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Working Document

Preliminary Policy Recommendations

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Table of contents

Glossary

The following terminology is presented to better clarify the scope of this report:

- **Collective Awareness Platforms (CAPs):** it is an initiative supported by the European Commission aimed at designing and piloting online platforms creating awareness of sustainability problems and offering collaborative solutions based on networks (of people, ideas, sensors, etc.) enabling new forms of social innovation (Digital Economy & Society, 2016).
- **Collective intelligence:** is the synergists and cumulative channeling of the vast human and technical resources now available over the Internet (Malone & Klein, 2007).
- **Digital Social Innovation:** "a type of collaborative innovation in which innovators, users and communities collaborate using digital technologies to co-create knowledge and solutions for a wide range of social needs and at a scale that was unimaginable before the rise of the Internet" (DSI4EU, 2014).
- **Engagement:** public engagement in Research & Innovation implies the establishment of participatory multi-actor dialogues and exchanges to foster mutual understanding, co-create research and innovation outcomes, and provide input to policy agendas (Science With And For Society, 2016).
- **Open Innovation: "**the basic premise of Open Innovation is to open up the innovation process to all active players that knowledge can circulate more freely and be transformed into products and services that create new markets, fostering a stronger culture of entrepreneurship" (DG Research and Innovation, 2016).
- **OpenStreetMap (OSM):** is an openly license map of the world being created by volunteers using local knowledge, GPS tracks and donated sources (OSM, 2016).
- **Social Innovation:** it means developing new ideas, services and models to better address social issues, requesting input from public and private stakeholders and civil society (DG Employment, Social Affairs and Inclusion, 2016a).
- **User-friendly:** easy to use, operate and understand for all kind of potential users.
- **Vocational Education Training (VET):** part of the tertiary education and training which provides accredited training in job related and technical skills.

List of acronyms

AB: Advisory Board

ANED: Academic Network of European Disability experts

CAP4Access: Collective Awareness Platforms for Improving Accessibility in European Cities & Regions

CAPs: Collective Awareness Platforms

DG Growth: Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs

DSI: Digital Social Innovation

EDF: European Disability Forum

EU: European Union

GR: General Recommendations

ICF: International Classification of Functioning, Disability and Health

INF: Information

OECD: Organisation for Economic Co-operation and Development

OSM: OpenStreetMap

PR: Policy Recommendations

SI: Social Innovation

UN: United Nations

VET: Vocational Education Training

WHO: World Health Organisation

WP: Work Package

1. Introduction

This report presents the Policy Recommendations (PR) designed in the framework of the CAP4Access experience, which regards the use of collective approaches to digital social innovation for better addressing the mobility requirements of specific target groups. The target groups were identified in Plan for Engagement (Deliverable 1.2) of User/target groups (WP1) and have been adapted to the PR, in particular, with a view of fully exploiting the CAP4Access tools. The aim is to equip decision makers at local, national and EU level with a knowledge base for making best-informed decision about participative strategies for addressing accessibility in policy-making and planning on the built environment. With this purpose, section two of this report defines the objectives, structure and characteristics of the PR presented in this document; section three describes the target groups and stakeholders affected by the PR and offers an interactive table that indicates the PR to be consulted by each group; section four outlines the current situation regarding the use of collective approaches to Digital Social Innovation (DSI) for better addressing societal challenges; section five presents the PR; and, finally, section six shapes the PR outreach.

CAP4Access (Collective Awareness Platforms for Improving Accessibility in European Cities & Regions) is a project co-funded by the 7th Framework Programme of the European Union. Its objective is to develop and pilot-test methods and tools for collectively gathering and sharing information about the accessibility of cities.

2. Objective

The **main objective** of this document (in its final version) is to equip decision makers at local, national and EU level with a knowledge base for making best-informed decisions about participative strategies for addressing accessibility in policy-making and planning about the built environment, transport systems, smart city and resource efficiency initiatives. With this aim, partners have compiled recommendations for policy makers and for other relevant audiences based on the CAP4Access experience. The recommendations reflect the evidences and good practices adopted in the project development that can be a starting point for exploring how Collective Awareness Platforms (CAPs) can be used to create awareness about societal challenges and to become mechanisms for achieving systematic change in the long-term.

Indeed, the European Commission promotes CAPs with the main aim to design and pilot online platforms to create awareness of sustainability problems and offering collaborative solutions based on networks, enabling at the same time new forms of **social innovation**. In this sense, social innovation means developing new ideas, services and models to better address social issues, asking input from public and private stakeholders and civil society (Employment, Social Affairs and Inclusion DG, 2016a). It should be driven by policy making and connected to social priorities.

The potential contribution of social innovation to societal challenges is particularly marked in the case of **Digital Social Innovation (DSI)**, that is, "*a type of collaborative innovation in which innovators, users and communities collaborate using digital technologies to co-create knowledge and solutions for a wide range of social needs and at a scale that was unimaginable before the rise of the Internet*" (DSI4EU, 2014). Thus, DSI combines sustainable innovation growth with cohesion and sustainable development (Bria et al., 2014). In that sense, the power of social networks and the wide range of new technologies can be used to create solutions to face social challenges and raise awareness of those problems involving citizen's and different stakeholders in an active way.

That's the approach followed by the **CAP4Access project.** It aims to raise awareness about the barriers that citizens with reduced mobility face, and promotes the elimination/reduction of such barriers. The experience in the CAP4Access project in piloting, facing challenges, and solving those challenges, can provide valuable insights for implementing similar

initiatives in the future. Thus, CAP4Access has developed and pilot tested methods and tools for collective gathering and sharing spatial information relevant to wheelchair users and people with reduced mobility. The objective of the project is to foster awareness of physical barriers, encourage urban planners for removing such barriers from bottom-up research, and enhancing the quality of life and movement of people with reduced mobility. Within the project, participative strategies for addressing accessibility and boosting citizens' participation have been developed and implemented involving different stakeholders in four European pilot sites (Elche, London, Heidelberg and Vienna). After two years implementing the project, some main conclusions and recommendations have been compiled; they include enabling and limiting factors with regard to technological, stakeholder, governance, ethical, political participation, sustainability, and international aspects. These lessons learnt are summarised in the present document of PR.

The **added value** of the project is the active participation of citizens and stakeholders in gathering and using data that provide evidence about the lack of urban accessibility. This lack of accessibility is being disseminated as a way to raise awareness among politicians and urban planners in order to remove such barriers and increment the quality of life of people with reduced mobility. For that reason, the PR compiled in this document are addressed to a wide range of target groups described in section 3. According to the various target groups, different PR are suggested (see Exhibit 1).

Characteristics

The PR presented in this document have been checked for the following characteristics by CAP4Access partners (Young and Quinn, nd): They shall be succinct; focused; professional; legible and understandable; precise; limited; promotional; practical and feasible.

Partners will translate the final version of the PR to German and Spanish.

Structure

The PR presented in this document have a common format using the following structure:

PR title
Justification: Outline of the initial position/problem/issue and the reasoning behind the recommendation.
Stakeholders affected: Refers, in general, to *types* of stakeholders rather than concrete organisations or individuals.
Target group of the recommendation: Who is the recommendation targeted at, i.e. who should become active to face the challenge outlined above?
Barriers and facilitators: Mostly based on the experience from CAP4Access, this part describes typical obstacles and barriers to progress in the area covered by the recommendation, as well as possible facilitators and solutions to problems encountered. It also includes references to case stories and other relevant material published on the web.

Methodology

The methodology used by partners to build the PR included in the section five was the following:

1. Compilation of a lessons learned report by all pilot sites (London, Heidelberg, Vienna and Elche).
2. Sharing first recommendations at an internal workshop in Berlin on 6th – 7th June 2016.
3. Drafting this document with the information collected from pilot sites and through the internal workshop.

4. Delivering this document on PR, in which all partners' feedback has been incorporated.

The **next steps** to deliver the Final Policy Recommendations are:

1. Interviewing stakeholders' representatives in pilot sites (online, by telephone or in-person interviews) following the protocol to be defined by Polibienestar.
2. Presenting the Preliminary Policy Recommendations to the AB (Advisory Board) in September 2016.
3. Incorporating the feedback from the AB and the interviews into the final version of the recommendations.
4. Editing the PR document in a publishable form and subsequent dissemination.

3. Target groups

In this section, the target groups affected by the PR are listed. The target groups of CAP4Access were identified in "Plan for Engagement of User/target groups" (D.1.2) and have been adapted to the PR, in particular, with a view of fully exploiting the CAP4Access tools. The aim is to equip decision makers with a knowledge for making best-informed decision about participative strategies for addressing accessibility in policy-making and planning the built environment. In the following table, readers from selected target groups can consult the PR that affect them.

