Tourism for all: some inputs for an awareness raising campaign in the field of museum and other cultural/natural attractions

INTRODUCTION

Accessible tourism is an emerging market niche, which will increase largely in the next decades. It is estimated that by the end of 2025 this category will reach approximately 160 million people. 70 percent of the population demanding accessibility has both the financial and the physical capabilities to travel, generating potential revenues in Europe of €88.6 billion by 2025 (Bowtell, 2015). People with disabilities (PwD) are one of the widest groups who would benefit of accessible tourism together with elderly people or those who travel with children in prams and others.

World Health Organisation (WHO) (2015) defines **disability** as an:

> «umbrella term, covering impairments, activity limitations, and participation restrictions. Impairment is a problem in body or structure; an activity limitation is a difficulty encountered by an individual in executing a task; while a participation restriction is a problem experienced by an individual in involvement in life situations.»

United Nations World Tourism Organisation (UNWTO) defines the concept of Accessible Tourism, stating that «it guarantees the use and enjoyment of tourism irrespective of the capabilities, status or condition of people, based on universal design.»

UNWTO (2016) has then given a definition of the concept of **tourism for all** that is composed by three distinct factors: Social Tourism, Sustainable Tourism and Accessible Tourism.

According to the International Social Tourism Organisation (ISTO), the term "**Social Tourism**" can be defined as

> «the effects and phenomena resulting from the participation in tourism, more specifically, the participation of low-income groups. This participation is made possible or is facilitated by initiatives of well-defined social natures."

UNWTO states that social tourism includes the rights and the needs of young people aged 15 to 25, large families, people with disabilities and seniors with respect to travel and tourism.

Sustainable Tourism is defined by UNWTO as:

> «tourism that takes full account of its current and future economic, social and environmental impacts, addressing needs of visitors, the industry, the environment and host communities».
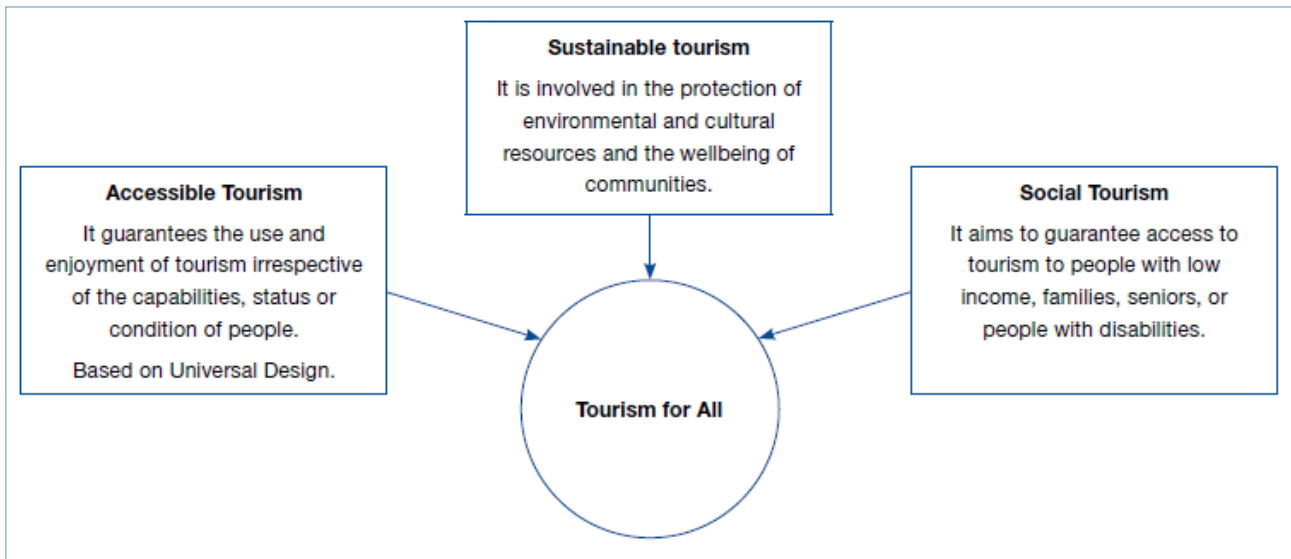
Fig. 1 Tourism for All

Source: Tourism for All Source: UNWTO (2016): Manual on Accessible Tourism for All - Principles, tools and best practices.

