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D4.2 Final Policy Recommendations

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Abstract (for dissemination)	The report presents the final policy recommendations derived from the experience in the CAP4Access project, which deals with use of collective approaches to digital social innovation for better addressing the mobility requirements of specific target groups. The target groups were identified in the WP1 Plan for Engagement (Deliverable 1.2) and are here adapted for the purpose of presenting the policy recommendations – in particular with a view of fully exploiting the potential of the set of 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 special emphasis on the role of crowdsourcing.
Keywords	Accessibility, disability, policy recommendations, stakeholders, target audiences, collaborative tagging, social mapping, wheelchair routing & navigation, mapping parties, disability, awareness raising, digital social innovation, crowdsourcing

- Lucía Almagro, student

Please note that, while the experts mentioned above have provided valuable input, the final set of recommendations does not necessarily reflect their own individual opinion.

Statement of originality

This deliverable contains original unpublished work except where clearly indicated otherwise. Acknowledgement of previously published material and of the work of others has been made through appropriate citation, quotation or both.

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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 channelling 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

Executive summary

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 for people with limited physical mobility.

In the framework of this project, partners had compiled a set of Policy Recommendations with the main aim to equip decision makers at local, national and European level with a knowledge base for making best-informed decisions about participative strategies for addressing accessibility in policy-making and planning on the built environment. In this sense, the present report presents the **Final Policy Recommendations** – compiled by partners on the basis of the CAP4Access experience, and reflecting the results of discussion with a range of stakeholders at the four pilots sites of the project (London, Heidelberg, Vienna and Elche) and with the project Advisory Board – with regards to the use of collective approaches to digital social innovation for better addressing the mobility requirements of specific target groups.

The document starts with a brief introduction of the rationale of this report inside the CAP4Access project. Section two presents the objective of the report, with the characteristics and the structure of each Policy Recommendation and the methodology used to compile the recommendations. Section three provides a list with the target groups that were identified in Plan for Engagement (Deliverable 1.2) of User/target groups (WP1) and have been adapted to the Policy Recommendations, in particular, with a view of fully exploiting the CAP4Access tools. Then, section four outlines the current situation regarding the use of collective approaches to Digital Social Innovation for better addressing societal challenges. Section lists the Policy Recommendations in three subsections: general recommendations on how to increase awareness about accessibility and remove barriers; specific recommendations on how to improve information on accessibility; and recommendations with regard to the CAPS approach to social innovation. Finally, section six provides a brief discussion indicators for assessing the success of implementation of the present set of recommendations.

1   Introduction

In this report we present the Policy Recommendations (PRs) designed on the basis of the CAP4Access experience, regarding 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 the Plan for Engagement (Deliverable 1.2) of User/target groups (WP1) and have been entered in the PRs with the view of making full use of the CAP4Access tools and help the groups consult the PRs that affect them. The aim is to give people in charge at local, national and EU level a basic knowledge for making best-informed decisions about participative strategies, for addressing the issues of accessibility in policy-making and planning in the urban areas. With this purpose, section two of this report defines the objectives, structure and characteristics of the PRs presented in this document and the methodology used to present the final outcomes; section three lists the target groups and stakeholders affected by the PRs and offers an interactive table that indicates the PRs 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 challenges in our society; section five presents the PRs; and, finally, section six shapes the PRs 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 has been to develop and pilot-test methods and tools that can be useful to the population as a whole, for collecting and sharing information about issues related to accessibility for persons with limited mobility in Europe.

2   Objective

The **main objective** of this document is to provide decision makers at local, national and EU level with a knowledge base that will help them make best-informed decisions about participative strategies for addressing accessibility in their policy-making and planning of the urban environment, transport systems, smart city and resource efficiency initiatives.

With this in mind, partners have compiled recommendations for policy makers and for other relevant audiences based on the CAP4Access experience. These recommendations reflect the evidences and good practices adopted in the project development that can be used as a starting point, demonstrating how Collective Awareness Platforms (CAPs) can create awareness about the challenges faced by society in modern times, and become a mechanism for achieving systematic long term changes.

The European Commission promotes CAPs with the main aim to design and pilot online platforms to create awareness of sustainability problems and offering solutions based on collaborative efforts of people and networks, bringing forward 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 as well as the general public (Employment, Social Affairs and Inclusion DG, 2016a). It should be driven by policy making and connected to social priorities.

The contribution offered by social innovation to the problems faced by society is particularly evident in the case of **Digital Social Innovation (DSI)**, that is, "*a type of collaborative innovation in which users, communities and innovators collaborate using digital technologies to co-create knowledge and offering solutions for a wide range of social needs at a scale that was unimaginable before the rise of the Internet*" (DSI4EU, 2014). In effects, 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 raise awareness of social challenges and create solutions, in which both citizens and stakeholders can actively participate.

That is what **CAP4Access project** focuses on**,** it is here to make us aware of the barriers that people with reduced mobility face, and promotes the elimination/reduction of such barriers. The experience in the CAP4Access project in addressing, facing and solving these challenges can provide valuable insights for implementing similar initiatives in the future. Thus, CAP4Access has developed, tried and tested methods and tools for gathering and sharing valuable ground information relevant to wheelchair users and people with reduced mobility. The objective of the project is to make the general public aware of physical barriers, encourage urban planners to remove or at least make improvements, using research made by the people and involving those who face these barriers daily, enhancing the quality of life and movement of individuals with reduced mobility. Within the project, participative strategies for addressing accessibility and boosting citizens' participation have been developed and implemented involving various stakeholders in four European chosen sites (Elche, London, Heidelberg and Vienna). After two years implementing the project, we can take a look at some main conclusions and recommendations; they include enabling and limiting factors regarding national and international aspects such as technology, stakeholder, governance, sustainability, ethical, and political participation. These lessons learnt are summarised in the present document of PRs.