Exhibit 1: PR per target group

	Local audiences	National audiences	International audiences
Community and User Groups representing: ● Wheelchair users, their parents and friends ● People using mobility aids ● Pushchair users ● Frail and older people	GR1 GR2 INF4 SI1	GR2 INF4 SI1	GR2 GR3 INF4 SI1
Social Service Providers (e.g. social workers or careers; public and private sector)	GR4 GR8	GR4 GR8	
Tourism sector stakeholders	GR4	GR4	
Other business, including architects, urban planners and universal designers	GR4 INF1 SI3	GR4 INF1 SI3	
Public Administrators (incl. Spatial planners)	GR1 GR2 GR3 GR4 GR8	GR2 GR3 GR4 GR8 INF1	GR2 GR3 GR4 GR6 GR8

	Local audiences	National audiences	International audiences
	INF1 INF2 INF3 INF4 SI2 SI3	INF2 INF3 INF4 SI3	INF1 INF2 INF3 INF4 SI3
Transport providers	GR7	GR7	GR7
Activists and NGOs (e.g. CVS organisations and Open Data organisations)	GR1 GR2	GR2	
Policy makers	GR1 GR2 GR3 GR4 GR5 GR7 GR8 INF1 INF2 INF3 SI1 SI2 SI3	GR2 GR3 GR4 GR5 GR7 GR8 INF1 INF2 INF3 SI1	GR2 GR3 GR4 GR6 GR7 GR8 INF1 INF2 INF3 SI1
Education providers (e.g. schools and universities)	GR1 GR2 GR5 GR8	GR2 GR5 GR8	
Wider general public (citizens and visitors)	GR1		
Networks		GR3	GR3 GR6

Note: SI (Social Innovation), GR (General Recommendations) and INF (Information)

4. Current situation – Using collective approaches to DSI for better addressing societal challenges

Europe is now focused on providing innovative responses to current societal challenges, moving from closed innovation models to **open and collaborative innovation** that trigger the power of social production and collective intelligence (Bria et al., 2014). In this line, information technology is opening new opportunities to transform governance and redefine government-citizen interactions, in particular in cities (Chan, 2013). In this sense, democratic societies guarantee citizens' right to vote but this right does not imply that people are given a voice on matters that interest them or that they have a role in the decisions that affect them most directly. The open innovation perspective adds value to the policy-making process allowing active participation of citizens beyond their right to vote.

Thus, governments are increasingly being called to be more inclusive and open when formulating policies. That means that governments should be **transparent** in decision-making processes, they should be **easily approached and accessible to their citizens**, and they should **respond** to the citizens' views and concerns. In fact, policy processes not developed together with a diversity of citizens run the risk to be ineffective. This approach require close relationships between decision makers and citizens (Naidoo, 2009); and digital technologies can help civic action in mobilising large communities, sharing resources and spreading power (Baeck and Bria, 2014).

Effective governance requires a new **relationship** between, on one hand, citizens, communities and stakeholders; and, on the other, government (Lenihan, 2009). In this line, strategies to engage civil society and governments should be renewed at different levels: governance, implementation, and service delivery (Naidoo, 2009). Thus, new perspectives of policy making had been opened thanks to technology. For example, the new approach to policy making being experimented by Digital Futures[1] is centralised on an online platform called Futurium[2]. The platform is used by stakeholders to co-create the visions and policy ideas that matter to them and attach scientific evidence. In the same way, the EU funded project Puzzle by Policy[3] to reduce the complexity of decision making within EU and reconnect citizens with politics and policymaking. Nevertheless, more efforts should be done to bring these initiatives closer to real citizens and empower them as actors of change.

Citizens have the role of "agents" in shaping and implementing public policies, which depend more on a collective change than on the legislative authority. In that sense, countries which will pay greater attention to citizens as key agents in policy design and implementation will be those able to create a culture of supportive innovation, to develop new forms of social solidarity, and to ensure active participation of citizens in the community and society. Citizens' engagement enhances the legitimacy of a government's action (Bourgon, 2009). It is not just desirable; it is a condition of effective governance (Lenihan, 2009).

Our focus: Improving urban accessibility by sharing information and removing barriers

In relation to our scope, it is estimated that by 2050 66% of the world's population will be living in cities (UN, 2016). In that sense, urban planners should ensure that future cities are more accessible, **user-friendly** and inclusive of all people's needs. Moreover, the demographic change requires cities to review their urban design to be attractive and competitive and to become age-friendly (OECD, 2015). Accessibility for older people is

[1] Digital Futures is a visioning Project designed to contribute to the Commission's reflections on ICT policies beyond 2020.
[2] http://ec.europa.eu/futurium/
[3] http://join.puzzledbypolicy.eu/

comprised by several areas to foster their integration in society (employment, healthcare, social services, housing, urban planning, etc.) where ICTs contribute to improve their access to services. In the same way, urban environments, infrastructures, facilities and services can impede or enable the exclusion or participation of people with disabilities and, ultimately, of all members of the society (UN, 2016).

Accessibility is established in the Convention on the Rights of Persons with Disabilities as a cross-cutting factor to enable people with disability to live independently and to participate actively in all aspects of life. Furthermore, the current international policy framework guiding inclusive urban development is based on several instruments concerning people with disabilities, among others, the World Programme of Action concerning Disabled Persons and the Standard Rules on the Equalization of Opportunity for Persons with Disabilities. The international community commitment to advance in accessibility is reflected in the 2030 Agenda for Sustainable Development (UN, 2015). Moreover, the European Disability Strategy 2010-2020 adopted by the European Commission detected 8 priority areas to promote the active inclusion and full participation of disabled people in society, among them, accessibility and participation. In this respect, the Commission has committed itself to review its socio-economic policies, programmes and projects to determine the extent to which they address the needs, rights and concerns of people with disabilities, and to develop a disability component in their socio-economic policies, programmes and projects.

With this aim, the Commission has strengthened its own internal procedures and engaged all relevant Directorates-General in an Inter Service Disability Group. The purpose of this group is to **raise awareness of disability** issues and encourage more inter-sectorial co-operation within the Commission in this field. In this sense, the Commission also supports the Academic Network of European Disability experts (ANED) which provide the Commission support and advice for its Disability Unit. One of its functions is to establish a mechanism for monitoring and evaluating EU laws and policies that affect disabled people. With this end, the ANED presents yearly an overview of EU legislation and policy. The last report published in its website covers over two hundred legal instruments adopted up to December 2014. The report highlights that accessibility has been addressed by the EU from many angles, including law and policy on accessibility of transport, built environment, ICTs, and standardisation mandates (Arsenjeva, 2014).

Many countries have adopted national disability strategies ratifying the Convention on the Rights of Persons with Disabilities or submitting initial reports on their implementation of the Convention. At least 28 of the 34 ANED countries had disability strategies or action plans in December 2012 (Priestley, 2012). Unfortunately, disability policies have typically been *developed for* people with disabilities, rather than *with their direct participation* (Braddock & Parish, 2001; Garcia-Iriarte et al, 2008). The challenge is not more regulation, **but a need to inform and engage society about how the accessibility benefits all and is essential for sustainable, equitable and inclusive development**. The focus should be addressed to promote accessibility standards compliance as a factor that adds value to goods and services by its potential to expand the population of end-users rather than a cost (Rapley, 2013).

Generally, the Member States are responsible for building their regulation which is influenced by the European Union with mandatory EU legislation. There are different approaches regarding legislation on accessibility along Europe whereas the accessibility standards in most of the countries are similar. In many countries, among them, Spain, Germany, Austria and UK, there is **no consistent building regulation** for the whole country (AENOR, 2011). For example, in Spain, the Spanish Constitution assigns the competences of urban planning, housing and social care to the Autonomous Communities. So the central Government, without the prejudice to the powers attributed to the Autonomous Communities, regulates the basic accessibility conditions, and the Autonomous Communities establish in different extends normative to guarantee the accessibility to cities, buildings, transports and communication. As a consequence, the normative varies between Spanish communities and municipalities. In the UK, the Equality Act does not make explicit requirements relating to the

built environment, but it requires service providers, employers, and educators not to discriminate in the activities they do, considering also the built environments where they operate. Therefore whilst there is not an explicit requirement in the Equality Act relating to accessibility to the built environment there is an implicit one to consider the provision of the built environment and ensure it does not cause or contribute to discrimination. The Equality Act refers to the Building Regulations as an indicator of the minimum mandatory specification for accessibility of new buildings and those undergoing major refurbishments. From the other side, in terms of **standards and guidelines**, different levels of importance and acceptance status are shown across Europe. For example, in Germany standards on accessibility have high importance and are well known as “state of the art”. In relation to the accessibility **implementation**, in general, most of the countries have an approach to make new buildings accessible and some of them a strategy to make accessible existing buildings. For example, in Austria the Federal Disability Equality Act established a step-by-step plan to make all federal buildings accessible by the end of 2015, but in reality they are not accessible at all. In 2010, the federal government postponed this deadline until 2019 and in some federal states, specific periods of transition have been put in place, e.g. Vienna has the longest one (until 2042).