Universal design (UD) has been described by Michopoulou, Darcy, Ambrose and Buhalis (2015) as

> «the design of products and environments to be usable by all people, to the greatest extent possible, without adaptation or specialised design, with the intent of simplify everyone's life by creating products, environments and communications more usable. While traditional design tends to focus on the mainstream user and eventually adapting for a niche demand, UD's purpose is to understand people's needs in a perspective of social inclusion.»

Parallel to the development of Universal Design, starting from the end in the Eighties, the design approach called **Design for All** spreads in Europe within the European Institute for Design and Disability (EIDD).

In Great Britain since the 90s, the **Inclusive Design** has been offered, for which in 2006 the Commission for Architecture and the Built Environment (CABE).

Universal Design, Design for All and Inclusive Design, albeit with slight differences, can be considered synonyms in reference to the accessibility approach that they envision.

In documents of international and community nature, the more recurring reference is at Universal Design.

MODELS OF DISABILITY

The current shared definition of disability derived from the evolution of many models of disability (MD). The first MD has been the **Medical Model** (MM), proposed by T. Parsons in 1951, that has in its central focus the causes of disability, assuming that disability is connected to the individual features of a given person and regards above all their own personal tragedy and concerning only medical treatments, physical rehabilitation and any other action aimed to maximise adaptation to the environment.

The central theory of the **Social Model** is that disability is not due to individual characteristics but is rather the result of existing restrictive factors in the environment (including social and mental barriers) which multiplies a given individual's dysfunction and impedes or prevents the person's participation in the full scope of life in society (Oliver, 1996; Darcy et al., 2010; Darcy and Pegg, 2011). Behind this model lays the idea that is not the person with disability who needs to adapt to the environment, but the social conditions that should include this person by allowing everyone to fully participate in society, removing barriers limiting people with specific types and degrees of disability and needs. This model has been accused of ignoring the fact that disability is not only a matter of social perspective and that some physical or mental problems would exists regardless the society changes.

Answering to the request of a balanced approach between health conditions and contextual factors, World Health Organisation (WHO, 2011) proposed the **Bio-psycho-social Model** (BM), that synthesises what is true in the medical and social models, avoiding to reduce the complex notion of disability to one of its aspects, as defined by ICF too, as an umbrella term for impairments, limitations of the activity or restriction in participation (ICF, 2001).

The **Economic Model** (EM) is founded on the conclusions emerging from the functioning of the previous models (MM and SM) and approaches disability from the viewpoint of economic analysis, focusing on the person's employment capabilities and their diverse needs, generating demand in the tourism markets. This model has been developed to answer to the growing and competing market related to the increase of people affected by disability that represents at least 15 percent of the world's population (WHO, 2001).

The **Geographical** (geospatial) **Model** of disability (GM) was proposed during research in the field of geography of disability, in which disability has been presented as a characteristic of the population that leads to marginalisation and spatial exclusion from normal social spaces built in the environment (Butler, Bowlby, 1997; Gaines, 2004). The GM focuses mainly on the interrelation between PwD and geographical space (Chouinard et al., 2010; Zajadacz and Śniadek, 2014) considering the factors causing disability both as social and spatial aspects of the human environment.

These MD lead to three different social approaches towards PwD: the **MM**, is connected to social **exclusion**, by stigmatising PwD through discrimination made using targeted solutions; the **SM** aims instead to social **integration** by inciting the social context to improve and adapt services providing; **BM** and **GM**, are focused on developing social **inclusion**.

Social inclusion is intended as the process where people have the opportunity to fully participate in economic, social and cultural life maintaining a standard of living which is recognised as normal in a given society; while **social exclusion** describes a state in which individuals are unable to participate fully in economic, social, political and cultural life, as well as the process leading to and sustaining such a state. Similar to the concept of social inclusion, **social integration** is intended as a model of society for all in

which every individual, each with rights and responsibilities, has an active role to play, by adapting to the context. (United Nations, 2016).