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

2.1   Characteristics

The PRs presented in this document have been checked for the following characteristics by CAP4Access partners (Young and Quinn, nd): focused; to the point; professional; legible and understandable; precise; concise; promotional; practical and feasible.

2.2   Structure

The PRs presented in this document use a common format with the following structure:

Policy recommendation (PRs) title

Our recommendation: The CAP4Access recommendation is presented

Why?: Description of the position/problem/issue and the reasoning behind the recommendations.

Stakeholders affected: Refers, in general, to *types* of stakeholders rather than actual organisations or individuals.

Target group of the recommendation: Who are the recommendations targeted at, i.e. who should become active to face the challenges outlined above?

Barriers and facilitators / Examples: Mostly based on the experience obtained from CAP4Access, this part describes typical obstacles and barriers addressed by the recommendations, as well as possible facilitators and solutions to problems encountered. It also includes references to cases and stories and other relevant material published on the web.

2.3   Methodology

The methodology used by partners building the PRs included in section five was the following:

- Compilation of a lessons learned report by the four pilot sites (London, Heidelberg, Vienna and Elche).

- Sharing first recommendations at an internal workshop for project partners in Berlin on 6th – 7th June 2016.

- Drafting the PRs in a document with the information collected from pilot sites and through the internal workshop.

- Delivering the preliminary PRs, in which the feedback from all partners' was incorporated.

- Gathering feedback obtained by interviewing one stakeholder representative for each target group according to the table included in the section 3 per pilot site following the protocol defined by Polibienestar.

- Sharing the Preliminary Policy Recommendations with the Advisory Board in an internal workshop held in Bonn in September 2016 and collecting their feedback.

- Launching an online survey in English, Spanish and German to collect more feedback from CAP4Access contacts. For this survey, reduced versions of the Preliminary PRs were compiled in four documents, one document per each of the target groups.

- Incorporating the feedback from the Advisory Board (AB), the survey and the interviews into the final version of the recommendations.

- Editing the PRs document in a publishable format and its eventual distribution.

2.4 Results

Finally, 13 people were interviewed from the pilot sites, 6 members of the AB participated in the internal workshop and 5 participants completed the online survey. People surveyed responded to the following profile: average age of 45.5 years old; 3 male and 2 female; 3 from the UK, 1 from Belgium and 1 from Spain; 2 policy makers; and with different professions: charity worker, director, transport policy adviser, project manager in accessibility, and university professor. Participants in the interviews had an average age of 38.63 years old; 4 were male and 8 female, they came from the four countries that took part in the project; they had different study profiles (from graduate to PhD) and different professions, among them, entrepreneurs, professors, people representing disabled people at local level, politicians at local level, and students.

The main suggestions have been incorporated in the final version of the PRs presented in this document, specifically:

- Review the language in order to use plain English (less scientific)
- Make the documents with the PRs designed for each target group more attractive
- Reduce the content of each PRs
- Summarise the preliminary recommendations with regard to the CAPS approach to social innovation in a sole recommendation
- Structure the PRs at local, national and EU level inside the classification suggested
- Add some factual examples and comments
- Increase the scope of the PRs on training to include schools

Although some of the participants suggested including a timeline, this was not included as it is something that should be decided by the target group wishing to implement the PRs. Also, no videos were developed because this was not foreseen in the project budget. However, the suggestions for widespread distribution and impact of the project have been considered and will be used to circulate the PRs after the project implementation.

Some of the participants pointed out that the recommendations are too focused on wheelchair users or people with reduced mobility. That is indeed the scope of the project; nevertheless, some of the recommendations can also be relevant to people with other disabilities. Finally, some participants suggested eliminating the PR on data privacy. Partners agree with them that it is something that should be done (good practice or standard) but actually not all activities engaging citizens take this issue into account. For that reason, partners decided to maintain this PR.

3 Target groups

In this section, we list the target groups affected by the recommendations. The target groups of CAP4Access were identified in "Plan for Engagement of User/target groups" (D.1.2) and

have been entered in the PRs with the view of making full use of the CAP4Access tools and help the groups consult the PRs that most affect them, as listed below:

Exhibit 1: PRs per target group

TARGET GROUP		Local audiences	National audiences	International audiences
People requiring enhanced accessibility	Community and User Groups representing: • Wheelchair users, their relatives, carers and friends • People using mobility aids • Pushchair users • Frail and older people	GR1 GR2 INF4 SI	GR2 INF4 SI	GR2 GR3 INF4 SI
Planners and service providers with responsibility for the built environment	Social Service Providers (e.g. social workers, social carers; public and private sector)	GR4 GR8	GR4 GR8	
	Tourism sector stakeholders	GR4	GR4	
	Other business, including architects, urban planners and universal designers	GR4 INF1 SI	GR4 INF1 SI	
	Public Administrators (incl. Spatial planners)	GR1 GR2 GR3 GR4 GR8 INF1 INF2 INF3 INF4 SI	GR2 GR3 GR4 GR8 INF1 INF2 INF3 INF4 SI	GR2 GR3 GR4 GR6 GR8 INF1 INF2 INF3 INF4 SI
	Transport providers	GR7	GR7	GR7
	Education providers (e.g. schools and universities)	GR1 GR2 GR5 GR8	GR2 GR5 GR8	
Grassrott initiatives supporting people with disabilities	Activists and NGOs (e.g. CVS organisations and Open Data organisations)	GR1 GR2	GR2	
	General public (citizens and visitors)	GR1		
	Networks		GR3	GR3 GR6