How many Europeans are affected by limited physical mobility?[4]

The project focuses on one particular type of accessibility requirements, namely requirements from people with mobility impairments (e.g. individuals in wheelchairs) but also any other type of individuals who are affected by limited physical mobility, e.g. individuals requiring mobility aids such as scooters but also individuals moving toddlers in pushchairs and frail people who face difficulties e.g. in climbing stairs. How large is this group?

Answering this question is made difficult by the dearth of comparable data on the total number of people with mobility impairments in the different countries of Europe. As the World Health Organisation (WHO) states in their first World Report on Disability: "Operational measures of disability vary according to the purpose and application of the data, the conception of disability, the aspects of disability examined – impairments, activity limitations, participation restrictions, related health conditions, environmental factors – the definitions, question design, reporting sources, data collection methods, and expectations of functioning" (WHO and The World Bank, 2011; Mont, 2007; Grammenos, 2011)

As a result, for practical purposes use is being made of educated guesses and estimates. The EU's COST 219 initiative, for example, in 2004 produced the following estimates for the number of Europeans affected by functional impairments:

- Hearing Impaired People: 80 Million
- Visually Impaired People: 14 Million
- Speech, Language and Dyslexia: 33 Million
- Intellectually Impaired People: 30 Million
- Mobility Impaired People: 48 Million

Among the many different statistical ways to measuring disability, the approach favored by the WHO appears most suitable for the task of assessing the quantitative relevance of the accessibility of Europe's built environment. "Impairment data are not an adequate proxy for disability information. Broad “groupings” of different “types of disability” have become part of the language of disability, with some surveys seeking to determine the prevalence of different “types of disability” based directly or indirectly on assessments and classifications. Often, “types of disability” are defined using only one aspect of disability, such as

[4] This section is an excerpt from D5.1 “Deployment evironment analysis and exploitation planning preparation” authored by Gareis, K. et al. It will be updated, using the latest available data, for the final version of the present document.

impairments – sensory, physical, mental, and intellectual – and at other times they conflate health conditions with disability. People with chronic health conditions, communication difficulties, and other impairments may not be included in these estimates, despite encountering difficulties in everyday life."

The approach suggested by the WHO focuses on prevalence of disability, operationalised as difficulties in functioning: "[...] Functioning, and, more concretely, functioning domains constitute the operationalization that best captures our intuitive notion of health" (Cieza et al., 2014). This applies, in particular, to discussion of barriers to the accessibility of the built environment: We are not interested in health conditions or physical impairments as such; what we are concerned with is the degree to which people experience barriers to accessibility and, by implication, to social inclusion in their day-to-day life.

Standardised measurement of functioning via population surveys can be achieved by basing design on international standards, like the International Classification of Functioning, Disability and Health (ICF). Indeed, a growing number of countries are using the ICF framework and related question sets in their national surveys and censuses (WHO and World Bank, 2011). Comparative data are available from the World Health Survey initiated by the WHO in 2003. The results concerning mobility related functioning are summarised in the tables below (exhibits 2-5)[5].

Exhibit 2: Percentage of the total adult population reporting difficulty with moving around in Austria (latest data – 2003)

	None	Mild	Moderate	Severe	Extreme / cannot do	Missing
Austria total	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
men	77.3	11.3	8.6	2.0	0.0	0.8
women	77.5	13.4	6.4	1.7	0.6	0.5
age 18-29	92.4	4.0	1.0	0.5	0.5	1.5
age 30-44	90.6	5.9	2.7	0.5	0.0	0.3
age 45-59	67.6	18.4	10.2	3.7	0.0	0.0

Exhibit 3: Percentage of the total adult population reporting difficulty with moving around in Germany (latest data – 2003)

	None	Mild	Moderate	Severe	Extreme / cannot do	Missing
Germany total	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
men	64.8	15.7	12.2	5.7	0.8	0.8
women	61.9	14.5	15.9	5.9	0.8	1.1
age 18-29	83.5	9.3	5.5	1.1	0.0	0.5
age 30-44	76.8	10.1	7.6	3.4	0.6	1.5
age 45-59	65.2	13.4	13.4	6.9	0.7	0.3

[5] Data retrieved from: http://apps.who.int/healthinfo/systems/surveydata/index.php/catalog/whs#_r=&collection=&country=&dtype=&from=2000&page=5&ps=&sk=&sort_by=nation&sort_order=&to=2010&topic=&view=s&vk= [consulted 2014/03/07]

Exhibit 4: Percentage of the total adult population reporting difficulty with moving around in Spain (latest data – 2003)

	None	Mild	Moderate	Severe	Extreme / cannot do	Missing
Spain total	78.8	7.7	7.5	5.1	0.6	0.2
age 18-29	93.4	4.0	1.5	0.7	0.0	0.4
age 30-44	91.5	3.3	3.3	1.5	0.1	0.2
age 45-59	83.0	6.1	6.8	3.9	0.1	0.2

Exhibit 5: Percentage of the total adult population reporting difficulty with moving around in the U.K. (latest data – 2003)

	None	Mild	Moderate	Severe	Extreme / cannot do	Missing
U.K. total	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
men	67.4	10.2	15.6	5.7	1.1	0.0
women	68.7	8.4	15.7	6.2	0.9	0.0
age 18-29	89.7	4.9	3.8	1.6	0.0	0.0
age 30-44	81.7	5.5	9.0	3.5	0.3	0.0
age 45-59	64.3	11.7	15.7	7.8	0.4	0.0

Under the assumption that all adult individuals who report **severe or extreme difficulties** in moving around, the number of adults belonging to the CAP4Access target audience due to mobility impairments can be conservatively estimated as follows:

- 150,000 in Austria,
- 4.6 million in Germany,
- 2.0 million in Spain
- 3.4 million in the U.K.
- 20.0 million in EU27 (excl. BG, LT, MT, PL, RO)[6]

The tables above also include the percentages for those age groups which can be assumed to be most likely to use ICT for overcoming accessibility challenges, based on the observation that take-up and usage intensity rates for the Internet and advanced mobile phone features decreased with age.

Some data are available from other sources. Based on their analysis of data from the **EU-SILC survey**, Grammenos (2013) estimates that one in three Europeans with severe mobility problems (34%) experience difficulties in accessing grocery services, and 40% experience difficulties in accessing public transport.

According to published estimates, **Germany** has approximately 1.6 million people who use wheelchairs and an additional 2 million who require walking aids such as walkers. According to the Statistical State Office in Stuttgart, by the end of 2011, 906 641 people were living with severe disabilities in **Baden-Württemberg**, which includes the Heidelberg region. Compared with the previous survey, which was conducted in 2009, this represents a 14% increase, or 111,000 more people. Most of these people have a physical handicap. More than a quarter (more specifically, 27.5%) have an impairment affecting the function of internal organs. For

[6] If we add to these those who report they face moderate difficulties in moving around, the figures are: 650,000 in Austria; 14.5 million in Germany; 4.7 million in Spain; 11.0 million in the U.K; 59,1 million in EU27 (excl. BG, LT, MT, PL, RO)

15.1% of them, spine or torso are limited in their function. 4.5% are blind or have low vision. Of note is these statistics are based on the criterion that those people who have a degree of disability of at least 50 are considered to be severely disabled. In **Heidelberg**, unofficial estimates (Advisory Council of People with Disabilities, the City of Heidelberg) suggest that about 3,200 people are using a wheelchair overall, all types of disabilities being considered.