A recap of disability models in relation to their social approach is reported in figures 2 and 3.
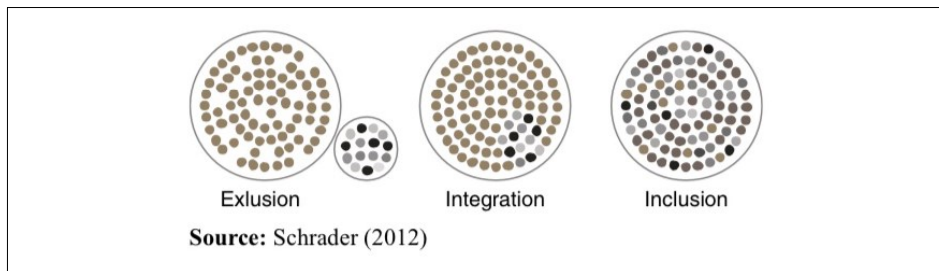

Fig. 2 Models of social exclusion, integration and inclusion

Source: Evolution of models of disability as a basis for further policy changes in accessible tourism (Zajadacz, 2015)
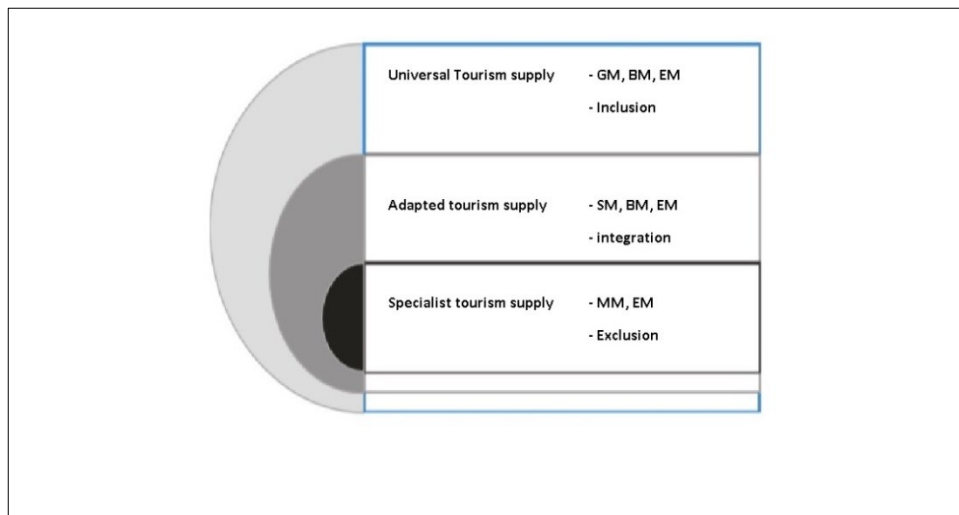

Fig. 3 Model of diversification of tourism market supply structure available for PwD

Source: Evolution of models of disability as a basis for further policy changes in accessible tourism (Zajadacz, 2015)

Which are the international and national definitions and regulations?

As a consequence of the introduction of the bio-psycho-social model, international regulations, such as the UNCRPD and ICF have been developed, considering the person with disability under this perspective.

The **International Classification of Functioning** (WHO, 2001), is a classification of "health components" that identifies the health constituent elements.

The **ICF** approach is different from an approach on "causes determining health" or on "risk factors", but includes a list of environmental factors that describes the contexts where individuals live.

In order to outline an overall overview on health, ICF provides a short list of definitions:

- **Body functions** are physiological functions of body systems (psychological functions included).
- **Body structures** are the anatomical body parts, such as organs, limbs and their components.
- **Impairments** are issues in the functioning or in the structure of the body, intended as a deviation or a significant loss.
- **Activity** is the execution of a task or an action from an individual.
- **Participation** is the involvement into a given life situation.
- **Activity limitations** are difficulties that an individual can encounter in the execution of an activity.
- **Restrictions to participation** are problems that an individual can experiment in the involvement in the life situations.
- **Environmental factors** constitute attitudes, physical and social environment in which people live and conduct their existence.

The **UN Convention for the Rights of Persons with Disability**, a charter that the member states have agreed in the principles and actions they will have to carry out, has been ratified by **Italy** with the **law number 18** of 3 march 2009 (UNO, CRPD, 2006) and defines disability as an evolving concept that results from the interaction between persons with impairments and attitudinal and environmental barriers that hinders their full participation in society on an equal basis with others. This convention's aim is to promote, protect and ensure PwD's right to participation through accessibility and non-discriminative rules, in order to let them express their free choice, autonomy and independence.

