campaign and will continue to be made available into the foreseeable future.

A sensitisation training material was developed for employees who have daily contact with the target groups of the INCLUSION Budapest Pilot Lab, and next to BKK (employer of ticket inspectors and customer service employees), BKV – Budapest Public Transport Ltd., the most important public transport operators in Budapest, also will use these materials to sensitise public transport vehicle drivers.

A joint campaign between BKK and Járókelő ensured an easy-to-use public announcement 'Without barriers' website to report everyday mobility related problems and good examples to operators. Although solving most of the reported problems requires years of construction, every announcement received an answer from BKK experts and some of them could be solved. This website provides new information about the critical points for improvement in the city, and the mobility manager will use this information not only in the short-term but also in the middle- and long-term developments of the public transport system.

### 7.1 Evaluation activities and target indicators

BKK defined specific objectives for these pilot actions. The first pilot objective is to **contribute to a more competent behaviour from public transport staff towards people with reduced mobility**, and the second pilot objective is to **improve public transport usability for people with reduced mobility**. Each of the indicators selected to measure these objectives has qualified targets. INCLUSION partners (UNIABDN, RUPPRECHT and MEMEX) helped BKK to design and select potential objectives and indicators. These indicators have helped to better understand the current and future mobility state of people with special needs. Each of the indicators has a qualified target, which helped to measuring the process and analyse the outcomes of the pilot actions. The following table summarises the pilot actions' objectives, indicators and qualified targets.

*Table 2 - Indicators, qualified targets, outcomes*

Title of Measure/ Intervention	Objective	Indicators	Quantified Targets
Re-education and sensitisation of staff	Contribution to a more competent behaviour from public transport staff towards people with reduced mobility	Output indicator 1 Number of trained staff	Approximately 16% (50 employees) of ticket inspector and customer service employee will be trained.
		Output indicator 2 Number of training hours	To sum up, 32 training hours will be held.
		Outcome indicator 1 More competent employees	20 % increase in competency level of employees in the aspect of our target groups
		Outcome indicator 2 Change in level of satisfaction and ease of use with use of public transport by blind and visually impaired persons, disabled persons and persons with baby buggy.	10% increase in vulnerable users 'satisfied' or 'very satisfied' with public transport services
		Outcome indicator 3 Change in number of trips on public transport by vulnerable groups	10% increase in vulnerable users using public transport at least once a week
Awareness raising campaign	Improve public transport usability for people with reduced mobility	Output indicator 1: Number of announcements through BKK customer service e-mail address (bkk@bkk.hu) in the aspect of our target groups	5% increase the numbers of announcement from target groups.
		Output indicator 2: Number of announcements through jarokelo.hu webpage from PT users in the target groups	5% increase the numbers of announcement from target groups.

Title of Measure/ Intervention	Objective	Indicators	Quantified Targets
		Output indicator 3: Number of solved announcements	
		Outcome indicator 1: Change in number of trips by blind and visually impaired people	increase by 5% compared to the baseline
		Outcome indicator 2: Change in level of satisfaction of blind and visually impaired people	increase by 5% compared to the baseline
		Outcome indicator 3: Change in number of trips by disabled people	increase by 5% compared to the baseline
		Outcome indicator 4: Change in level of satisfaction of disabled people	increase by 5% compared to the baseline
		Outcome indicator 5: Change in level of satisfaction of passengers with luggage or baby buggy	increase by 5% compared to the baseline
		Outcome indicator 6: Change in level of satisfaction of tourists	increase by 5% compared to the baseline
		Outcome indicator 7: Change in level of satisfaction of foreigners who live in Budapest on long term	increase by 5% compared to the baseline

These qualified targets were verified with different data collection methods, before baseline and after data collection. BKK developed specific questionnaires for data collection and measuring the selected indicators. BKK managed soft pilot activities in Budapest. Measuring these effects are more difficult than measuring hard activities effects on mobility habits people with special needs.

- Overview of the data collection activities:



- Identification of objectives, indicators, quantified targets and data collection methods
- Before Baseline data
- After data collection information

### 7.1.1 Pilot 1: Re-education and sensitisation of PT staff and development of training material

The competency level of PT staff was measured via before and after surveys that were conducted during the trainings. The main results are the following:

Qualified values:

- 85 employees were trained instead of 50, i.e. ticket inspectors, customer service employees, HR colleagues, bus- tramway- and trolleybus drivers.
- There were four training events. Each event lasted 8 hours, and 32 training hours were held.
- The trained staff's competency level increased from 64% to 83%.
- The 50% of test purchasers and test travellers were very satisfied and 33% of them were satisfied with staff competence levels. The 25% of test purchasers and test travellers were very satisfied and 50% of them were satisfied with ease of use of PT.

### 7.1.2 Pilot 2: Awareness raising public campaign

BKK measured the effects of the public campaign ('Without barriers' campaign) with before and after surveys. Two types of surveys were conducted: one for people with reduced mobility and one for foreigners. The before questionnaire for people with reduced mobility were filled in by 198 participants and the after survey was filled in by 163 participants. The before questionnaire for foreigners was filled in by 66 participants, and the after survey was filled in by 62 participants.

Qualified values, comparing before and after data collection:

- 82 announcements arrived through the 'Without barriers' campaign
- BKK as the city level mobility manager which covers mobility related announcements solved 36 announcements with professional answers or physical solutions. (BKK could not solve several announcements at a physical level, i.e. reconstruction of whole squares, buying new low-floor trams)
- The 74.57% of respondents use PT service at least one time per week based on after data collection. This represents a +2.34% change from the before data of 72.22%.
  - Blind and visually impaired people's results compared to all participants' results: the percentage of use PT at least one time per week is 84.00%, which is 9.43% higher than all participants' one.