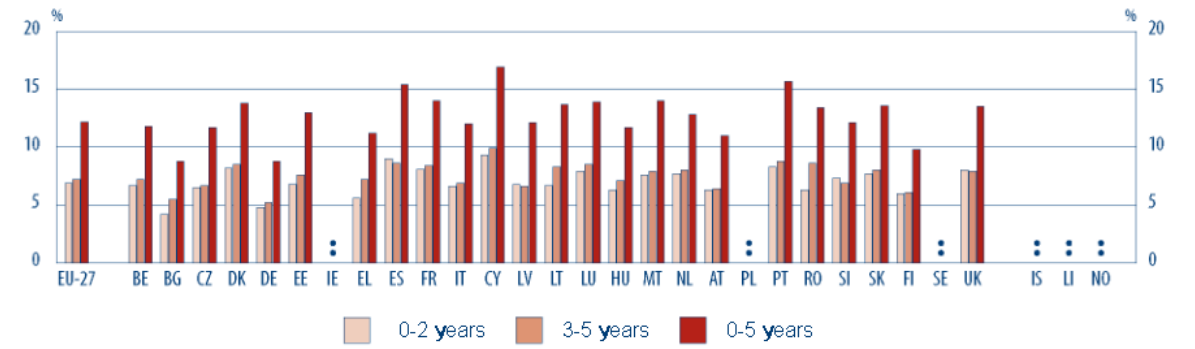
There are over eleven million people with a limiting long term illness, impairment or disability in **Great Britain** (Department for work & pensions, 2013) and the most commonly-reported impairments are those that affect mobility, lifting or carrying. Approximately 70% of disabled people have some form of locomotion difficulties; those with walking difficulties outnumber wheelchair users by about 10:1 (Department for transports, 2005). These sources give the estimate that there around 1.2 million wheelchair users in the U.K., roughly 2% of the U.K. population and of these 72% are over the age of 60[7] From the U.K.'s Office for Disability Issues some data are available on barriers to accessibility of the built environment, as perceived by adult persons (over 16 years old) with disabilities and residing in the U.K. The Life Opportunities Survey (Wave 1, 2009-2011) found that (Office of Disability Issues, 2011):

- 29% of adults with impairments have found some buildings outside of the home inaccessible. That's compared to 6% of adults without impairments.
- The six most common buildings where access is difficult for adults with impairments are: Shops – 54%, Hospitals – 34%, Bars and Restaurants – 23%, Other people's homes – 20%, GP Surgery – 19%, Theatre and Cinemas – 17%
- The most common barriers to accessing buildings for adults with impairments are: Moving around the building – stairs, doors or narrow corridors (44%); A health condition, illness or impairment (39%); A disability (32%); Inadequate lifts or escalators (23%); Difficulty with approach areas due to lack of ramps/handrails (22%); Parking problems (21%); Bathroom facilities (location, layout, size) (17%); Footpath design and surfaces (15%); Difficulty with transport getting to the building (14%); Lack of help or assistance (13%).

Data on other end-user target groups are hard to come by as well. The number of persons requiring accessibility of the built environment and public transport systems for pedestrians with pushchairs can be estimated based on general population statistics. Household data on the number of households with children aged 2 or younger, and 5 or younger, is available from the 2005 LFS Ad-hoc module on "Reconciliation between work and family life". Results are presented in the figure below (exhibit 6).

[7] Data retrieved from English Federation of Disability Sport: http://www.efds.co.uk/resources/facts_and_statistics

Exhibit 6: Number of households with at least one child of 0-2 years, 3-5 years and 0-5 years, as a percentage of total households, 2005



	EU-27	BE	BG	CZ	DK	DE	EE	IE	EL	ES	FR	IT	CY	LV	LT	LU	HU	MT	NL	AT	PL	PT	RO	SI	SK	FI	SE	UK	IS	LI	NO
	6.9	6.7	4.2	6.5	8.2	4.8	6.8	:	5.6	9.0	8.1	6.6	9.3	6.8	6.7	7.9	6.3	7.6	7.7	6.3	:	8.3	6.3	7.3	7.7	6.0	:	8.0	:	:	:
	7.2	7.2	5.5	6.7	8.5	5.2	7.6	:	7.2	8.6	8.4	6.9	9.9	6.6	8.3	8.5	7.1	7.9	8.0	6.4	:	8.8	8.6	6.9	8.0	6.1	:	7.9	:	:	:
	12.2	11.8	8.8	11.7	13.8	8.8	13.0	:	11.2	15.4	14.0	12.0	16.9	12.1	13.7	13.9	11.7	14.0	12.8	11.0	:	15.7	13.4	12.1	13.6	9.8	:	13.5	:	:	:

Source: Eurostat, LFS.

Data: Eurydice & Education, Audiovisual and Culture Executive Agency (2009)

These figures translate into 13.3 million households with children aged 2 or younger in the EU27 altogether, of which there are:

- 200,000 in Austria,
- 1.8 million in Germany,
- 1.4 million in Spain
- 2.1 million in the U.K.

The actual number of pushchair users is even higher, as in many households more than one member is using them and because many children up to the age of 4 are still transported in pushchairs or similar devices. Because of the age composition of parents with young children, most pushchair users can be assumed to be Internet users and as such qualify as target audience of CAP4Access.

For the U.K., figures from the 2011 Census recorded a total of just over 2 million children under the age of three. Families with one dependent child between the ages of 0-4 were said to be just over 1.1 million.[8]

To sum up, based on available statistical data and making use of very conservative assumptions, the **size of the end user target group population is estimated to be >20 million people with mobility impairments in the EU27, plus 13 million households with children at the age of 0-2 years.**

5. Policy recommendations

This section presents the PR from the CAP4Access experience with regard to the use of collective approaches to digital social innovation for better addressing the mobility requirements of specific target groups. The section is divided in three sub-sections:

(i) General PR on how to increase awareness about accessibility of the built environment for people with limited mobility and how to remove barriers wherever possible;

[8] Data retrieved from the office for National statistics: http://www.ons.gov.uk/ons/guide-method/census/2011/index.html [consulted 2014/03/06]

(ii) Specific PR on how to improve information on accessibility; and
(iii) PR with regard to the CAPS approach to social innovation.

All of them have the common vision of **developing long-term plans for accessible societies: All buildings (public and private) and the built environment fully accessible for people with reduced mobility.**

General recommendations on how to increase awareness about accessibility of the built environment for people with limited mobility and remove barriers wherever possible:

GR1. Encouraging citizens to gather and share data about accessibility

Promoting the active participation of final users in the collection and validation of data will provide the general public and local administrations with an overview of the current accessibility situation of the municipality/region and will, in particular, increase public awareness about the most serious cases of lack of accessibility of the built environment. At the same time, active participation of users helps to make sure that data are continuously updated, thereby contributing to the sustainability of the tools and platforms hosting these data.

Justification: Europe is now focused on providing innovative responses to current societal challenges, moving from closed innovation models to open and collaborative innovation that trigger the power of social production and collective intelligence (Bria et al., 2014). Engagement activities designed for specific outcomes (in this case accessibility) may well achieve those goals (Davies and Simon, 2012). For that, the tools used for citizen's engagement should take into account the different profiles of citizens and their digital literacy to guarantee that all citizens can participate in the engagement activities. Wilson and Musick (2008) have shown that people who take part in civic or associational life tend to be those with higher socio-economic status, well-educated, employed and affluent. To be effective, participatory activities should aim to represent and include the interests of the whole of society. Our recommendation is addressed to foster citizens' engagement in gathering and sharing data about accessibility as a way to collect accessible data, assess the accessibility of cities and buildings, and sustain the tools and platforms hosting these data. During the project development different strategies have been used according to the target group (see below).

Stakeholders affected: Citizens and visitors (including but not limited to persons with mobility impairments) who will gather, share and use data about accessibility.

Target group: Promoting engagement activities to gather and share data about accessibility is not only the responsibility of governments (public administrations) wanting avoid the impression that they are outsourcing activities they should take care of; NGOs, communities and user groups (see Exhibit 1) should collaborate in the engagement activities in order to reach all relevant stakeholders and users. Moreover, volunteers play a relevant role in the sustainability of initiatives after funding programmes. In our case, the OSM community was invited to different activities and to collaborate closely with project partners in order to engage them in using the tools developed and carrying on with this initiative after the end of the project.

Barriers and facilitators: During the three years of the CAP4Access project, partners have implemented different strategies for citizens' engagement to gather and share data about accessibility, taking into account target groups profiles and characteristics of the pilot cities. Among them, we can highlight:

Mapping parties: several mapping parties were organised throughout the whole project development. A mapping party is a session where a group of people map an area and share the data collected in open access. In the CAP4Access, participants tagged accessibility on

the urban environment in the four pilot sites using the tools developed inside the project. With the aim to include the whole of society in the activity, printed maps where also provided to those participants with low digital skills.

Co-design of products and co-organisation of events: Mapping for Change organised a day workshop together with members from UCL and users of the Queen Elizabeth's Foundation Mobility Centre to co-design a mobile application that could enable users to identify and map barriers to accessibility within the urban realm using Sapelli (a mobile data collection and sharing platform designed with a particular focus on users with little or no prior ICT experience). In Vienna, different organisations were involved in the co-organisation of events. For example, the education sector (school and university settings) had co-organised events with the Viennese partner that costs less time resources and sometimes also means more participants (no 'self-recruitment' necessary). They had also learnt how to organise these kinds of events, and they are now ready and committed to continue.

MapMyDay Campaign: on December 3, 2015 Sozialhelden launched the international "MapMyDay" campaign together with the WHO to raise the awareness for accessibility. Awareness raising campaigns with strong support of known entities may foster citizens' engagement and increase their sensitivity to the addressed topic. All CAP4Access pilot sites joined this campaign with different activities that increased the visibility of such a challenge and the project.