Article 30 of the Convention establishes that each State has to ensure the fruition of the tourist offer to people with motor, sensor and intellective disabilities at the same level of other users, without price increases. It is considered as a discriminatory act to impede to take advantage of the tourist offer to PwD.

Article 9 specifies that signatory states have to guarantee the access to physical environment, to transport, to information and communication, including the systems of information and communication themselves, and to other equipment and services open to public, both in urban and rural areas.

Member States have also to:

- develop, promulgate and monitor the application of minimum standards and guidelines for the accessibility of open services facilities offered to the public;
- ensure that private entities, providing facilities and services, that are open or offered to the public, take into account all aspects of accessibility for PwD.
- Provide all those interested in accessibility issues with training on the access problems faced by PwD.

- Equip structures and buildings open to the public to draw easily legible and understandable information in Braille font.

Accessibility involves the participation of the entire tourism chain, such as:

- Transport system;
- Receptivity;
- Catering;
- Culture, free time and sport.

A firm point of the Convention is that accessibility of a place should not determinate the choice of vacation: it has to be possible to **choose destination** or facility **because it is liked and not because it is the only accessible one**.

In 2008 the Guidelines for overcoming architectural barriers in places of cultural interest (*Linee guida per il superamento delle barriere architettoniche nei luoghi di interesse culturale*, 2008), have been published.

In 2009 the Italian Ministry of Tourism has established the ministerial Commission "For an accessible tourism", to sustain the realisation of measures to improve the accessibility of Italian touristic facilities. The aim was to promote welcoming skills that would be really "for all", adapting the offer and guaranteeing the best services to tourists with special needs too.

Together with the law number 18 of march 2009, with which Italy ratified and implemented the UNCRPD, the National observatory on the condition of people with disabilities has been instituted.

In October 2009, the Ministry presented, during his intervention in the XXVI annual assembly of Anci in Turin, the Manifesto for the promotion of accessible tourism (*Manifesto per la promozione del turismo accessibile*, 2009).

The European Network for Accessible Tourism (ENAT), subscribed, in march 2011, the Manifesto, pledging to promote its content in all the 27 EU countries.

Ministero del Turismo

Manifesto per la promozione del Turismo Accessibile

In attuazione dell'art 30 della Convenzione Onu sui diritti delle persone con disabilità
ratificata con Legge n. 18 del 24/2/09

1. **La persona** nella sua accezione più completa, con i suoi specifici bisogni derivanti da condizioni personali e di salute (ad esempio: disabilità motorie, sensoriali, intellettive, intolleranze alimentari, ecc.) è un **cittadino ed un cliente** che ha diritto a fruire dell'offerta turistica in modo completo e **in autonomia**, ricevendo servizi adeguati e commisurati a un giusto rapporto qualità prezzo.

2. L'accessibilità comporta il coinvolgimento di tutta la **filiera turistica a livello nazionale e locale**, a partire da:
   a. il sistema dei trasporti;
   b. la ricettività;
   c. la ristorazione;
   d. la cultura, il tempo libero e lo sport

3. L'accessibilità dei luoghi non deve determinare **la scelta della vacanza**; si deve poter scegliere una meta o struttura turistica perché piace e non perché essa è l'unica accessibile.

4. È necessario pensare l'accessibilità come **accesso alle esperienze di vita**, ovvero andare oltre il concetto dello "standard" valorizzando invece la centralità della persona/cliente con bisogni specifici.

5. **L'informazione sull'accessibilità** non può ridursi a un simbolo, ma deve essere **oggettiva, dettagliata e garantita**, onde permettere a ogni persona di valutare in modo autonomo e certo quali strutture e servizi turistici sono in grado di soddisfare le sue specifiche esigenze.

6. E' necessario promuovere una **comunicazione positiva**, che eviti l'uso di termini discriminanti. Essa va diffusa in formati fruibili per tutti, e attraverso tutti i canali informativi e promozionali del mondo turistico.