TARGET GROUP		Local audiences	National audiences	International audiences
Policy makers	Policy makers	GR1 GR2 GR3 GR4 GR5 GR7 GR8 INF1 INF2 INF3 SI	GR2 GR3 GR4 GR5 GR7 GR8 INF1 INF2 INF3 SI	GR2 GR3 GR4 GR6 GR7 GR8 INF1 INF2 INF3 SI

Note: SI (Social Innovation), GR (General Recommendations) and INF (Information) – the description and classification of each PRs is included in the section 5

4 Current situation – Using collective approaches to Digital Social Innovation for better addressing societal challenges

Europe is now focused on providing new and creative responses to the current challenges faced by society, moving from closed innovation models to **open and collaborative innovation models** that trigger the power of social productivity and collective intelligence (Bria et al., 2014). With this in mind, information technology is opening new opportunities to transform leadership and redefine the interactions between government and citizens, particularly in cities (Chan, 2013). Although in a democratic society citizens have a right to vote, this right does not necessarily imply that people are given a voice or have a role in the decision-making processes that affect them most directly. The open innovation perspective allows the active participation of citizens to the policy-making process, beyond their right to vote.

Thus, governments are increasingly being called to be more inclusive and open when formulating policies. This means that governments should be **transparent** in decision-making processes, they should be **approachable and accessible**, and they should **respond** to the views and concerns of their people. In fact, policy processes that are not developed in collaboration with all 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 by mobilising large communities, sharing power and resources (Baeck and Bria, 2014).

The effective ruling of a state or city 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 governments and citizens should be renewed at different levels: governance, implementation, and service delivery (Naidoo, 2009). Today, new ideas

on policy making have been opened, thanks to technology. For example, the new approach to policy making being experimented by Digital Futures[1] takes place on a platform called Futurium[2]. This online platform is used by stakeholders to co-create the visions and policy ideas that matter to them and include scientific evidence. In the same way, the EU funded a project called Puzzle by Policy[3] to reduce the complexity of decision making within the EU and to reconnect people with politics and policymaking. Nevertheless, more efforts should be done to bring these initiatives to life and empower people with the ability to make a 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).

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

In relation to our scope, it is estimated that 66% of the world's population will be living in cities by 2050 (UN, 2016). Therefore, it becomes clear that urban planners should ensure that future cities are more accessible, **user-friendly** and conscious 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 necessary in several areas if we wish to achieve and maintain their integration in society (employment, healthcare, social services, housing, urban planning, etc.), information and communication technology (ICT) contributes to improve their access to services. In the same way, urban environments, infrastructures, facilities and services can either impede or facilitate the exclusion or participation of people with disabilities and, ultimately, of all members of 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 framework which guides 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 is committed to make progress in regards to accessibility, as it 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 effective and active inclusion of disabled people in society, among

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[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/

them, accessibility and participation. In this respect, the Commission proposes 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 with the purpose of **raising awareness of disability** issues and encourage more co-operation within sectors of the Commission dealing in this field; they also support 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 an overview of EU legislations and policies annually. The last report published in its website covers over two hundred legal instruments adopted up to December 2014. The report clearly shows that accessibility has been addressed by the EU from many angles, including law and policy on accessibility of transport, built environment, ICT, and standardisation mandates (Arsenjeva, 2014).

Many countries have adopted national disability strategies approving the Convention on the rights of disabled people 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 the vital importance of accessibility, which would benefits all and is essential for sustainable, equitable and inclusive development**. We should promote accessibility standards compliance as a factor that adds value to goods and services by greatly increasing the number 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 types of legislation on accessibility along Europe whereas the accessibility standards in most of the countries are similar. In many countries, for example Spain, Germany, Austria and UK, there is **no consistent building regulation** for the whole country (AENOR, 2011). For instance, the Spanish Constitution allows urban planning, housing and social care to be competence of the Autonomous Communities. So the central Government, without undermining the powers given to the Autonomous Communities, regulates the basic accessibility conditions, and the Autonomous Communities take care of normative to guarantee the accessibility to buildings, transports and communication within their own cities. As a consequence, the normative varies between Spanish communities and municipalities. In the UK, the Equality Act does not make explicit requirements relating to accessibility in the built-up area, but it requires service providers, employers, and educators not to discriminate in the activities they do, and to consider and respect the environment they operate in. In other words, although there is no explicit requirement in the Equality Act relating to accessibility, there is an implicit one that considers the intrinsic nature of the built environment and ensures 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. If we speak in terms of **standards and guidelines**, we

see different levels of importance and acceptance across Europe. For example, in Germany standards on accessibility have high importance and are considered "state of the art". In relation to accessibility **implementation**, generally speaking, most of the countries are willing to make new buildings accessible and some of them have strategies to make existing buildings more accessible, but in actual terms things are quite different. In Austria for example, the Federal Disability Equality Act included a step-by-step plan to make all federal buildings accessible by the end of 2015, 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).

4.2 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 problems (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 children 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 shortage of comparable data on the total number of people with mobility impairments in the different countries of Europe. As the World Health Organization (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)

Consequently, we are forced to use educated guesses for practical purposes. 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 ways to measure disability statistics, the approach favoured by the WHO appears most suitable when assessing the relevance of the accessibility of Europe's built-up areas addressed in terms of quantity. "Impairment data is not an adequate tool for measuring information on disability". Broad "groupings" of different "types of disability" have become part of the language of disability, with some surveys seeking to determine the

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[4]   This section is an excerpt from D5.1 "Deployment evironment analysis and exploitation planning preparation" authored by Gareis, K. et al. The data are still the most recent available on this particular subject.