- Disabled people's results compare to all participants' results: the percentage of use of PT at least one time per week is 71.43%, which is 0.79% lower than all participants' one.
- People with baby baggy or luggage's results compare to all participants' results: the percentage of use PT at least one time per week is 87.50%, which is 3.50% higher than all participants' one.
- 74.57% of respondents use PT service at least one time per week based on after data collection. This is a +2.34% change from the before data of 72.22%. Blind and visually impaired people's results compared to all participants' results: the percentage of use PT at least one time per week is 71.43%, which is 3.14% lower than all participants' one.
- The percentage of respondents who are satisfied (4) or very satisfied (5) with the equal access in Budapest PT for people with reduced mobility is 5.39% higher (before: 22.22%, after: 27.61%).
  - Blind and visually impaired people's results compared to all participants' results: the percentage of respondents who are satisfied or very satisfied is 34.00%, which is 6.39% higher than all participants' one.
  - Disabled people's results compared to all participants' results: the percentage of respondents who are satisfied or very satisfied is 16.07%, which is 11.54% lower than all participants' one.
  - People with a baby buggy or luggage results compared to all participants' results: the percentage of respondents who are satisfied or very satisfied is 30.00%, which is 2.39% higher than all participants' one.
- Three types of satisfaction levels were measured (satisfaction with attitude of PT employees (before: 56.06%, after 59.68%), travel help of PT employees (before 18.18%, after 19.35%) and passenger information service (before 57.58%, after (59.68%)). Average of satisfaction level increased 2.3%.

## 7.2 Pilot Lab vs Inclusivity goals

The INCLUSION project identified eight specific Inclusivity goals (accessible, affordable, convenient, efficient, empowering, empathetic, gender equitable and safe). These goals form a framework on inclusivity and social innovation. Budapest's Pilot Lab activities have addressed four inclusivity goals: accessible, empowering, empathetic and safe. The outcomes and description of Budapest's pilot activities fit to these goals, and the following table represents connections among Budapest's Pilot Lab and the inclusivity goals of the INCLUSION project.

*Table 3 - INCLUSIVITY goals, Budapest*

INCLUSIVITY goal	Pilot 1 Re-education and sensitisation of PT staff and development of training material	Pilot 2 Awareness raising public campaign
Accessible	Better trained public transport employees are able to take into account the needs of passengers with special needs.	Reporting traffic barriers that appear in everyday mobility will help to promote barrier-free mobility and to solve already existing problems.
Empowering	Well-trained transport staff can support those with passengers with special needs.	Listening to public transport users increases social acceptance and empowerment.
Empathetic	Trained transport employees pay more attention to the needs of those involved in transport.	A more empathetic public transport environment can be created if people with special needs can indicate their needs in a transparent way.
Safe	Trained transport staff provide a safer transport environment and trips.	Reporting unsafe locations and situations helps to create a safer environment at everyday mobility.

## 7.3 Lessons learnt

BKK defined five target groups for its Pilot Lab activities at the beginning of the INCLUSION project. During this period, BKK had several meetings with local stakeholders during the preparation stage. The transport provider listened to the needs of local stakeholders and opened Budapest's pilot actions for other groups of users who have reduced mobility, thereby not excluding any particular disability, for instance people who are deaf or hard of hearing, temporarily disabled, intellectually impaired, or people with autism. This request from stakeholders showed that one of the groups concerned (people with reduced mobility) should not be excluded when we are solving accessible transport related problems. Communication and strong commitment between stakeholders and BKK were the main reasons that both measures were a success. The value of the voluntary openness from users with mobility impairments to both measures should not be underestimated.

Stakeholder engagement with people with reduced mobility is usually met with openness from their side despite that this target group exposes their vulnerability in dealing with people who are unaware of their needs, which has a risk of being emotionally triggering for them. However, as happened in this measure, there is a great potential created for them to develop a sense of trust with the organisers and not just the other way around. This bond developed between actors, that

can now be relied on for future trainings. I.e. there was a strong business relationship developed with volunteers who are likely to join for future training sessions again.

The relationship with NGO BKK's protocol for dealing with issues was outdated and slow, but users still trusted them when the website was introduced as the new measure for communication. It facilitated a better user experience and drastically improved response time to reported issues, and thus the trust between users and BKK.

### 7.3.1 Pilot 1: Re-education and sensitisation of PT staff and development of training material

The most important lesson learned in the first pilot activity is that people are open to other people, their possible fears are that they do not know the other people's difficulties. If they get to know these issues better, they will not be afraid, they will better recognize and understand the difficulties of other people. This kind of sensitization, learning about the difficulties of people with reduced mobility, realized in the training for participants. Theoretical and practical training lectures helped the public transport staff to become aware of the transport difficulties of people with special needs.

This knowledge is essential for public transport employees because they meet people with reduced mobility not just at their workplace but at their home too. They are able to understand their relatives' and friends' needs with sensitivity training. This type of training make a stronger relationship and bonding experience not just between transport companies and stakeholders but also among different transport companies.

### 7.3.2 Pilot 2: Awareness raising public campaign

People want to report their mobility difficulties, i.e. use of transport, quality of walkways, incomprehensible or missing traffic signs. Stakeholders of special needs have a strong commitment for joint work and negotiation with the transport manager of Budapest. New bottom-up social innovations and ICT are able to support more direct communication between public transport users and providers, thereby supporting improvements to the PT system that make it more accessible, empathetic and safe for the users.

Special agreements with the online platform operator is a good way to define the framework and negotiation of common work to implement the pilot activity. It also helps to make communication better and more fluid among stakeholders. The public found using modern web-based tools and ICT solutions more convenient for reporting PT-related issues than old fashioned ones such as email or reporting the problems in person. Having the online portal also seemed to legitimise the belief that the PTA is now more concerned with addressing issues since they are designating space to hear the issues.