Ministero del Turismo

7. Poiché l'accessibilità riguarda non solo aspetti strutturali e infrastrutturali, ma anche i servizi offerti ai turisti, occorre promuovere la **qualità dell'accoglienza per tutti,** ovvero incentivare un cambiamento culturale che generi profondi mutamenti dei modelli organizzativi e gestionali, ancora prima che strutturali.

8. E' necessario incentivare la **formazione delle competenze e delle professionalità,** basata sui principi dello Universal Design e che coinvolga tutta la **filiera delle figure professionali** turistiche e tecniche: manager, impiegati, aziende, imprese pubbliche e private. Occorre inoltre aggiornare i programmi di studio degli Istituti per il Turismo, Tecnici, Universitari, dei Master e dei Centri Accademici a tutti i livelli.

9. Le Autonomie Locali, ognuna per le proprie competenze e vocazioni, hanno il compito di **implementare l'accessibilità urbana, degli edifici pubblici e dei trasporti locali,** pianificando inoltre periodiche azioni di **verifica e di promozione** delle proposte turistiche per tutti.

10. Per realizzare e promuovere il turismo accessibile in una logica di sistema si auspica la fattiva e **ollaborazione** tra gli Operatori turistici, le Autonomie Locali, gli Enti Pubblici, le Associazioni delle persone con disabilità e le Organizzazioni del turismo sociale.

I principi ispiratori del Manifesto sono approfonditi nel documento "Istruzioni per l'uso del Manifesto per la Promozione del Turismo Accessibile"

Fig. 4 and 5: Manifesto per la promozione del Turismo Accessibile

Source: Italian Ministry of Tourism, 2009

In 2011 the Department for the development and competitiveness of tourism, in collaboration with the concerned State Administrations, the Regions and autonomous Provinces, business, trade union organisations in the tourism sectors, as well as national consumer protection associations, elaborated the charter of the rights of the tourist. A guide, available in seven languages, with the aim of informing the

tourists with clarity and punctuality about their rights in Italy, on how they should behave and who to contact in case of non-compliance. In it, there are therefore collected useful information and regulations that discipline the relationship that must be established between tourist, travel agencies and accommodation facilities, with a view of fairness and transparency.

Finally, in 2013, the First white book on Tourism for all in Italy (*Primo libro bianco sul turismo per tutti in Italia*, 2013) has been published too.

Information and Communication

A fundamental topic concerning accessibility addressed by the Italian Committee for an accessible tourism, is that of information accessibility, and therefore, is also increasingly IT: usability of the systems through the use of assistive technologies.

The absence of these opportunities has to be considered as a discriminating constraint, impeding to freely choose a touristic destination, and therefore forcing guests to always refold on the same destinations that give guarantees on the actual offered services.

In fact, freedom is not only of movement, but it must also be intended as information and communication, above all in a society increasingly dominated by mass media and by new "smart" technologies.

Referring particularly to the Italian law n. 3 of January 17th of 2004 (the so-called Stanca law) it is hoped that the operators of the information technology sector will be enabled, through the appropriate training activities, to create applications that can be used by every person, regardless of their level of ability.

This law foresees the right of every person to access to all the sources of information and to the related services, and this right is recognised, protected and guaranteed particularly to PwD.

The hope is then to realise audio-visual toolkits that, at the same time, facilitate deaf people and blind people, and that, in general, would communicate with a simplified language to meet learning difficulties. Also in the realisation of websites of the destinations these didactic, communicative and informative principles should always be considered a reference.

MAIN ISSUES

Which are the types of barriers in tourism?

There are many different types of barriers and difficulties involved in tourism activities, but they can be divided in **two major categories,** environmental and social barriers (UNWTO, 2016):

- **Environmental barriers:** every impediment occurring between users and the environment around them, from architectural barriers to transportation and to communication ones.
    - *Planning and booking.* The first potential barrier is related to access to information. The main problems involving information on the Internet are: **inaccurate** or **incomplete**, or

obsolete information, accessibility is not considered comprehensively as a need for all, and **inaccessible websites**.