Online communication and presentations: social networks, blogs, congress, etc. are activities that increase the visibility of the activities and encourage more participation from citizens. For example, the GIScience group in Heidelberg shared its news and experience via blog, the CAP4Access has its own blog in different languages and social networks, etc.

Ambassadors: the figure of ambassadors can be created to encourage citizens to promote, among their communities, activities to gather and share data about accessibility. In that sense, Sozialhelden is working on this figure to extend the use of Wheelmap. Wheelmap is an open and free online map for wheelchair-accessible places. It empowers users to share and access information on the wheelchair-accessibility of public places. Like with Wikipedia, everyone can participate by tagging places. In this sense, a first selected ambassador was selected in Graz[9].

Collaboration with local authorities: a project lead by a city council has from its beginning the crucial political support of the local government to promote, develop and disseminate the different activities carried out in the city. Nevertheless, their collaboration is affected by the results of the local elections and working with them entails bureaucracy and different administrative local proceedings that can delay the project activities. There is also difficulty in promoting certain types of tasks by the city council because they can create an image not suitable for the city which may lead to a reduction of votes. For example, if the tasks developed in the CAP4Access project demonstrate the lack of accessibility of some business, the owners of these businesses can see these actions as an offence by the public authority and reflect their dissatisfaction with their vote. Likewise, the activities can highlight the lack of compliance of the normative on accessibility that should be guaranteed by the city council. In this sense, the collaboration with other stakeholders in the city is crucial. In the project the collaboration between Polibienestar, local users groups and the Miguel Hernández University with the city council of Elche reduced this barrier.

[9] http://myaccessible.eu/wheelmap-in-graz-city-hall/

GR2. Guaranteeing ethical aspects when working with individuals' data

The fundamental rights to privacy and to the protection of personal data have become more important than ever before. Organising activities with citizens entails issues regarding data privacy, anonymity of data, etc. that should be taken into account to guarantee those human rights.

Justification: In today's digital environment, compliance with the law is not enough; the ethical dimension of data processing should be considered wherever data relating people are collected and stored (Buttarelli, 2015). Particularly contributors to political crowdsourcing activities may be exhibited to oppression. This includes the possibility of governances to collect data from public profiles in social media, where users tend not worry much about privacy. In that sense, if personal data is collected and stored in the engagement activities (described in the PR GR1); the personal data should be protected to guarantee personal privacy according to local or national requirements. A complete overview of the Data Protection Directive can be consulted on the website of DG Justice[10]. Our recommendation is to check local and national requirements on this regard in the design of engagement activities or processes that include the participation of citizens.

Stakeholders affected: Citizens who will participate in engagement activities to gather and share accessibility data.

Target group: Governments, NGOs, community and user groups who organise engagement activities at local, national and European level.

Barriers and facilitators: As mentioned before, during the three years of the CAP4Access project different engagement activities have been performed. Below some ethical issues addressed are described:

After the organisation of a Mapping Party in Valencia, Polibienestar distributed among participants a questionnaire about Wheelmap and their experience in the Mapping Party. The first page of the questionnaire contained and informed consent with adequate information (project goals, possibilities to withdraw, etc.), voluntariness, and competence. This document guaranteed the voluntary contribution of participants prior to completing the questionnaire. The informed consent is required when research involves the participation of human beings; it is very important to take into account people's autonomy and vulnerability, especially when working with children, vulnerable adults, and people with certain cultural or traditional background (Directorate-General for Research and Innovation, 2013).

Under the CAP4Access project different apps had been developed. All of them share the collected data in open access and respect the data privacy of users as it is informed on the tools website or when accepting the downloading or registration conditions. For example, the obstacle Tagging Tool informs that the app is linked with the MyAccessible.EU tagging website which allows anyone to make use of the information about obstacles and stored data anonymously. It allows users to upload photos about the barriers. In those cases, the apps and websites should inform users to be sure that photos uploaded do not contain faces, private information or any image that can be offensive. Wheelmap requires registration to users that want to add new places but the registration is not required only for tagging places.

These recommendations regarding photos are also applicable when posting photos on social networks, blogs, etc. when disseminating the engagement activities and results. In that sense, partners of the consortium asked for people's permission before uploading any photo in Myaccessible.eu or twitter. Additionally, it has been communicated to participants before any event to make them aware of existing legislation and applicable codes of conduct.

[10] http://ec.europa.eu/justice/data-protection/

GR3. Ensuring policy synergies between levels of Governments

Policy frameworks and networks at local, national and EU level can play a key role in coordinating policy on accessibility between central governments and cities. The creation of an international network of governmental Commissioners of Disability Issues is proposed.

Justification: There are different approaches regarding legislation on accessibility across Europe, whereas the accessibility standards in most of the countries are similar. On the contrary, in many countries there is no consistent building regulation for the whole country (AENOR, 2011). As a consequence, different accessibility standards are applied along Europe and within the Member States. Synergies between levels of governance and horizontal approaches bringing together departments working on accessibility/disability issues should be established in order to guarantee common standards and accessible cities. In this sense, networks at different levels can play a relevant role fostering dialogue among governance levels, sharing good practices, promoting scaling up, etc.

In this line, and following the example of the Covenant on Demographic Change, our suggestion is to create an international network of governmental Commissioners of Disability Issues to share information and work together at EU level. For example, organising an annual meeting for networking, exchange of best practice, experience, etc. It can be composed by public administrations at EU level, those responsible for accessibility/disability issues at national level, users groups and community representatives at local, national and international level, and people with different disabilities. Among its tasks, this body should be able to include the topic of accessibility in existing initiatives at EU level.

Stakeholders affected: Social service providers, community and user groups, and citizens (people with special needs) will benefit through better coordination on policies affecting accessibility.

Target group: Public administrations and policy makers at local, national and international level that define and implement policies on issues related to accessibility; networks at national and EU level; community and users' groups at international level.

Barriers and facilitators: In the CAP4Access project, one of the project partners was the Elche city council. Its participation allowed for the project results and lessons learnt to be communicated immediately to the competent city policy-maker, guiding the development of new policies, in this case, on accessibility and disability. Furthermore, although the project is led by a city councillorship, a set of synergies and relations were built up with other councillorships that share the same target groups or topics.

Moreover, partners have created links with existing relevant networks and organisations. For example, Elche is part of the Spanish Network of Smart Cities that tries to create an open network for promoting economic, social and entrepreneurial progress of cities using innovation and knowledge supported by ICTs, as the tools developed in the CAP4Access. Another example is the contacts made with the WHO for the MapMyDay campaign. The visibility provided by WHO, who decided to sponsor the campaign, had contributed to raise the awareness about accessibility and to disseminate the CAP4Access tools. Moreover, partners had created links with recent initiatives like the Covenant on Demographic Change.

Partners have also joined existing events in pilot sites with the aim to make the most of existing initiatives already known and recognised by local citizens. For example, Heidelberg put a stand at Heidelberg International Wheelchair Marathon to disseminate the project results among their 300 participants and also a stand at Heidelberg Citizen Festival with 10,000 visitors.

GR4. Implementing long term plans/normative to guarantee the accessibility of urban environments

A long-term vision defining desirable outcomes, common objectives and outlining concrete paths that inform policy making to improve accessibility in the urban area will increase the attractiveness of the area and the wellbeing of citizens. This PR suggests: participatory process to define and implement plans and normative; plans and normative based on universal design; mechanisms to ensure the compliance of accessibility normative, extending accessibility obligations to private entities offering services/products to citizens and when the building/renovation is funded with public funds; involving people with disabilities in the review process of projects and proposals' assessment; and include the accessibility/disability issue in project proposals asking for EU funding.

Justification: Citizens' engagement has been a key policy priority at community and international development in the last years. Nevertheless, the engagement alone cannot address major societal challenges (such as accessibility); it requires changes in the law, institutions attitudes and norms (Davies and Simon, 2012).

The process of building a long term vision about the desires of citizens in the future constitutes an important learning experience for public and private entities. The definition of this long term vision should be accompanied by short term plans defined and implemented with participatory process that encourage the active participation of people affected, in our case, people with reduced mobility, associations of people with disabilities, etc. Moreover, the local and regional visions should be aligned with the national and EU strategies in order to promote synergies (GR3) and be based on universal design (for example, kerbs should be built in such way that are suitable for both, blind and people with reduced mobility).

Building accessible cities will revitalise cities' economic, attract new residents, and improve the walkability of urban areas. As a consequence, older people and people with reduced mobility will have easier access to public services, tourism and leisure activities, social participation, etc. In that sense, the UN convention established guidelines for accessible environments, but not for the private sector. The CAP4Access recommendation extends the scope to include private entities when providing services/products for citizens, for example, education providers.