## 8 Assessment

BKK Centre for Budapest Transport, as Budapest's mobility manager, is committed to providing equal access-based public transport services for every single passenger. In Budapest, the Hungarian capital, where 1.75 million people reside, circa 4.5 million travels are taken on a daily basis on Budapest's public transport network. In recent years, Budapest's public transport has become more available for every single passenger, as numerous developments have been carried out city-wide, i.e. low-floor vehicles have been put into service and high platforms, providing step-free boarding have been constructed at tram stops. Next to hard infrastructure projects, soft measures are also important to provide transport equity for the users. Participation in the EU-funded INCLUSION research and development project enabled BKK to study and assess travel demands of passengers with special needs and also to provide a series of sensitisation trainings for employees getting in touch with these passengers on a daily basis.

As a result of the involvement of the stakeholders, the pilot labs could be implemented in Budapest, which reflected the needs of the clients with special needs. The measures' reception was favourable among the target groups of the Pilot Lab.

### 8.1 Benefits of the actions developed

In Budapest, BKK sought to implement initiatives that respond to the specific mobility needs of vulnerable users. The two pilot measures had different benefits for the target groups. Workers in the transport field are better equipped to address vulnerable users' needs during their journeys through the sensitisation training. These trainings help to improve service quality, as trained employees are more likely to notice the needs of people with reduced mobility. Through stakeholder organisations, passengers with special transport needs were directly informed about the training of transport workers. This has allowed them to travel with greater confidence. Better-skilled employees know the needs of passengers with special needs, thus providing them with a more appropriate, safer environment during their travel.

The 'Without barriers' online transport-oriented announcement platform meant service improvement for customers with special needs in two ways. On the one hand, they can report their mobility difficulties. In many cases, public space operators are not aware of the minor defects, e.g. worn pavement marks, and bad surface of sidewalks which can be repaired by the operator. On the other hand, there have been several comments on topics that cannot be resolved within a short time by the responsible transport company, municipality or firm. In these cases, the notifier has received a professional response and the comments can be taken into account later, when the reported public space will develop. BKK is not only responsible for Budapest's public transport network, but also for Budapest's mobility strategy (SUMP) and strategic road development in Budapest.

BKK has identified two mobility gaps in Budapest: transport employees do not have adequate sensitisation training knowledge to handle passengers with reduced mobility, and it is difficult to announce transport-oriented problems, which appears in everyday traffic for people with reduced mobility. Involving stakeholders helped identify mobility gaps. As a result of their involvement, it indicated in direct feedback on the effectiveness of the pilot activities.

The training and supporting material are primarily designed for transportation employees (e.g. customer service staff, ticket inspectors, bus drivers) who meet customers in the course of their day-to-day work. The sensitising training used in the project as hands-on training increased the knowledge of the transport employees towards passengers. This helps transport employees to be more ready and willing to help passengers in the right way. As a result of the training, transport employees are better able to identify not only the needs of passengers but also the needs of their relatives and friends.

In the 'Without barriers' public campaign (<https://jarokelo.hu/akadalyoknelkul>), all reports identified a lack of mobility. In addition to mobility gaps, good examples could also be reported. The announcements helped to better understand the transportation difficulties of users with special needs and smaller notifications (e.g. lowering the curb, installing tactile pavement markings) have been resolved with the involvement of the public space operators involved. Stakeholders further helped to spread the 'Without barriers' public campaign's platform.

## 8.2 Key transferability issues

### Weak and strong points of the measures implemented

The advantage of the pilot activities was the establishment of a close, direct relationship between the transport manager through the transport employees who have daily contact with passengers and people with reduced mobility. This was a strong point of the measure. Direct dialogue and communication strengthened the good relationship with the target groups involved. Transparency is also important in the field of transport. In the 'Without barriers' campaign, the announcements were public, their status (e.g. waiting to be resolved, resolved) was available to everyone.

The results of sensitisation training are difficult to track, and their effectiveness cannot be measured as easily as the results of "hard" infrastructure developments. This was a weak point of the measure. BKK examined the effectiveness of the training through test trips and ghost shopping, however, this wasn't effective in every situation. However, before and after the training, BKK assessed the knowledge of the employees participating in the training with a questionnaire. Based on the results, the training was successful. Based on our experiences, regular trainings and tests help to sensitise employees and change their attitudes in the long run. Stakeholder engagement has been time consuming. In the future, adequate time needs to be set aside for thorough planning and facilitating stakeholder interactions.

## Potential transferability of the Pilot Lab measures and approach and related opportunities

BKK has a positive experience of the two pilot interventions implemented in Budapest. The preparation and development of the training material was a multi-step process and the completed material will become part of the BKK HR training system. Originally, BKK wanted to provide training for 50 transport employees in four training-days, but due to the large number of interested people and success of the first training, a total of 85 transport employees were involved in the training. The completed material provides a broad basis for sensitization, it provides an answer to the Budapest case, but it can also be used elsewhere, where sensitisation of public transport employees is on the agenda.

Public campaigns help to draw attention to some social difficulties or opportunities to be solved. A useful feature of the 'Without barriers' platform used during the Budapest sensitisation campaign, it connects the users and owners of public spaces. For this reason, BKK worked with the Járókelő NGO team, the operator of the jarokelo.hu website. The NGO is knowledgeable about bottom-up communication and problem solving. In many cases, those in charge of the public area are unaware that some "error has occurred" on the street, (a sign has fallen out, a pit has formed, a curb is high). Public space users can immediately report these errors, which will be notified to the public space manager. Rapid feedback is important in identifying specific transport difficulties, especially for those who have special transport needs and barriers, which social groups have difficulties using public space and public transport facilities. This applied methodology is able to respond appropriately and quickly to the emerging needs, provide appropriate future planning, estimation and dialogue between transport professionals and those involved in everyday life.

## Expectations for the future

In Budapest, the products created as a result of both pilot activities live on, and there are favourable expectations for the future. The training material will be integrated into BKK's training system in the near future, and it was sent to BKV, as the largest transport operator in Budapest. The material is not unknown to BKV, because BKV bus drivers also participated in the training. The new training material on sensitisation and its application has triggered a potential change in attitudes to provide a higher level of service from BKK for public transport users with special needs.