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 impairments – sensory, physical, mental, and intellectual – and at other times they combine 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, expressed in terms of difficulties in the ability to function: "[...] 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 about accessibility barriers 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.

We can standardise measurement of functioning using surveys, by basing their design on international standards, like the International Classification of Functioning, Disability and Health (ICF). Indeed, a growing number of countries are using the ICF design and its related questions 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 total adult population reporting difficulty with moving around in Austria (latest data – 2003)

	No difficulty	Mild difficulty	Moderate difficulty	Severe difficulty	Extreme / unable to move	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 total adult population reporting difficulty with moving around in Germany (latest data – 2003)

	No difficulty	**Mild difficulty**	**Moderate difficulty**	**Severe difficulty**	**Extreme / unable to move**	**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

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

	No difficulty	**Mild difficulty**	**Moderate difficulty**	**Severe difficulty**	**Extreme / unable to move**	**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 total adult population reporting difficulty with moving around in the U.K. (latest data – 2003)

	No difficulty	**Mild difficulty**	**Moderate difficulty**	**Severe difficulty**	**Extreme / unable to move**	**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 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 age groups which can be assumed to be most likely to use ICT to help them overcome accessibility challenges, based on the observation that usage intensity rates for the Internet and advanced mobile phone features decreased with age.

Some facts and statistics are available from other sources. Based on their analysis of data from the **EU-SILC survey**, Grammenos (2013) estimated 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 wheelchairs users and an additional 2 million who require walking aids such as walkers. According to the Statistical State Office in Stuttgart, 906,641 people were living with severe disabilities in **Baden-Württemberg by the end of 2011**, 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. 15.1% of them have limited function of their spine or torsos. 4.5% are blind or have low vision. We note from these statistics, 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 mobility or walking difficulties; those with walking difficulties outnumber wheelchair users by about 10:1 (Department for transports, 2005). Consequently, there are 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 people (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 their home inaccessible. That's compared to 6% of adults without impairments.
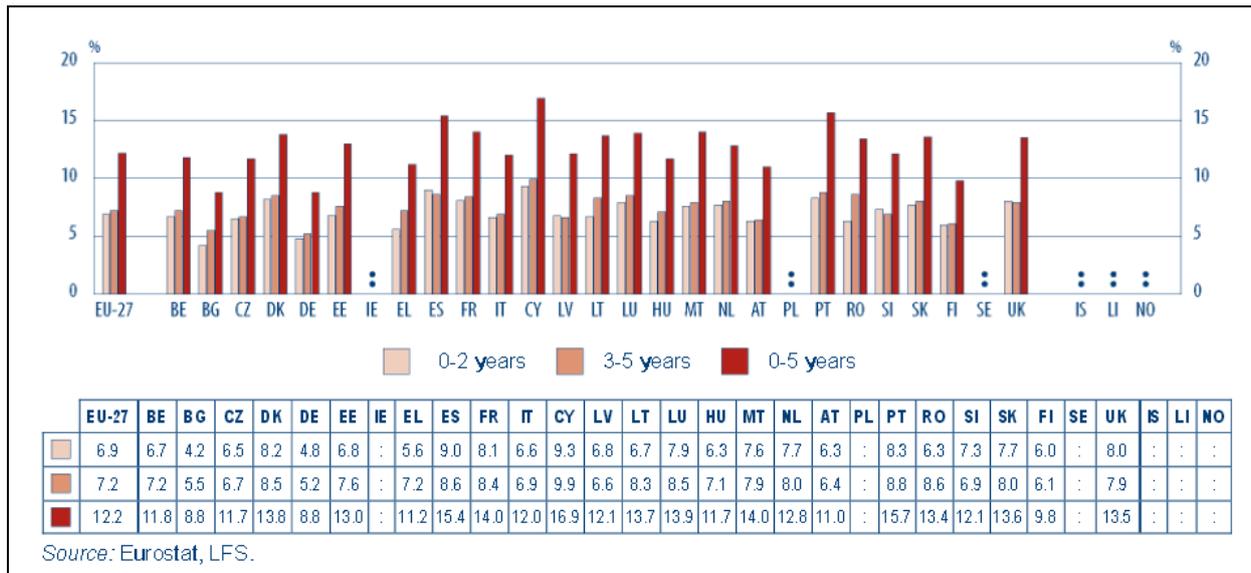
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[6]　If we add to these those who report they face moderate difficulties in moving around, the figures are: 650,000 in Austria; 14.5 million in Germany; 4.7 million in Spain; 11.0 million in the U.K; 59,1 million in EU27 (excl. BG, LT, MT, PL, RO)

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

- 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 in reaching 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 people requiring easier access, and public transport systems for pedestrians with pushchairs can be estimated based on general population statistics. Information 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).

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 over 20 million people with mobility impairments in the EU27, plus 13 million households with children at the age of 0-2 years.**

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[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]

5   Policy recommendations

This section presents the PRs 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:

- General PRs on how to increase awareness about accessibility of the built environment for people with limited mobility and how to remove barriers wherever possible;
- Specific PRs on how to improve information on accessibility; and
- PRs with regard to the CAPS approach to social innovation.