Once the plans/normative are designed, they should be implemented. Governments have the responsibility of reinforcing the compliance of accessible normative, for example, imposing penalties when accessibility requirements are not applied. In that sense, our recommendation is to include in those plans/normative obligatory accessibility audits for new buildings. These audits can be performed by qualified inspectors and/or by a dedicated group created for this purpose composed of experts and/or people with disabilities. In cases of historic buildings, the appraisers should evaluate the building renovations, so they conform to both accessibility requirements and monument protection. Fostering creativity and modern ways of how to preserve the monument while making it accessible should be explored in those cases. In both circumstances, new buildings and renovations, plans should be made transparent and readily available to the general public; and when the building/renovation is subsidised/sponsored with public funds, owners should guarantee the accessibility of the buildings, ramps etc. In this sense, owners should explore "in between solutions" such as mobile ramps.

We propose an official accessibility certificate for those buildings that comply with the accessibility normative and go further. This certificate can be promoted by governments and users' organisations. It is important to mention that the certificate should be seen as a complementary tool but not as a reward of accessibility compliance which should be applied anyway. We also recommend involving people with disabilities / experts as advisers of EU sponsored projects / reviewers. In this line, and linked with EU funding programmes, we suggest: (i) asking in proposals for a compulsory section about "accessibility/disability" as a horizontal issue just as the existing section for gender (if applicable); and (ii) developing the project website according to accessibility standards.

Stakeholders affected: Citizens and wider audience, social service and education providers, tourism stakeholders and other businesses at local and national level.

Target group: Public administrations and policy makers at local, national and international level, tourism stakeholders, other businesses, social services providers and education at both levels, local and national.

Barriers and facilitators: In Germany there is currently a law that states that businesspeople cannot be forced to spend more than 20% of the total renovation budget for accessibility measures. We can find best practice examples in Germany such as the renovation of the Bode Museum in Berlin that respond to accessibility requirements and also respect the monument. In the UK, legislation that promotes equality of access to public services establishes that alternative routes or reorganising the use of space may achieve the desired result without the need for damaging alterations.

In relation to the official certificate, there are some organisations that promote their own accessibility certificates or stamps. Our proposal goes further than those initiatives, suggesting an official certificate similar to the energy performance certificates that should be included in all advertisements for the sale and rental of buildings according to the Energy Performance of Buildings Directive.

With regard to the public funds, we propose to extend the initiative established in Germany consisting in providing accessible websites when receiving public funds along Europe in any project/product funded with public funds.

GR5: Incorporating accessibility/disability as an horizontal issue in all degrees and VET programmes

Professionals from different sectors should have the required skills to respond to the needs of people with disability. Including accessibility/disability contents as part of curricula at colleges and vocational schools, at least as optional subjects is proposed.

Justification: For example, to maintain Europe's leading position amongst the world's tourism destinations, the tourism sector needs to continuously improve the quality of its staff to provide top quality and personalised services to all tourists including skills to improve the accessibility and safety of tourism services for disabled people and people with special needs (DG Growth, 2016). This approach can also be extended to other sectors. For that reason, there is a need for specific contents about accessibility/disability as part of curricula at colleges, universities, and vocational schools or at least offered as optional subjects. Moreover, educational organisations can also offer continuing education regarding accessibility topics for those that have not learned about these subjects in school, vocational training, or university.

Stakeholders affected: Wider audience (students) and future professionals (tourism stakeholders, professionals in other business and social services providers at local and national level.

Target group: Education providers at local and national level and policy makers at both levels.

Barriers and facilitators: Some faculties have started to introduce accessibility as a horizontal issue. For example, in Austria, a small part of the curriculum for architects is dedicated to issues relating accessibility. In the same way, the University of Valencia (Spain) has started to introduce some sessions about accessibility to education students with talks and experiences coming from disabled people.

GR6: Creating a standardised EU-disabled Card/pass to guarantee the same rights for people with disabilities along Europe

People with disabilities should have the same rights wherever they are (public services, reduced fares, etc.). Creating a standardised EU-disabled card will guarantee their rights and will encourage the free movement of people with disabilities.

Justification: The European Disability Forum (EDF) has consistently demanded an EU-model Disability Card. In 2011, the EDF issued a position paper on this, and in 2012 it made a recommendation on a common model of an EU disability card for mutual recognition of disability status. The Commission mentioned the development of such a card in the EU Citizenship Report 2013 and established a project working group. In this line, the Employment, Social Affairs and Inclusion DG launched a call in 2015 to support national projects on a mutual recognised European Disability Card to support the creation of this card. In the areas covered by the card, national service providers should offer to holders of the EU Disability Card the same benefits as to national card holders; nevertheless, the card will not change national eligibility criteria or rules to have the card (Employment, Social Affairs and Inclusion DG, 2015). The Members States that have been chosen to launch the pilot project are Belgium, Cyprus, Malta, Estonia, Finland, Italy, Romania, and Slovenia (International Federation for Spina Bifida and Hydrocephalus, 2016). Our suggestion is to extend this card to all EU countries and to expand its use to all areas affecting citizens, like health and social services.

Stakeholders affected: Wider audience (people with disabilities).

Target group: Public administrations and networks at EU level.

Barriers and facilitators: Some good examples are already available at the EU level. For example, there is a standardised model of parking card for disabled people which is recognised across Europe. This card allows a disabled person who is entitled to use certain parking facilities in his/her EU country of residence to use all the parking facilities granted to the card-holders in another EU country. Nevertheless, EU countries use their own definition of disability and are responsible to define the procedures for granting the card. This card has a substantial impact on the free movement and independent living of disabled people (Employment, Social Affairs and Inclusion DG, 2016b).

Another good example is the Eurokey initiative. It is a system of locks used throughout Europe that can be opened with a special universal key or a smartphone app. It guarantees accessibility to public places with specific facilities (lifts, toilets, etc.) for people with disabilities. It is currently available in Austria, Germany, Czech Republic and Switzerland (Pro infirmis, 2016).

GR7: Standardising procedures for people with disabilities when travelling and between different types of transportation

Interaction between modes of transport and welfare policies is required to guarantee the mobility of people with disabilities. The creation of an initiative or working group for the integration and harmonization of accessible transport is proposed.

Justification: There is a greater awareness at EU level about the importance of transport to social inclusion. This is reflected in the measures implemented in recent years to address the needs of people with disability. Thus, the main modes of transports have dedicated legislation, articles or sections addressed to accessibility issues: according to the EU passenger rights legislation, people with disabilities or reduced mobility enjoy specific rights and protection at the airport and during air travel; the EU Regulation concerning the rights of passengers in bus and coach transport obliges Member States to designate bus and coach terminals where disabled people and people with reduced mobility shall receive appropriate assistance; since January 2015, new rules to improve the access to rail travel for people with disabilities and with reduced mobility are applicable; and the EU passenger ship safety

legislation includes specific access and public information requirements related to accessibility. However, accessibility in public transport is not the only way to reduce the mobility problems of disabled people. It requires improved interaction between transport and welfare policies (Samek and Torchio, 2015): accessibility at all stages of travel; universal design of transport facilities; safety and security; and provision of integrated and flexible transport services for short and long distance journeys and cross-border travel. The EU institutions can play an important role addressing these issues that should be supported and implemented at regional and local level.

For that, we suggest establishing an initiative or working group to look into integration / harmonisation of accessibility related transport data across all EU regions under common standards. A possible solution is to create a library of APIs from all public transport providers.

Stakeholders affected: Wider audience (people with disabilities).

Target group: Transport providers and policy makers at local, national and international level.

Barriers and facilitators: Although there is a lot to do in this field, we already find services throughout Europe that facilitate and offer the connection between means of transport and accessible facilities for people with diverse disabilities. Nevertheless, there is a need for integrated information and to facilitate the autonomous mobility for people with reduced mobility.

GR8: Fostering the use of non-discriminatory language

Aiming to improve the social inclusion and to avoid the negative stereotypes linked with disability, the use of non-discriminatory language is needed. Negative language that affects people with disabilities should be eliminated from any public and private communication. Extended guidelines at EU level covering this issue should be disseminated.

Justification: Language is not neutral and it can be used as a tool for integrating or marginalising people, mainly vulnerable people, as women, elderly people and disabled people. Although there are some guidelines at a national level developed mainly by users' association, our recommendation is addressed to extend/adapt these guidelines at EU level and implement them at local, national and international level by education providers, administrations and policy-makers.

Stakeholders affected: Wider audience (people with disabilities).

Target group: Education providers at local and national level; policy makers and public administrations at local, national and EU level.

Barriers and facilitators:

During the project development, partners were aware of using non-discriminatory language and used national guides as the guidelines for non-discriminatory use of language from Ministry of Education (in Germany), the ministry of Economy and Work (in Austria), and the guidelines developed by some users' associations in Spain. Moreover, the project benefitted from the experience of SozialHelden in promoting non-discriminatory language as reflected in their initiatives[11]. Another example targeting students (age 13-18) in Austria was an article in a widely distributed school magazine on discriminatory language[12].