A good working connection appeared between BKK and Járókelő NGO, the operator of the online platform. As a result of this cooperation, the 'Without barriers' online reporting platform is still available after the six-month campaign period. In the future, BKK would like to strengthen direct communication with people on reduced mobility via this platform.



---

## 9 Conclusions

BKK Centre for Budapest Transport as the mobility manager of Budapest is committed to inclusive public transport and mobility service for everyone in Budapest. The aim of the INCLUSION project in Budapest was to increase the service level for the people with reduced mobility. The BKK had 2 pilot actions (Re-education and sensitisation of PT staff and development of training material, awareness raising public campaign) and 5 target groups (blind and visually impaired, disabled, travellers with luggage or baby buggy, tourists, foreigners staying in Budapest long-term) to reach this goal. These activities helped to raise the competency level of the Budapest public transport, the outcomes of INCLUSION project resulted more sensitive public transport staff and direct communication between BKK and people with special needs.

A new training program developed and piloted for public transport staff at the first pilot action. This pilot supported and contributed to a more competent public transport staff behaviour and more inclusive travel environment and higher level of service for people with reduced mobility. The awareness raising public campaign ('Without barriers') has involved the everyday public transport users to report their transport-oriented problems, suggestions or recommend good examples in Budapest public transport or public space use. The online platform has helped BKK to understand the needs, barriers and difficulties of people with special needs. Addressing the two sides greatly helped the effectiveness and social acceptance of the pilot interventions among the project's target groups.




## The INCLUSION consortium



 @H2020\_INCLUSION  
#H2020INCLUSION

For further information please visit [www.h2020-inclusion.eu](http://www.h2020-inclusion.eu)



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 770115

The sole responsibility for the content of this document lies with the authors. It does not necessarily reflect the opinion of the European Union. Neither the INEA nor the European Commission are responsible for any use that may be made of the information contained therein.

# Annexes

## Annex 1: Questionnaires

### Pilot 1: survey – on the training

The sensitivity knowledge of the participants in the training was measured with the following questions.

1. Universal Design:
  - a. Planning method, which can be known by experts (eg. enginners).
  - b. A proactive design approach that takes into account individual differences. (correct answer)
  - c. Advanced accessibility.
2. Psychosocial disability:
  - a. A relatively new concept, people with psychiatric disorder are disabled persons. (correct answer)
  - b. An imaginary disability, which can be real problems those who have it.
3. Accessible vehicle use:
  - a. All vehicles are low-floor, stops are barrier-free, the way to stops are easy to use and vehicles and stops have audiovisual displays and equipments. (correct answer)
  - b. If the ramp could be turned down and assistance is provided.
  - c. Passengers provide verbal and physical assistance.
4. Appropriate use of words:
  - a. intellectual disabled person, general learning disabled person, person with Down's syndrome (correct answer)
  - b. person with Down's disease, mentally injured person
  - c. debil, weak-minded, mentally handicapped, mongoloid
5. According to business rules you can use baby carriage on the escalator
  - a. if it is folded, and a child is on the hand. (correct answer)
  - b. if the station has an elevator, the escalator cannot be used with a baby carriage.
  - c. the escalator can be used with wheelchair at own responsibility.
6. Cerebral palsy:
  - a. It is an illness.
  - b. It is a lifelong condition. (correct answer)
7. The most difficult task for people with cerebral palsy is
  - a. Moving on rough ground (eg. pothole or cobblestone) (correct answer)
  - b. Walking on smooth sidewalk
8. What should you do, if blind or visually impaired person get on the bus, and seats are occupied next to the door?
  - a. We escort the blind or visually impaired person to the closest free seat.
  - b. We shout and we are trying to get a seat for the blind or visually impaired person.
  - c. We put the blind or visually impaired pearson's hands on the handrail as quickly as possible. (correct answer)

9. What kind of place is it where a blind or visually impaired person will almost certainly not start alone?
  - a. Public event (correct answer)
  - b. Grocery store
  - c. School

## Pilot 2: survey – people on reduced mobility

The following questions were used to assess the situation of people on reduced mobility in the second pilot measure.

1. How satisfy you with the equal access in Budapest Public Transport? - Single choice
  - a. 1 - not satisfy; 5 - very satisfy
2. If PT employees understand better your needs, could PT service be better in Budapest? - Single choice
  - a. Yes
  - b. No
  - c. Partly
  - d. I don't know
  - e. No answer
3. If PT employees could help you more, will you use PT service in Budapest often? - Single choice
  - a. Yes, more often
  - b. Yes, partly
  - c. It doesn't depend on it
  - d. I don't use
  - e. I don't know
  - f. No answer
4. How often do you use PT service in Budapest? - Single choice
  - a. Daily
  - b. Several times a week
  - c. 1-2 times a week
  - d. 1-2 times a month
  - e. Sometimes
  - f. I don't use
  - g. I would like to use it, but I'm not able to use.
  - h. No answer
5. Are you familiar with online announcement websites, where you can report your transport oriented problems? - Single choice
  - a. Yes
  - b. No
  - c. No answer
6. Which online platform have you used until this time? - Multiply choice
  - a. BKK Zrt.
  - b. Járókelő.hu

- c. Kerületi önkormányzatok elektronikus felületei
  - d. Other
  - e. I don't use
  - f. No answer
7. How satisfy you with the equal access report process in Budapest Public Transport? - Single choice
- a. 1 - not satisfy; 5 - very satisfy

## Pilot 2: survey - foreigners

The following questions were used to assess the situation of foreigners mobility in the second pilot measure.