All of them have the common vision of **developing long-term plans for making our cities accessible for all: ensuring that all buildings (public and private) and the built environment will eventually be fully accessible by anyone and especially those with reduced mobility.**

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

AT LOCAL LEVEL

GR1. Encouraging citizens to gather and share data about accessibility
Our recommendation: Promoting the active participation of final users /users' associations 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.
Why?: Europe is now focused on providing new and creative responses to the current challenges faced by society, moving from closed innovation models to **open and collaborative innovation models** that trigger the power of social productivity 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 the purpose of this exercise we should take into account the different citizens' lives and their computer knowledge, to guarantee that everyone can participate in the engagement activities. Raising people participation and awareness are very powerful tools; they can produce information and anticipate the future needs and further responsibilities that we all have in this matter. <u>Our recommendation:</u> we would ask citizens to actively engage in collecting and sharing data about accessibility as a way to gather available information, study the accessibility of cities and buildings, and sustain the tools and platforms hosting this valuable 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 people with mobility impairments) who will collect, share and use the accessibility data available.

Target group: Communities and users groups, general public, policy makers and public administrations. Volunteers can play a relevant role in the sustainability of initiatives after funding programmes. In our case, the OSM community was invited to take part in various activities and to collaborate closely with project partners in order to engage them in using the tools developed and to continue with this initiative even after the end of the project.

Examples: During the three years of the CAP4Access project there have been various strategies implemented with the purpose of engaging citizens, to make them gather and share accessibility data, taking into account target groups profiles and characteristics of the pilot cities. Among them:

Mapping parties: several mapping parties were organised throughout the whole project development[9]. In the CAP4Access, participants marked accessibility points on the urban environment in the four pilot cities using the tools developed inside the project. With the aim to include the whole of society in the activity, traditional printed maps where also provided to those participants with low computer skills. Tools should come from numerous channels, in order to effectively involve those people unable to understand or follow online development routes.

Co-design of products and co-organisation of events: Mapping for Change organised a workshop together with the University College of London and the Queen Elizabeth's Foundation Mobility Centre to co-design a mobile phone application, using Sapelli[10], which would enable users to identify and map barriers that impair accessibility within the urban areas. One more example, the education sector (schools and universities) co-organised events with the Viennese partner that uses less time and fewer resources and sometimes also means more participants (no 'self-recruitment' necessary). They 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 this international campaign together with the WHO to raise awareness about accessibility; these campaigns along with the strong support from known entities may result in a real engagement of citizens and even increase their sensitivity towards this topic. All CAP4Access pilot sites joined the campaigns with various activities that increased the visibility of such a challenge and the project.

Online communication and presentations: social networks, blogs, congress, etc., help increase visibility of the activities and encourage more participation from people.

For example, the GIScience group in Heidelberg shared its news and experiences via a blog; the CAP4Access has its own blog in different languages and social networks, etc.

Ambassadors: the figure of ambassadors has been created to encourage people to promote, among their communities, activities to gather and share data about accessibility.

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[9] A mapping party is a session where a group of people map an area and share the data collected in open access.

[10] a mobile data collection and sharing platform designed with a particular focus on users with little or no prior ICT experience

Sozialhelden for example, has worked on this figure to extend the use of Wheelmap[11] and Vienna has selected their first ambassador in Graz[12].

Collaboration with local authorities: a project lead by a city council has from its beginning the crucial political support of the local government, which helps to promote, develop and disseminate information on the various activities carried out in the city. Nevertheless, their collaboration can be affected by the results of the local elections; at times working with them entails bureaucracy and administrative local proceedings that can delay the projects. There is also a 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. Likewise, project activities can show a lack of compliance of the normative on accessibility that should be guaranteed by the city council. It is therefore clear that the collaboration with other stakeholders in the city is crucial. Engaging them in the events can greatly impact on the projects' success.

Other engagement activities: gamification (competitions, point scoring etc.) or a reward system can also be used to engage people; using stars for places is another good engagement tool for businessmen and women. In some cases, sharing experience, as in the case of apps where people share their travel experience, can also prove to be a valuable tool. Having sponsors is also a strong strategy to engage participants.

AT EU LEVEL

GR6: Creating a standard EU-disabled Card/pass to guarantee the same benefits for people with disabilities across Europe

Our recommendation: People with disabilities should have the same benefits wherever they are (public services, reduced fares, etc.). Creating a single standard EU-disabled card will guarantee their benefits and will encourage free movement in and around the EU.

Why?: The European Disability Forum (EDF) has consistently demanded an EU-model Disability Card. The Employment, Social Affairs and Inclusion DG launched a call in 2015 to support national projects for a mutually recognised European Disability Card to help achieve its creation. In the territories that would eventually be covered by the disability card, national service providers should offer to all card holders the same benefits, regardless of nationality; national eligibility criteria or rules would not change when applying for 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 include all areas affecting citizens, like health and social services.

Stakeholders affected: Wider audiences (people with disabilities).

Target group: Public administrations and networks at EU level.

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[11] 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

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

Examples:

• The existing standard model of parking permit for disabled people which is recognised across Europe. This card entitles disabled people to use certain parking facilities in his/her EU country of residence and 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 would have the responsibility to define the procedures for granting the card. This card would have a substantial impact on the free movement and independence of disabled people (Employment, Social Affairs and Inclusion DG, 2016b).

• The Eurokey initiative, 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).

• The Changing Places is a group of organisations working to support the rights of people with profound and multiple learning disabilities and/or other physical disabilities; they promote that Changing Places are installed in all big public spaces so people can access their community.

AT LOCAL, NATIONAL AND EU LEVEL

GR2. Guaranteeing ethical aspects when working with individuals' data

Our recommendation: The fundamental right to privacy and to the protection of personal data has become more important than ever before. Organising activities with citizens often raises issues regarding data privacy, anonymity of data, etc.; this should be taken into account if we want to guarantee this human right.

Why?: 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), therefore, if personal information is going to be collected and stored in the engagement activities (described in the PRs GR1) it 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[13]. 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. Event organisers should always remind participants to avoid uploading photos on social networks or apps profiles containing faces, private information and especially any images that could be offensive. This is an extremely sensitive issue to consider if the participants are minors. In the same way, participants should always be asked for their permission to be mentioned in social networks and/or to appear in photos.