[11] http://leidmedien.de/
[12] Link to the article in German: http://www.dasbiber.at/content/bist-du-behindert

Specific recommendations on how to improve information on accessibility

INF1. Increasing the amount of Open Data made available by Governments and public administrations

Local, regional and national authorities should share the geographic data they hold and which is related to accessibility in open access. Existing platforms on regional, national or even European level should preferably be used for this purpose. This allows citizens to consult these datasets, business to exploit them providing benefits for the city and broader community and mapping communities to use them for accessibility mapping (e.g. on Wheelmap, OpenStreetMap).

Justification: The EC's 2011 Communication on Open Data calls for all public data including geographic data. The Directive on the re-use of public sector information provides a common legal framework for a European market of public sector information. It focuses on the economic aspects of re-use of information rather than on the access of citizens to information. In this sense, more focus should be given to this scope in order to encourage local, regional and national authorities to share the geographic data they have to facilitate citizens' information, in this case, to improve their mobility.

However, for many local, regional and national governments, providing public access to geographic data is a challenge (availability, ownership, technical issues etc.). In practice, giving third parties open access to such data often requires considerable investments e.g. for converting data into a commonly used format and enriching them with the metadata required for their correct re-use or the need to set up and/or maintain an open data platform. Moreover, for some datasets sharing data comes into conflict with legal aspects (privacy and security). In this sense, we suggest local authorities to co-operate with local stakeholders in the open data area to discuss the most effective ways for sharing data and how the efforts from data holders (i.e. public administration) can be minimised. An important pre-condition is that, policy makers at different levels should promote open licenses and renegotiate exiting licenses to be compatible with open national or EU platforms to avoid legal barriers.

Existing and newly set up open data platforms should allow users and data holders to put and maintain their data in order to keep the data up to date. Our recommendation explicitly includes information with regard to the accessibility of public buildings, which must be available in open data portals (government agencies, public swimming pools, city toilets, etc.).

The recommendation of data sharing is extendable to data related to accessibility on public and private transports. In this sense, we recommend the creation of platforms that inform about issues related to accessibility in public transport (e.g.: broken lifts, trains that are not accessible, full trains, etc.) or alternatively include this information in existing platforms where transport providers have to deliver their respective data.

Stakeholders affected: Citizen's and companies who cannot yet make the most of these data. As stated by the EC's 2011 Communication on Open Data, this information has a significant — currently largely untapped — potential for re-use in new products and services and for efficiency gains in administrations. In our case, the lack of geographic data affects citizens with disabilities who are the main target users of the tools developed inside the project that provide useful information for their movement and also for raising awareness of citizens/policy makers about the lack of accessible spaces in urban planning. Other stakeholders affected will be the transport and service providers who are faced with the new rules of open and sharing data about accessibility.

Target group: Local, regional and national authorities and policy makers.

Barriers and facilitators: London's open data regulations stand in stark contrast to other pilot cities, particularly Vienna. A large portion of London authorities' and transport providers' spatial data is taken from Ordnance Survey, whose licensing agreements restrict them from being shared. Local authorities are part of a Public Sector Mapping Agreement with Ordnance Survey, which enables them to share data with other public service departments such as schools or the police, but not other organisations. Unfortunately, licensing issues have prevented any accessibility-related datasets from being shared and integrated in London so far. After lengthy discussions with Camden Council, one potential solution was proposed: Camden offered to provide PDF/JPG maps giving an overview of surface type, etc. which could be used to aid the decision making process if we were to collect our own data. By looking at these PDF's, the idea was that Mapping for Change (a partner of CAP4Access project) could assess which areas were already fairly accessible, with only a small range of barriers, and would therefore prove suitable routes for collecting data. However, the extensive data collection required was not a sustainable or scalable approach for the project's limited resources.

In the city of Elche, the legal rights of geographical data were an issue discussed throughout the whole project. With the change of government in May 2015 and the relevance of the Transparency Policy in the city, the treatment of the data changed during the project's development. At the end of the year 2015, the policies related data sharing have become more relaxed. Unfortunately, the restrictions imposed by the city council do not allow for uploading the data to OSM, but only for use within the project piloting. As a solution, partners decided not to use the data from the city council as they wish to share it in OSM; partners included POIs in OSM in the different events organised in the city and tried to involve volunteers in this task.

The Open Government Data Platform in Vienna published data on the location and accessibility of public toilets all over the city. In order to support the new Wheelmap feature (accessible toilets), increase the information about it for end-users in Vienna, and to internally test the data integration tool POIchecker, developed by Sozialhelden, the Open Government Data on toilets were integrated into OSM.

During the lifetime of the project, the city of Mannheim has started an Open Data portal where social data, geodata and election data is made be available under open data license. While relevant data related to accessibility has not been published in the first version of the portal, these serve as a model in the Rhine-Neckar-Metropolitan region. Consequently, the city of Heidelberg has now concrete plans for a similar platform.

INF2: Setting up a unit that deals with complaints about lack of accessibility of (public) buildings

The creation of a unit at local/regional level that collect complaints about the lack of accessibility of buildings is needed to move forward to disability-friendly cities. These units should be linked with existing national offices in some EU countries and in constant communication with EU disability institutions to collect needs and requirements and to design suitable normative.

Justification: The existing normative about accessibility is not always implemented and based on universal design. As a result, the needs of people with different capabilities are ignored. For that reason, we recommend creating a unit of accessibility shortcomings where people can send their complaints. This unit should study the complaints and communicate them to the suitable administration in order to eliminate, when possible, the existing barrier or to solve the problem. Our suggestion also considers the corresponding monitoring of the solution implemented.

Stakeholders affected: Wider audience (people with disabilities).

Target group: Local, regional and national authorities and policy makers at those three levels.

Barriers and facilitators: For example, in Vienna there is a service that collects complaints about accessibility. It is an online service called "report physical barriers" ("bauliche Barrieren melden") provided by the municipality of Vienna that allows citizens to report barriers in the built environment by filling out an online sheet. Another good example are the Consultancy Boards of People with Disabilities in the cities of Elche and Heidelberg focused on political demands related to physical improvement of streets (pavement, sidewalks, ramps, etc.) and to remove barriers (signs located in walking places, private roads, etc.) that ultimately involve investment by the city council.

INF3: Providing funding opportunities that really impact the availability of real accessibility information in a better way

Promoting and providing funding for non-for-profit projects being carried out by collaborative communities will make collected information available to everyone.

Justification: H2020 projects have the obligation to publish the results in open access. Our recommendation is to extend this obligation to all local, national and EU programmes and to include the accessibility data collected in those projects in order to make it available for citizens and companies that want to make the most of this data. Particularly the availability of developed services that use these data will highly motivate potential contributors to actively engage in such projects, since they then see the effect of their work. Even minor funding (e.g. for running a server) can have a huge effect. We highly recommend providing funding for demonstrator services (such as Wheelmap, ORS, since this is motivating users) and data collection. Moreover, this approach impacts directly in the sustainability of the initiatives funded by public programmes.

Stakeholders affected: Wider audience (people with disabilities) and business.

Target group: Public administrations at local, national and EU level.

Barriers and facilitators: The H2020 programme already demands the publication of funded projects in open access. Property and intellectual rights should be taken into account without neglecting the open access of data and results funded with public funds.

INF4: Further developing MyAccessible.eu website as a forum in which communities working on projects with similar topics can share their best practice strategies for activating and motivating their communities

The tools and website developed in the project can be a starting point to create a forum in which communities (and their community managers) can collaborate and create synergies between existing and new projects working in the field of accessibility on urban environment.

Justification: The tools and website of the CAP4Access project are based on the data collected by citizens. Their participation and interest are the key elements for the sustainability of those results and different strategies have been implemented to encourage citizens to continue feeding them. However, there is a need for stronger support from EU public administrations to guarantee its sustainability and provide resources to check the quality of the crowdsourced data.

Moreover, the impact of the developed tools can be increased by scaling those initiatives, offering additional services or products to citizens, reaching other targets or expanding them to new markets or regions.

Those tools can be also used to explain how to donate or update data to make it compatible to the cloud, how to engage citizens in collecting accessibility data respecting ethic issues, etc.

Stakeholders affected: Wider audience (people with disabilities).

Target group: Public administrations at EU level and community groups at different levels.

Barriers and facilitators: In the CAP4Access development, partners have achieved a successful approach to OSM communities, activists, users' associations and volunteers that guarantee the sustainability of the tools developed. For example,

in Heidelberg a cooperation has been established between Wheelmap and Heidelberg Hürdenlos, the city's official programme for collecting standardised, in-depth data about the accessibility of about 1000 buildings frequented by the public. The intention is to partially integrate the Hürdenlos database with the Wheelmap data that is collectively gathered by users. This is meant to lead to higher sustainability of Heidelberg Hürdenlos (the future of which depends on continuous funding from the city coffers), while also adding additional, quality-tested data to Wheelmap.