1. Usually, how often do you travel by public transport in Budapest? - Single choice
  - a. Every day
  - b. Several times a week
  - c. Once a week
  - d. Rarely
  - e. Other
  - f. No answer
2. Overall, how satisfied are you with the attitude of the employees of the public transport in Budapest? Please think about their courtesy, helpfulness, appearance, determination, appearance, and care. - Single choice
  - a. Completely satisfied
  - b. Rather satisfied
  - c. Satisfied, too
  - d. Rather not satisfied
  - e. Not at all satisfied
  - f. No Answer
3. Did you get help from the employee, and if you get, were you satisfied with the help you received? - Single choice
  - a. Got help and satisfied
  - b. Got help but was not satisfied
  - c. Did not get help
  - d. No Answers
4. Overall, how satisfied are you with the passenger information service in Budapest? Please think about information on the vehicles, on the stops, on the website, on the press, or in the customer service offices and in the ticket funds. - Single choice
  - a. Completely satisfied
  - b. Rather satisfied
  - c. Satisfied, too
  - d. Rather not satisfied
  - e. Not at all satisfies
  - f. No Answers

## Annex 3: brief sum of announcements from 'Without barriers' campaign

The following table summarized the announcements which has arrived at 'Without barriers' awareness raising campaign.

report briefly	number of report
accessible problem	3
accessible staircase needs	2
braille signs at PT vehicles' stop signs needs	1
citylight is a wrong place	1
accessible problem	3
accessible staircase needs	2
braille signs at PT vehicles' stop signs needs	1
citylight is a wrong place	1
demand-driven pedestrian crossing is working as permanent traffic lighting	1
drainage problem	1
inadequate PT user information	1
lack of accessible pedestrian crossing	4
lack of pedestrian crossing	1
lack of barrier-free access of street	1
lack of barrier-free access PT stop	4
lack of bench	1
lack of credit card payment on boat	1
lack of elevators	2
lack of low-floor vehicle	7
lack of low-floor vehicle and barrier-free access PT stop	2
lack of pedestrian crossing and lowering curbside needs	1
lack of public lighting	1
lack of public lighting at pedestrian crossing	1

report briefly	number of report
lack of sounds of stop sign at PT vehicles in and outdoor	1
lack of tactile pavement marks on Railway platforms	1
lack of accessible pedestrian way and curbside	1
lack of tactile pavement mark and level of sounds of traffic lights at pedestrian crossings	1
lowered curbside (good example)	2
lowering curbside needs	25
low-floor vehicle and barrier-free access PT stop	3
narrow tram stop	2
passenger information in English is not clear	1
problem with carriageway surface	1
PT stops at good place	1
public-space isn't barrier-free	1
railway platform isn't barrier-free	1
several buses at PT bus stop in the same time	1
staircase handrail is too high	1
underpass is not barrier-free	1
unsafe streetlight	1
use of student card	1

## Annex 4: BKK short movie at 'Without barrier' campaigns

The following link shows a short film which used to promote the 'Without barriers' campaign.

<https://www.facebook.com/bkkbudapest/videos/304514057607715/> .

## Annex 5: INCLUSIVITY goals

These are the inclusivity goals of INCLUSION project

### ACCESSIBLE



The transport network, stations, vehicles and information are barrier-free (physically, sensorially and linguistically). This also includes ticket machines, apps for smartphone accessibility features, simple user-centric access to digital devices, acoustic and visual announcements at stations and aboard vehicles.

### AFFORDABLE



Transport services are affordable for all users, in particular vulnerable users, relative to their income and proportional to their other overall cost of living. An inclusive society will have to cover related costs and subsidies, and avoid imposing a major cost factor on any particular user group(s).

### CONVENIENT



The time and/or effort required for vulnerable users to reach a transport service (e.g. first and last mile) are minimised so that these users can benefit from the service in their everyday lives. Distance to the nearest service, reliability and adequate information provision about the service (e.g. timetables, route planning) contribute to its convenience.

### EFFICIENT



Once vulnerable users are aboard a vehicle, the time and/or effort required to use the service (e.g. longer journey times, changing vehicles multiple times) are minimised so that these users can benefit from the service in their everyday lives. The main factors contributing to efficiency are vehicle routes, network coverage and intermodal connectivity.

### EMPOWERING



Mobility solutions that build vulnerable users' capacities to get around confidently in their everyday lives. This idea can manifest in a training course or a scheme of "travel buddies" for certain social groups so that they are enabled to use certain transport options without requiring help by other people. Also technology can play a role here if it creates new degrees of freedom.

### EMPATHETIC



Empathy-building initiatives foster awareness and build capacities (e.g. through training) among the transport provider and general public for vulnerable users' needs and increase their readiness to help. Sometimes, mobility options would be more accessible if there were some kind of "helping hand" (literally or metaphorically) to support vulnerable users.

### GENDER EQUITABLE



Gender equitable transport systems are designed to treat people of all genders and orientations fairly according to their respective needs, which may require equal treatment or treatment that is different but equivalent<sup>2</sup>. These include mobility solutions that enable women and LGBTQ+ users to have equitable access to transport services that meet their daily needs. Measures that improve and facilitate intermodality, accessibility and safety are primary considerations for gender equity.

### SAFE



Mobility services that increase the perceived and actual safety of all vulnerable users by preventing accidents, theft, violence and harassment. Related interventions include hard measures (e.g. lighting, spatial layout, station and vehicle design, signage, emergency buttons, etc.) as well as soft measures such as human surveillance, communication, staff training and public awareness campaigns.

---

## Annex 6: Extract from the training material in English

The full 51-page **guide**, prepared in 2019 for the **development of equal access to Budapest's public transport services through training of the personnel** is available for download from the link in the following page of the INCLUSION web site:

<http://h2020-inclusion.eu/inclusion-pilot-labs/budapest-hu/>

The **first ten pages of this guide** are included in this annex to give a snapshot of the document.