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

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

Target group: Governments, non-government organizations, community and user groups who organise engagement activities at local, national and European level.

Examples: As mentioned before, during the three years of the CAP4Access project various engagement activities were performed. Below we describe some of the ethical issues addressed:

• After the organisation of some of the Mapping Parties we distributed amongst the participants a questionnaire about the tools used. In those cases, the first page of the questionnaire contained and informed consent with adequate information (project goals, possibilities to withdraw, etc.), opportunity to volunteer, and competences. This document guaranteed the voluntary contribution of participants prior to completing the questionnaire.

• Under the CAP4Access project various apps were developed. All of them share the collected data in open access and respect the data privacy of users as it is explained on the tools website or when accepting the downloading or registration conditions.

GR3. Ensuring policy coordination between levels of Governments

Our recommendation: *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. We propose the creation of an international network of governmental Commissioners of Disability Issues.*

Why?: 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. In order to guarantee common standards towards making cities accessible, there should be a sense of common purpose established across the various departments of government and people in charge, so that accessibility is treated with equal importance and transparency. In this sense, networks at different levels can play a relevant role towards a two-ways dialogue among governance levels, sharing good practices, promoting scaling up, etc.

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. Such network could be composed of 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 (NGOs), and people with different disabilities. We propose the creation of a structure that is multi-level and multi-thematic, which takes a global approach and can be applied at regional level across Europe. It should include, among its tasks, the topic of accessibility in existing initiatives across the EU. This will also allow the transferability and the universal use of good practices among EU regions.

Stakeholders affected: Social service providers, community and user groups, the general public, as well as 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; networks at national and EU level; community and user 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 was led by members of the city council, a set of collaborations were built up with other city council officers that share the same target groups or topics.

Moreover, partners created links with existing relevant networks and organisations. For example, with the Covenant on Demographic Change, the Spanish Network of Smart Cities[14] in which Elche participates; WHO supported the MapMyDay campaign, etc. The visibility provided by WHO contributed towards raising awareness about accessibility and to disseminate the CAP4Access tools. Partners 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 the Heidelberg International Wheelchair Marathon to disseminate the project results among their 300 participants and also a stand at the Heidelberg Citizen Festival with 10,000 visitors.

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

Our recommendation: A long-term vision defining desirable outcomes, common objectives and outlining concrete paths to be implemented in policy making, in order to improve accessibility in the urban areas that will increase the attractiveness of places and the wellbeing of citizens. This PR suggests:

• Participatory processes to define and implement plans and normative;

• Plans and normative based on universal design;

• Mechanisms to ensure accessibility normative are respected;

• 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;

• Including accessibility/disability issues in project proposals requiring EU funding.

Why?: The engagement of citizens has been a key policy priority in 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).

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[14] The Spanish Network of Smart Cities 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.

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 a process that would encourage the active participation of people affected, in our case, people with reduced mobility, associations of people with disabilities, etc. Moreover, these visions should be in line with regional, national and EU strategies in order to promote collaboration (GR3) and be based on universal design (for example, kerbs should be built to suit both blind people and those with reduced mobility).

Building accessible cities will revitalise their economy, attract new residents, and improve pedestrian transit in urban areas. As a consequence, older people and people with reduced mobility will have easier access to public services, tourism and leisure activities, social event activities etc.; with this purpose in mind the UN convention established guidelines for accessible environments. The CAP4Access recommendation reinforces the scope of these ideas, mainly addressed to private entities, when providing services/products for citizens, for example, education providers.

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 inspections for new buildings, these can be performed by qualified inspectors and/or by a dedicated group created for this purpose composed of experts and/or people with disabilities with the specific professional competence.

In cases of historic buildings, inspectors should evaluate the building renovations, to ensure these conform to accessibility requirements and monument protection; cultivating creativity and modern thinking in order to explore the possibilities to preserve the original features of historical buildings while making them accessible to all, including disabled people. In circumstances of new buildings and renovations, the plans should be made transparent and readily available to the general public; this should be especially important when the constructions or renovations are subsidised/sponsored by public funds, in such cases contractors should guarantee full accessibility of the buildings.

We propose the introduction of an official 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 experts and people with disability as advisers of EU sponsored projects and reviews. Along this line, and linked with EU funding programmes, we suggest: (i) adding in the proposals paperwork a compulsory tick-box section regarding "accessibility/disability" similar to the existing section for gender (if applicable); and (ii) developing the project website according to accessibility standards.

Stakeholders affected: Citizens and wider audiences, social services and education providers, tourism stakeholders and other businesses.

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

Examples: Although there is a law in Germany stating that contractors cannot be forced to spend more than 20% of the total renovation budget on accessibility measures, some best practice examples can be found such as the renovation of the Bode Museum. In the UK, the legislation that promotes equal access for all to public services establishes that alternative routes or reorganising the use of space may achieve the desired result without the need for major 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 the requisition for an official certificate, similar to the energy performance certificates, which should be included in all advertisements for the sale and rental of buildings according to the Energy Performance of Buildings Directive.

With regard to 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 money.

GR5: Incorporating accessibility/disability in training programmes

Our recommendation: 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 their school curriculum, college and vocational studies.

Why?: The topic of accessibility should begin to be addressed at child care level, mainly for two reasons: (1) children learn that mobility restrictions are a normal part of society, and (2) mobility restricted parents of children do not want to remain outside the entrance of their child care institutions / schools of their children.