Information access is relevant because if online information is inaccessible, the person would be forced to use traditional channels such as travel agencies, press, telephone and others and in many cases, even travel agencies are not able to verify the required information. Another problem is with the **lack of standardisation of accessibility criteria**, what an operator may find accessible because of its usual clients, could be considered inaccessible by another.

o *Infrastructure and transportation.* When UD parameters have not been considered in transportation infrastructures, PwD still encounter problems and difficulties in transportation such as **changes in level**, cross streets with **no curb ramps**, move along **narrow pavements**, **scarce lightning**, **absence of resting areas**, **slippery or shiny floors** or **not properly marked glass walls**. Another problem is the **lack of** services such as **waiting rooms**, **accessible toilets or changing rooms** that could constitute an obstacle for persons with reduced mobility. Other difficulties may regard the act of boarding on the transportation mean when the appropriate resources are not available.

o *Buildings.* Examples of critical issues in buildings are: the **entrance** should not **have steps up to it**; there should not be **inaccessible doorways and lifts**, **tables preventing movements** or **narrow hallways**. Counters, cupboards and payphones should be placed at the appropriate height or they could be inaccessible.

o *Communication.* Communication problems occur when **information** is **not offered in accessible** or alternative **formats**, when **messages** are **not clear** and concise and when **information** is **incomplete**. This kind of barrier shows up when there is no adequate signage system which allows guests to find their way independently and safely. For example, there should be present a communication based both on sound and visual elements to be accessible both to persons with hearing and visual impairments.

o *Activities involving the destination.* To conceive the destination environment only for certain population profiles without taking into account people's diversity, should be considered a bad practice in tourism. For example, certain cities, towns or parks have many **obstacles restricting the free movement** of people with reduced mobility, people with visual impairments, older people, children, and any tourist in general.

- **Social barriers**. Social barriers could be described as those involving factors linked to society and how society treats disability and accessibility-related issues. At times, these difficulties are much more limiting and discriminatory than environmental barriers, because society's consideration of

accessibility is what can drive the necessary political, social and economic changes to make it possible.

- o *Attitudinal barriers.* **Negative stereotypes** or negative views of disability can lead to **social exclusion** and affect the likely social participation of people with disabilities in certain regions of the world.

- o *Lack of awareness accessibility.* There is a **lack of effective international and national policies** to improve accessibility, understanding it as a value that needs to be systematically addressed. A coordinated strategy between stakeholders is needed to set the priorities, the steps to follow and the concrete measures take to achieve the goal.

- o *Lack of training in tourism-related business.* The tourism **employees** are **not prepared** for different demands and unaware of the existence of specific means of access or how to use them. Training should be incorporated not only for a matter of rights, but also to enhance the quality of service.

Which are the common problematic experiences?

Özogul and Baran (2016) listed a series of structural defects often encountered during travels, such as deficiency in equipment, lack of audio alarm systems in the lifts, lack of sufficient space allowing the passage of wheelchairs or the use of present rooms as "documentation rooms" and selling incorrect or inconvenient tours.

In addition, Crîşmariu (2017) cited other referred usual problems for traveling PwD. Citing Portales (2015), the author lists as encountered barriers: airlines in transport/transit phase, not providing an accessible environment; inaccessible parking areas at the arrival, especially for persons with limited mobility; difficulties in accommodation sector and leisure. Attitudinal barriers are referred as more often encountered than physical in all sectors and transport barriers as the most common problem for people with mobility, sensory and behavioural disabilities.

Disability stigma

As the attitudinal barriers are often referred as the most common, a discussion about the concept of stigma appears to be extremely relevant. Some studies (Bedini, 2000; West, 1984; Bedini, 1991; Schleien, Ray, & Green, 1997) highlighted how PwD's decisions about **leisure participation** and satisfaction can be **affected by attitudes** towards them. Although the negative attitudes can strongly impact on the recreational behaviours of PwD, it is the perception (together with negative attitudes) that can affect individuals' decisions to pursue and engage in leisure activities in the community. Respondent's perceptions of community stigma often negatively affected their pursuits of recreation and leisure experiences, thus, **stigma and labelling attitudes** can be one of the most powerful **barriers to the pursuit** that PwD can experience.

The American sociologist Erving Goffman argued that this stigma can breed animosity, pity, or fear from the "non-stigmatised" members of a community. The author argued that stigma and the inferiority it assumes, regard the fact that social groups attach meaning to forms of human difference in ways that result in discrimination and unequal access to the rights and privileges of a society.