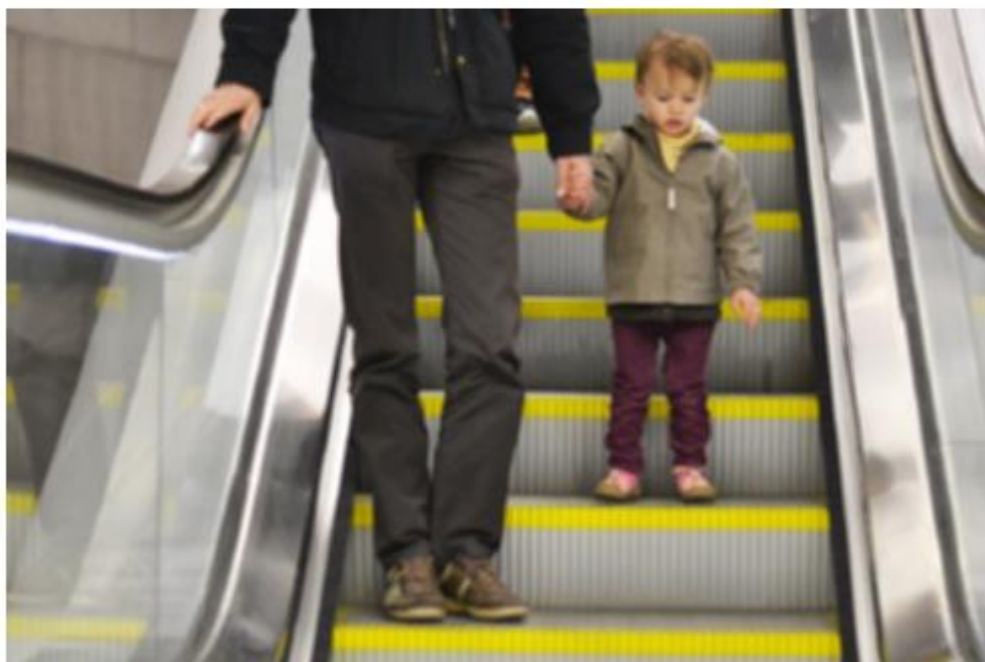


BUDAPESTI  
KÖZLEKEDÉSI  
KÖZPONT

## GUIDE

**for the development of equal access  
to Budapest's public transport services  
through training of the personnel**

TRAINING MATERIAL



---

## TRAINING MATERIAL

---

### Made by:

Erzsébet Fördős-Hódy

Nikolett Fekete

Zoltán Tóth

Gábor Nagy

Universal Design Information  
and Research Center of Hungary



Hungarian Association of the Deaf and Hard of Hearing

### Proofread by:

Rita Gönczi Farkasné

Equal Opportunities of Persons with  
Disabilities Non-profit Ltd.

### In cooperation with:

dr. Judit Albert

BKK Centre for Budapest Centre  
Strategy and Innovation  
equality officer

### Translated by:

Melinda Mondovics

BKK Centre for Budapest Centre

### Proposed revision:

Every two years

### Made in:

Budapest, 2019.

## TRAINING MATERIAL

### Table of contents

<b>1. FOREWORD</b>	<b>4</b>
<b>2. INTRODUCTION TO THE TASKS REGARDING UNIVERSAL DESIGN AND ACCESSIBILITY</b>	<b>6</b>
2.1. Universal design and accessibility	6
2.2. The seven basic principles of universal design	9
<b>3. EQUAL ACCESS IN THE FIELD OF SERVICES</b>	<b>11</b>
3.1. Equal Access Principle	11
3.2. The "Nothing about us without us" principle	11
<b>4. DIVERSE ACCESSIBLE (BARRIER-FREE) TRANSPORT SOLUTIONS, NEEDS</b>	<b>12</b>
4.1. Transport of people living in temporary life situations	12
4.2. Needs of Persons with Disabilities in transport	14
4.2.1. Transport of persons with mobility-disability	14
4.2.2. Transport of blind and partially sighted persons	16
4.2.3. Transport of deaf and hard of hearing persons	18
4.2.4. Transport of deafblind persons	20
4.2.5. Transport of persons with intellectual disability	22
4.2.7. Transport of persons with psychosocial disability	26
<b>5. RECOMMENDATIONS</b>	<b>28</b>
5.1. Recommendations for vehicle drivers	28
5.2. Recommendations for employees working at Customer Service Centres	30
5.3. Recommendations for ticket inspectors and operators	31
5.4. Conclusion	31
<b>6. APPENDIX - EXTRA MATERIALS TO SUPPORT THE TRAINING</b>	<b>32</b>
6.1 List of actual, relating legal regulations	32
6.2 Lists of questions	33
6.3 Supplementary studies by persons with disabilities	35
6.3.1 Life with cerebral palsy	35
6.3.2 Hitting the roads by wheelchairs	38
6.3.3 Living and getting around as a blind or partially sighted person	42
6.3.4 Transport-related aspects of deaf and hard-of-hearing persons	46
6.4 Solutions of the series of questions aiming at testing participants' knowledge	50

## 1. FOREWORD

In accordance with the **Equal Access Principle**, **equal access to public services must be ensured for disabled persons** by taking into account the different special needs of groups with different types of disabilities, **the way they could use public services in the same quality and quantity than members of the mainstream society**. Public service consists of information and also of activities, to which communications between human beings are required. So if public services must be equally accessed, then also information and communications are required to be equally available, besides the physical, barrier-free accessibility of a building. As a consequence, besides engineers and rehabilitation engineers, service providers and communications experts are also necessary to be included to provide equal access.

The other key element of equal access is that it does not treat disabled persons as a homogeneous group having the same needs, as persons with physical disability, deaf and hard-of-hearing persons, blind and partially sighted persons, persons with intellectual disability or autism face different challenges when using public services. Therefore, when carrying out public service-related tasks, BKK Centre for Budapest Transport (hereinafter referred to as: BKK) must find different "reliable, easily-understandable and perceptible" solutions adjusted to the needs of the groups with different types of disabilities, in order that we could understand every single difficulty and we could address it adequately. This approach must be indicated in BKK's entire business-service activities, including tasks in relation to investment, procurement, transport management, mobility strategy, external and internal communications and HR.