Moreover, vocational education training (VET) programmes and all university degrees should consider accessibility as part of their curriculum. For example, if we wish to maintain Europe position amongst the world's top 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 services for disabled people and people with special needs (DG Growth, 2016). This view can also be extended to other sectors; we feel that specific contents about accessibility/disability need to become part of the curriculum at colleges, universities, and vocational schools. These subjects should be compulsory in studies such as urban planning or architecture and offered as optional subjects in other degrees like tourism. Moreover, educational organisations should also offer follow-up courses and educational training regarding accessibility topics for those people who have not learned about these subjects in school, vocational education, or university. Training should be focused not only on accessibility normative, but mainly in ISO standards and the principles on universal design.

Further, improving accessibility through training could more explicitly highlight the role of work experience, and the improvements that employers could make; improving the mechanism which deals with complaints should not be restricted to the accessibility of buildings but include the wider urban environment.

Stakeholders affected: Wider audiences (students) and future professionals (tourism stakeholders, professionals in other business and social services providers.

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

Examples: Some faculties have started to introduce accessibility as a parallel issue that needs to be learnt alongside other subjects. 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, educating students with talks and experiences coming from disabled people and in the University Miguel Hernández there are some compulsory subjects on accessibility and disability in degrees like Physical Activity and Sport Sciences and Occupational Therapy.

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

Our recommendation: 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.

Why?: There is great awareness in Europe about the importance of making public transport easily accessible for all in our society. This is reflected in the measures implemented in recent years to address the needs of people with disabilities. Thus, the main modes of transports have dedicated legislation, articles or sections addressed to accessibility issues. However, easing access to 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; availability 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 that would take charge of 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 audiences (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, mainly on data integration, we already find services throughout Europe that facilitate and offer a connection between means of transport and accessible facilities for people with diverse disabilities.

GR8: Adopting the use of non-discriminatory language

Our recommendation: *With the purpose of improving 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.*

Why?: Language is not neutral and it can be used as a tool for integrating or marginalising vulnerable groups of people, such as women, elderly people and disabled people. We are aware that there are some guidelines at a national level developed mainly by users' association; our recommendation is about the extension/adoption of these guidelines at EU level and their implementation at local, national and international level by educational institutes, administrations and policy-makers. In relation to cultural, language and translation issues, communications should be reviewed as the word "disabled" can be offensive in some countries.

Stakeholders affected: Wider audiences (people with disabilities).

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

Facilitators: During the project development, in order to avoid the use of improper language, partners used national guidelines for the non-discriminatory use of language from the 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[15]. Another example targeting students (age 13-18) in Austria was an article in a widely distributed school magazine on discriminatory language[16].

5.2　Specific recommendations on how to improve information on accessibility

AT LOCAL, NATIONAL AND EU LEVEL

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

Our recommendation: Local, regional and national authorities should share the geographic data they hold that 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 databases and allows businesses to exploit them, thereby providing benefits for the city and the broader community, giving them the opportunity to use online maps on accessibility (e.g. on Wheelmap, OpenStreetMap).

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[15]　http://leidmedien.de/

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

Why?: The EC's 2011 Communication on Open Data calls for all public data including geographic information. 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-using 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 their geographic databases in order to make them easy to use by citizens, 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 information often requires considerable investments e.g. for converting the data into a commonly used format and enriching them with the additional information required for their correct re-use or the need to set up and/or maintain an open data platform. Moreover, for some datasets sharing information comes into conflict with legal aspects (privacy and security). Towards this goal, we suggest that local authorities would co-operate with local stakeholders in the open data area to discuss the most effective ways of sharing information with the lowest possible effort by data holders (i.e. public administration). An important pre-condition is that, policy makers at different levels should promote free licenses and renegotiate exiting licenses to be compatible with open national or EU platforms to avoid legal barriers. However, sometimes the barriers are not related to access, but that the data does not exist.

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

The recommendation of data sharing is extendable to data related to accessibility on public and private transports, as such, we recommend the creation of platforms that would inform people about issues related to accessibility in public transport (e.g.: broken lifts, trains that are not accessible, busy trains, etc.) or alternatively include this information in existing platforms where transport companies input their own data.

Stakeholders affected: Citizen's and companies who cannot yet make the most of these data, transport and service providers.

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' topographic 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 information 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 terrain relief etc. which could be useful in 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 be suitable routes for collecting data. However, the extensive data collection required was not a viable option for the project's limited resources.

In the city of Elche, the legal rights on 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, treatment of the data was changed during the project's development. At the end of the year 2015, the policies related to data sharing become more relaxed. Unfortunately, the restrictions imposed by the city council do not allow for uploading the information to OpenStreetMap, but only for use within the project piloting. As a solution, partners decided not to use the information from the city council as they wish to share it in OSM; partners included points of interests (POIs) in OpenStreetMap 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 started an Open Data portal where social data, geographic data and election data was made available under the open data license. While the relevant information on 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

Our recommendation: The creation of a unit at local/regional level that collects complaints about the lack of accessibility of buildings is needed in order to move towards 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.

Why?: The existing normative about accessibility is not always implemented or based on a universal design. As a result, the specific needs of people with different capabilities are ignored. For this reason, we recommend creating a unit that would deal with accessibility shortcomings where people could 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 audiences (people with disabilities).

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

Examples:

• 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 that allows citizens to report barriers in the built environment by filling out an online form.

• Another good example are the Consultancy Boards of People with Disabilities in the cities of Elche and Heidelberg, which focus 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

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

Why?: H2020 projects have the obligation to publish their 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 using the data will highly motivate potential contributors to actively engage in such projects, because they can see the effects of their work. Even minor funding (e.g. for running a server) can have a huge impact. We highly recommend providing funding for the demonstration of services (such as Wheelmap, ORS, since this motivates users) and data collection. Moreover, this approach impacts directly in the sustainability of the initiatives funded by public programmes.