Recommendations with regard to the CAPS approach to social innovation

SI1: Supporting DSI through CAPs

CAPs can be used as supporting platforms for DSI because: they have a bottom – up approach that collect the voice (opinion) and needs of citizens, they are based on creating collaborative solutions for current social challenges, they have achieved a critical mass of committed stakeholders, etc.

Justification: According to the DSI final report (Bria et al., 2015), policy makers at local, regional and EU level should, among others, invest in digital technologies for the social good. That is, making it easier to create new DSI with suitable normative and funding measures that focus on supporting non-institutional actors driving innovation (CAPs). New financial instruments (public private partnerships, crowdfunding, challenges and prizes) should be experimented while supporting innovation spaces and co-production processes (see PR SI3). CAPs are relevant bottom-up initiatives that facilitate social innovation processes and democratic decision making using technological platforms. Moreover, CAPs foster collective intelligence and use the potential of crowdsourcing, citizens' science, open democracy and collaborative economy. They can be used to gather and integrate information to allow citizens' participation and improve the wellbeing of the society.

Stakeholders affected: Wider audience (people with disabilities) and community groups.

Target group: local and regional administrations and policy makers, business, grassroots movements.

Barriers and facilitators: Some governments are already supporting DSI despite of reluctance of sharing data and the digital literacy of certain citizens. For example, The Open Government Data Platform in Vienna published data on the location and accessibility of public toilets located all over the city of Vienna. Other initiatives come from associations; for example the Open Ministry[13], a non-profit organization, helps citizens and NGO's with national and EU citizen's initiatives and develop online services for collaborating, sharing and signing the initiatives. In this sense, the eGovernment4EU[14] has been set up to gather ideas for new actions and provides space for all to collaborate and discuss how to improve eGovernment services in the EU.

SI2: Enabling innovative ideas emerging from DSI

Some of the innovations which arose from DSI have radical implications that should be tested. In this way, public authorities should provide space for piloting across Europe.

Justification: Social innovation has a number of incubators and centres which are crucial for testing new ideas and transfer them to the society. Living labs are systematic and

[13] http://openministry.info/
[14] https://ec.europa.eu/futurium/en/egovernment4eu

concrete tools that contribute to the development of user-driven innovations and enhance cooperation between municipalities, business and users. They contribute to the social and economic sustainability of the social innovation proposed.

Stakeholders affected: Wider audience (people with disabilities) and community groups.

Target group: Public administrations at local level.

Barriers and facilitators: the CAP4Access project has been tested in 4 different EU cities. In one of them, partners had the strong support of the city council as it was involved as partner of the project. Nevertheless, the bureaucracy, the changes in the Government and the internal functioning of the city council have delayed or impeded the realisation of some activities in this particular city. Our recommendation is to raise the awareness of politicians and civil servants to make easier the piloting of DSI solutions in cities.

SI3: Facing current social challenges from collective approach

Integrating "new" actors into current governance arrangements allows government to better respond to the needs and requirements of citizens. Specifically, involving citizens' with reduced mobility and associations representing users' needs in the design, implementation and evaluation of initiatives concerning accessibility will improve their effectiveness and efficiency because they will respond better to their needs, requirements and expectations.

Justification: Many non-public actors are already involved in building resilient economies and inclusive societies at a local level: community actors, local residents, research institutions and the private sector. Involving them in the design (co-design), implementation and evaluation of initiatives that affect them will increase their effectiveness and efficiency because those initiatives will respond to the needs, requirements and expectations of the final beneficiaries. And consequently the budget requirements from facing the social challenges will be reduced. Moreover, participative methodologies at the local level contribute to transparency, open-government, to listen citizens' voices and to get more effective citizens' participation in policy-making.

Stakeholders affected: Wider audience (people with disabilities) and community groups.

Target group: Local and regional administrations and policy makers; business at local and national level.

Barriers and facilitators: Mapping for Change organised a day workshop together with members from UCL and users of the Queen Elizabeth's Foundation Mobility Centre to co-design a mobile application that could enable users to identify and map barriers to accessibility within the urban realm using Sapelli (a mobile data collection and sharing platform designed with a particular focus on users with little or no prior ICT experience).

In Germany, a group of experts check the accessibility of new buildings. This process guarantees the elimination of barriers from a bottom-up approach involving experts in the co-production process. Moreover, this process can be applied to other services (not only for physical aspects).

In the case of Elche, there is a local advisory board on disability which is composed by the main organisations working in this issue. Periodic meetings are organising for discussing about the main demands of disable people. From these meetings, some ideas can arise to develop projects (for example, in the meetings carried out with the entities that compose the Consultancy Board of People with Disabilities some ideas have been shared that can be translated in a new project dealing with innovation and visual disabilities) or to improve the current CAP4Access project. As in the city of Elche, Heidelberg has the advisory board of people with disabilities. This consultancy board and the GIScience group of Heidelberg University collaborated in the Mapping Party at Heidelberg Castle promoting their own interest. Thus, the efforts related to the mapping of the accessibility of places and ways at Heidelberg castle became part of a short documentary produced by Beirat von Menschen

mit Behinderung Heidelberg (AB of people with disabilities Heidelberg) – thereby informing the public about the importance of mapping. The challenge is to involve citizens and make them part of the policy / initiative, but not only use them as consultancy board. Moreover, the results of the discussion should be considered in the municipality, as far as possible. The ignorance of these boards can cause disaffection to the municipality because they can feel that their voices are not taken into account and that the advisory meetings are a loose of time.

6. Outreach

In order to measure the impact of previous PR, this section proposes some indicators to measure the direct benefits of implementing those PR:

PR	Indicators
GR1	Nº of encouraging activities Nº of participants Nº of participants per target group Nº of new data (Points of interest)
GR2	Compliance of ethical aspects Reduction of complaints regarding data protection and privacy
GR3	Nº links created among different levels Nº links created among different departments
GR4	Nº of participative processes implemented in the municipality/region… Nº of mechanisms implemented to ensure the compliance of the normative about accessibility Nº of disabled people participating in processes checking the accessibility of urban environment Nº of disabled people participating in proposals' assessment and review (public funds) Nº of websites with accessibility standards
GR5	Nº of studies that have integrated subjects about disability / accessibility issues (compulsory / optional)
GR6	Creation of the EU-disabled card Increased mobility of disabled people along Europe
GR7	Nº of accessible transport Nº of passengers with disability in public transports Increased mobility of disabled people along Europe
GR8	Nº of guides implemented at different levels Nº of modules/subjects on non-discriminatory language implemented in studies
INF1	Changes in normative (open data) Nº of initiatives arisen because of the open data

INF2	Nº of units created to deal with accessibility complaints Nº of solutions implemented /barriers overcome
INF3	Nº of funding programmes addressed to improve the data on accessibility (at local/national/EU level) Nº of projects funded to improve the data on accessibility (at local/national/EU level)
INF4	Nº of users of the CAP4Access tools and website
SI1	Nº of participatory processes implemented using ICT (at local/national/EU level) Changes in normative and funding that facilitate DSI Nº of new forms of funding implemented (at local/national/EU level): PPP, crowdfunding, etc. Nº of citizens participating in DSI Nº of solutions designed/created/implemented using DSI approach
SI2	Increased culture of DSI among public administrations, politicians and citizens Nº of pilots
SI3	Nº of participatory processes implemented

Moreover, implementing the proposed PR, policy makers and public administrations will also achieve secondary benefits related to transparency, open government and shared democracy.

7. Conclusions

This document (in its final version) presents the PR compiled in the framework of the project CAP4Access. These recommendations reflect the evidences and good practices adopted in the project development with the main aim of being useful for exploring how CAPs can be used to create awareness about societal challenges and to become mechanisms for achieving systematic changes in the long-term. The document presents a total of 15 PR to equip decision makers and other target groups at local, national and EU level with a knowledge base for making best-informed decisions about:

1- General recommendations on how to increase awareness about accessibility to the built environment for people with limited mobility and remove barriers wherever possible (8 PR);
2- Specific recommendations on how to improve information on accessibility (4 PR); and
3- Recommendations with regard to the CAPs approach to social innovation (3 PR).

Implementing the proposed PR, policy makers, public administrations and the different target groups defined will promote the active participation of citizens and stakeholders in gathering and using data that provide evidence for the lack of urban accessibility, will raise the awareness of politicians and urban planners in order to remove such barriers, and, consequently, will improve the quality of life of people with reduced mobility. Moreover, they will promote the use of innovative processes of engaging communities and policy makers in facing current social challenges from collective approaches. Policy makers will also achieve secondary benefits related to transparency, open government and shared democracy.

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