This Guide has been compiled for staff in transport services who regularly or occasionally get in touch with persons with reduced mobility or with other disability. This Guide is intended to assist the work of staff getting in touch with customers, by giving practical advice to them, in order they could be able to recognise and identify persons with different disabilities and could support their travel in an adequate way.

Being aware of the fact that rules may vary from company to company, in case recommendations specified in this Guide conflict with those of a company, the company's already-approved rules must prevail and be applied.

This Guide was compiled as part of the INCLUSION research-development project funded by Horizon 2020 started in 2017. The project's main goal is to examine accessibility to public transport. The Budapest-based pilot (WP4) explores the barriers regarding accessibility to public transport of five target groups with reduced mobility (blind and partially sighted persons, persons with physical disability, persons carrying a pram or heavy luggage, tourists and expats living in Budapest).

In the sensitization training realised in the framework of the project, 85 colleagues - dealing with passengers on a daily basis - participated who work in different fields at Budapest's public transport service providers (BKK Centre for Budapest Transport, Budapest Transport Customer Relations company and the Budapest Transport Privately Held Corporation (BKV).

## TRAINING MATERIAL

The main goal of this training was to provide comprehensive knowledge about the mobility needs of persons with reduced mobility for the staff working in the field of public transport. As a result, in their work they will be able to recognise the borders of their tasks and competencies and give support and help to passengers with reduced mobility accordingly.

The training material presented in this document has been compiled with the use of experience gained by the trainers and participants of sensitization trainings.

Topics covered in the training material are, as follows:

- evolution of the approach in relation to persons with reduced mobility;
- the Equal Access Principle; the general aspects of its provision;
- relation between universal design and accessibility;
- the "Nothing about us without us" principle;
- specific disability-related knowledge;
- training for public transport service providers in order they could be able to provide tailor-made and appropriate support during their work for disadvantaged groups in relation to equal access to public transport services;
- management of conflict situations;
- application in practice of communication tailor-made to the target group.

**The training material has been reviewed by:**

BKK HR (Training)

BKK Mobility Strategy

Budapest Transport Privately Held Corporation (BKV Zrt.)

Hungarian Association of the Deaf and Hard of Hearing (SINOSZ)

National Federation of Associations of Persons with Physical Disabilities (MEOSZ)



## TRAINING MATERIAL

# 2. INTRODUCTION TO THE TASKS REGARDING UNIVERSAL DESIGN AND ACCESSIBILITY

## 2.1. Universal design and accessibility

What is the relation between universal design and accessibility, why is it necessary for every one of us?

The overall experience has shown that in case of the availability of services and realised investments, some component is often missing or the existent service cannot be well-used by everyone. In Hungary, these days there is average-based design: the demands of "unit-based (so-called uniformed or standard)" persons, vehicles are taken into account, in which case there is no room for exceptions. Passengers, carrying and lifting to vehicles prams, children, tourists carrying and lifting to vehicles heavy luggage, passengers with wheelchair, white cane or any other passengers with different disabilities may fall within the scope of the above-mentioned exception.

By analysing the data of the population census as of 2011, it is visible that only in Budapest, there are circa 73,079 residents with different types of disabilities living and working in the Hungarian capital and using public transport services as much as they can (in Hungary their population number can reach 490,578). Taking into account that different barriers have an impact on family members and accompanying persons helping persons with disabilities, the number of affected persons is even higher.

2.1.1 Disabled persons by type of settlement, economic activity and gender, Hungarian Central Statistical Office, 2011

Economic activity	Capital	County seat, municipality	Other cities	Village, large village	Total
<b>Male</b>					
Economically active population					
employed person	7,337	7,739	11,674	10,211	36,961
unemployed person	1,723	1,917	2,925	2,691	9,256
Economically active population altogether	9,060	9,656	14,599	12,902	46,217
Economically inactive population					
persons with childcare allowance	11	21	30	35	97
pensioners by their own right, persons entitled to allowance	12,166	15,203	25,217	24,375	76,961
disability pensioner, accident-related disability pensioner	6,489	10,853	20,544	22,501	60,387
pensioner entitled to dependents' benefits, pensioner entitled to allowance	101	175	425	587	1,288
other inactive income earner	1,455	2,966	6,435	8,728	19,584
Inactive income earner altogether	20,222	29,218	52,651	56,226	158,317
student studying in a full-course	2,726	3,279	5,644	5,158	16,807
other dependant	1,479	1,718	2,878	3,131	9,206
Dependant altogether	4,205	4,997	8,522	8,289	26,013
Economically inactive population altogether	24,427	34,215	61,173	64,515	184,330
Altogether	33,487	43,871	75,772	77,417	230,547
<b>Female</b>					
Economically active population					
employed person	5,462	6,395	9,327	7,436	28,620
unemployed person	1,226	1,424	2,186	1,875	6,711
Economically active population altogether	6,688	7,819	11,513	9,311	35,331
Economically inactive population					
persons with childcare allowance	285	355	652	796	2,088
pensioner by their own right, persons entitled to allowance	20,249	22,676	37,174	34,317	114,416