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

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/social networks as a forum in which communities working on projects with similar topics can share their best practice strategies for activating and motivating their communities

Our recommendation: 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 create collaborative efforts between existing and new projects working in the field of accessibility on urban environment.

Why?: The tools and website of the CAP4Access project are based on the information collected by citizens. Their participation and interest are essential for the sustainability of those results and various strategies have been implemented to encourage citizens to continue feeding them and to establish links with other existing initiatives. 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 information provided by the public, and to moderate potential interventions.

Moreover, the impact of the developed tools can be reinforced by increasing 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 audiences (people with disabilities).

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

Examples: In the CAP4Access development, partners have achieved a successful approach to OpenStreetMap communities, activists, users' associations and volunteers that guarantee the sustainability of the tools developed. For example, in Heidelberg 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 continually adding quality-tested data to Wheelmap. Moreover, some cities selected their ambassadors for the sustainability of the project results and great links have been created with existing initiatives at EU level.

5.3   Recommendations with regard to the CAPS approach to social innovation

AT LOCAL, NATIONAL AND EU LEVEL

SI: Supporting Digital Social Innovation through CAPs to face social challenges from collective approach at local level

Our recommendation: CAPs can be used as a supporting platform for Digital Social Innovation because: they collect information directly from the public, their opinion and their needs; they want to help creating solutions to current social challenges through collaboration and have been able to get a considerable mass of committed stakeholders. Due to the involvement of citizens with reduced mobility and associations representing users' needs in the design, the implementation and evaluation of initiatives concerning accessibility will improve their effectiveness because they respond directly to their needs, requirements and expectations

Why?: According to the DSI final report (Bria et al., 2015), policy makers at local, regional and EU level should, among other things, invest in digital technologies for the greater good. That is, making it easier to create new DSI with suitable normative and funding measures that focus on supporting non-public actors that are the driving force of innovation (CAPs).

Indeed, many non-public actors (citizens, communities, civil society, faith based organizations and for-profit companies) are already involved in building resilient economies and inclusive societies at a local level: members of communities, local residents, research institutions and the private sector. By involving them in the design (co-design), evaluation and implementation, we will achieve an increased effectiveness because the initiatives will respond to their actual needs, requirements and expectations; consequently the budget requirements needed to meet social challenges will be reduced. Moreover, methods that require participation at local level contribute to transparency and open-government; they allow us to listen to citizens' voices and to get more effective civil participation in policy-making.

New financial instruments (public private partnerships, crowdfunding, challenges and prizes) should be also experimented while supporting innovation spaces and co-production processes (see PRs SI3). CAPs are relevant bottom-up initiatives that facilitate social innovation processes and democratic decision making use of technological platforms. Moreover, CAPs is based on collective intelligence along with the potential of crowdsourcing, citizens' science, open democracy and collaborative economy. We believe that all of these methods can be used to gather and integrate information that allow citizens' participation and improve the wellbeing of the society.

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

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

Examples: Some governments are already supporting Digital Social Innovation even if they face reluctance of sharing data and the limited computer skills of some citizens. For example, the Open Ministry[17], a non-profit organization, helps citizens and non-government organizations (NGOs) with national and EU citizen's initiatives and develops online services for collaborating, sharing and signing the initiatives. To this end, the eGovernment4EU[18] 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.

As examples of the co-creation processes:

• Mapping For Change organised a day workshop with University College of London and Queen Elizabeth's Foundation Mobility Centre to co-design a mobile application that could enable users to identify and map accessibility barriers within the urban areas.

• In Germany, a group of experts check the accessibility of new buildings. This process guarantees the elimination of barriers starting from the involvement of actual users and the general public, but including 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 organised for discussing the main demands of disabled people. 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

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17 http://openministry.info/
18 https://ec.europa.eu/futurium/en/egovernment4eu

interest. Thus, the efforts invested into the mapping of the accessibility of places and ways to access Heidelberg castle became part of a short documentary produced by Beirat von Menschen mit Behinderung Heidelberg (Advisory Board 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, not only to use them as consultancy board. Moreover, the results of the discussion should be considered in the municipality, as far as possible. If municipalities show poor interest in these citizen-formed organizations, they can cause alienation, because citizens would feel that their voices are not heard and that the advisory meetings are a waste of time.

6   Outreach

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

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 that accessibility normative are followed and respected 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)

PR	Indicators
	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
SI	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
	Increased culture of DSI among public administrations, politicians and citizens

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

7 Conclusions

This document presents the PRs compiled in the framework of the project CAP4Access. These recommendations reflect the evidences and good practices adopted in the project development with the main purpose of showing their utility and exploring how CAPs can be used to create awareness about societal challenges and to become a mechanism for achieving systematic long term changes. The document presents a total of 13 PRs to equip decision makers and other target groups at local, national and EU level with a knowledge base for making best-informed decisions about:

- General recommendations on how to increase awareness about accessibility to the built environment for people with limited mobility and remove barriers wherever possible (8 PRs);

- Specific recommendations on how to improve information on accessibility (4 PRs); and

- Recommendations with regard to the CAPs approach to social innovation (1 PRs).

By implementing the proposed PRs, policy makers, public administrations and the different target groups defined will promote the active participation of citizens and stakeholders in gathering and using information that provides evidence of existing lack of urban accessibility. They will raise awareness and stimulate politicians and urban planners to remove barriers, and, consequently, will improve the quality of life of people with reduced mobility. Moreover, they will promote the use of innovative processes towards 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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