# TRAINING MATERIAL

disability pensioner, accident-related					
disability pensioner	7,218	10,779	18,685	18,351	55,033
pensioner entitled to dependants' benefits,					
pensioner entitled to allowance	886	1,980	5,447	6,905	15,198
other inactive income earner	1,229	2,701	6,201	8,241	18,372
Inactive income earner altogether	29,847	38,491	68,159	68,610	205,107
student studying in a full-course	1,893	2,230	3,952	3,535	11,610
other dependant	1,164	1,356	2,580	2,883	7,983
Dependant altogether	3,057	3,586	6,532	6,418	19,593
Economically inactive population altogether	32,904	42,077	74,691	75,028	224,700
Altogether	39,592	49,896	86,204	84,339	260,031
Total					
Economically active population					
employed person	12,799	14,134	21,001	17,647	65,581
unemployed person	2,949	3,341	5,111	4,566	15,967
Economically active population altogether	15,748	17,475	26,112	22,213	81,548
Economically inactive population					
persons with childcare allowance	296	376	682	831	2,185
pensioner by their own right, persons					
entitled to allowance	32,415	37,879	62,391	58,692	191,377
disability pensioner, accident-related					
disability pensioner	13,707	21,632	39,229	40,852	115,420
pensioner entitled to dependants' benefits,					
pensioner entitled to allowance	967	2,155	5,872	7,492	16,486
other inactive income earner	2,684	5,667	12,636	16,969	37,958
Inactive income earner altogether	50,089	67,709	120,810	124,836	363,424
student studying in a full-course	4,619	5,509	9,596	8,693	28,417
other dependant	2,643	3,074	5,458	6,014	17,189
Dependant altogether	7,262	8,583	15,054	14,707	45,806
Economically inactive population altogether	57,331	76,292	135,864	139,543	409,030
Total	73,079	93,767	161,976	161,756	490,578

Chart 1. Data about the group distribution of persons with different types of disabilities living in the Hungarian capital made by the Hungarian Central Statistical Office based on the population census result as of 2011.

Source: [http://www.ksh.hu/nepszamlalas/tablak\\_fogyatekosseg](http://www.ksh.hu/nepszamlalas/tablak_fogyatekosseg)

Instead of the concept of standard-based design, we must deal with the demands of the most vulnerable persons whose needs shall be met. This does not conflict with the interest of the majority, on the contrary, these possibilities imply an extra comfort function for everyone, such as using lifts in the undergrounds, putting a great number of low-floor vehicles into service, installing seats with different width into the vehicles and the display of BKK's FUTÁR Journey Planner (state-of-the-art, real-time traffic management and passenger information system) with voice-based information onboard the vehicles, at platforms, in the undergrounds and at Customer Service Centres. This is the basis of universal design.

Universal design is more than accessibility design and the provision of accessible services: universal design eliminates discrimination between the disabled and non-disabled people, as it takes every single user into account. Universal design considers people, by respecting their differences.



Figure 1. Instead of the standard-based design, design for everyone is in the core of this concept.

Source: <https://sites.google.com/site/iuibr20112012/digital-divide-e-inclusion-e-design-for-all/design-for-all>



---

## TRAINING MATERIAL

---

**Universal design is such a method and design strategy, which takes into account the needs of the broadest range of users already from the outset of the design process. It is the responsibility of the procurer, the designer and of the manufacturer to make products, to create environments and to provide services that meet the requirements of universal design. Universal design has been stemmed from the accessible design for the groups of people with disabilities. Accessibility (or barrier-free access), as its name implies, focuses on the elimination of the already existent barriers, while universal design is a proactive design-organising method.**

**The definition of universal design<sup>1</sup> is included in the UN Convention on the Rights of Persons with Disabilities. It has been ratified by Hungary, as a consequence of which it is legally binding in Hungary. The Convention stipulates realisation of universal design as the obligation of the society. . States Parties have undertaken to provide accessibility for persons with disabilities, by even extending this obligation to the private sector in the form of technical specifications and standards. Therefore, it is a legal obligation not to provide accessibility subsequently but to design from the outset in a way that it is accessible on equal basis to every user..**

**In the UN Convention, the key concept of "Reasonable accommodation" is specified, which means appropriate adjustment to individual needs within reasonable limits. Lack of reasonable accommodation is considered to be a discrimination. Equal access is linked to groups while reasonable accommodation is linked to individuals. Reasonable accommodation does not mean extra services for persons with disabilities; its aim is to achieve equal use with everyone else.**

---

<sup>1 1</sup> Relating legal regulation: Chapter 6 / 6.1. List of the actual legal regulations

## 2.2. The seven basic principles of universal design

The seven basic principles of universal design represent aspects that must be taken into account when such a product, tool is made and service is created, which is suitable for everyone. Through general and short examples experienced on a daily basis, the basic principles can be well understood (also when tools, products, facilities and services are designed).



Figure 2. The seven principles of universal design Source: ETIKK (Universal Design Information and Research Center of Hungary)

- **equitable use** – mobile phones can be used by deaf and hard of hearing persons and blind and partially sighted persons with the help of their video phone or screen reader functions, while the adjustment of keyboard sensitivity, the speed dial function make use of the mobile phone easier for seniors or for children;
- **flexibility in use** – equipment should enable that people could use them both either with left or right hand;
- **simple and intuitive use** – household devices should be supplied with pictograms easily understandable by everyone (information regarding their cleaning and use);
- **perceptible information** – we deliver information simultaneously, e.g. with a bell, which gives not only audible but also visual signals for deaf and hard of hearing users. Tactile paving indicators provide perceptible information to help blind and partially sighted passengers in transport;

---

TRAINING MATERIAL

---

- **tolerance for error** – the best example for this is when using word processing and we delete by accident an already typed text, which we can restore easily and quickly by the “undo” button;
- **low physical effort** – e.g. U shape door handles, which make door opening easier for persons with hand impairment;
- **size and space for approach and use** – primarily for the creation of physical accessibility, e.g. access to and use of lifts; making doors, gates and corridors wider for wheelchair users <sup>2</sup>

---

<sup>2</sup> Source of text: Universal Design Day, based on the booklet, 2017 (issued by: Budapest Association of Persons with Physical Disability, Universal Design Information and Research Center of Hungary)

[http://www.etikk.hu/wp-content/uploads/2018/04/egyetemestervezesnap\\_fuzet\\_web.pdf](http://www.etikk.hu/wp-content/uploads/2018/04/egyetemestervezesnap_fuzet_web.pdf)