Fine and Asch (1988) listed several stigmatising assumptions that society makes about people with disabilities. For instance, they found that it is assumed that a disabled person is a "victim" and in need of social support and help. This social perception of a PwD forces the individual to make downward social comparisons to preserve their own self-esteem.

Gardner (1991) described how more powerful groups have traditionally tried to restrict different or "stigmatised" groups from being in public. The dominant group either denies access or makes it uncomfortable for the stigmatised individuals to be present in public.

Brown (2010) gives an explanation of stigmatisation through three mutually reinforcing processes: an emotional process in which fear becomes attached to difference, a cognitive process in which the mind's ability to socially categorise other people devolves into degrading stereotypes and a social control process in which non-stigmatised people use stigma to rationalise exploitation and exclusion and to maintain majority-minority power relationships.

Under the emotional perspective, disability stigma is an expression of what the non-disabled majority rejects. Stigmatisation works to keep its targets in a powerless and excluded position and is reinforced by its perpetuation representing PwD as helpless, suffering victims (Cohen-Tottenberg, 2012).

In her study, Bedini (2000) identified **three different trends** in approaching to disability stigma: (a) **became helpless**, (b) **resisting the stigma**, or (c) **yielded and embraced their situation**.

The first group demonstrated "**learned helplessness**" (Seligman, 1975), expressed by a passive victim-like role, **avoiding to pursue recreational activities**, due to anxiety; the second group responded to the perception of stigma in community recreation by resisting to what non-disabled people were assuming about them; while the third group, rather than giving in to or resisting the stigma they perceived, "yielded" to its perceived effects without giving in, embracing their identity as a PwD.

The first group of PwD identified by Bedini highlights how important is to take in account **stigmatisation** when talking about Accessible Tourism, because to give "special" solutions to PwD risks to modify attitudes towards them and consequentially from them towards the community and cause or reinforce the social exclusion phenomena that **leads to** their **non-participation** to society and, thus, **to touristic activities**.

The study of Bizjak and colleagues (2010) detected some differences in the attitude of tourism students when they get in touch with the disability topic. After having given the participants a lecture about problems of guests with disability, authors found that measured attitudes towards them became statistically more positive

than it used to be before, while in the control group no statistically significant difference was found. This finding highlights the **relevance of tourism staff training** about disability as reported by UNWTO too.

In 2016, UITP (International Association of Public Transport)/IRU (International Road Transport Union)/EDF (European Disability Forum), has published a guide to transport accessibility to improve staff awareness about persons with disability and with reduced mobility, listing a series of rules for the insiders:

1. **Be aware and ready to act**. PwD wish to maintain their dignity and independence, thus, it is correct to offer assistance, but not to insist.

2. **Ask the passenger**, rather than jumping to conclusions. Since PwD are an extremely heterogeneous group, it should never be assumed what they may need, know or be able to do. Simply ask if it's possible to help them and how.

3. **Put people first and not their disability**. When talking to people, the words we use reflect our thoughts, then it is necessary not to consider PwD as defined by their impairments, therefore to focus on the individual and not on their particular limitation in language too (e.g. instead of saying "the blind", refer to "the person who is blind").

4. Try to be empathic and **put yourself in your passengers' shoes**. The disability of a person is strictly defined by how the society is organised, such as the way stations and vehicles are designed.

5. **Be patient**. PwD and persons with reduced mobility may need longer to board or leave a vehicle.

6. Always **speak directly to passengers with disabilities**. Do not address their accompanying person, interpreter or personal assistant unless you are directed to do so by the passenger. Speak clearly and try to keep conversations private, rather than shouting over a long distance. Repeat if you are asked to and do not hide your eyes with sunglasses, in order to keep eye contact.

7. It can be useful to **carry a pen and paper with you**. With deaf or hard hearing people, or with foreign who do not speak the local language it could be a useful way to communicate.

8. Be especially **attentive towards gestures and facial expressions**. Use clear body language gestures and signals to avoid misunderstandings. Align gestures and facial expressions to verbal ones.

9. For drivers: **drive carefully**. Try to avoid rapid turns, breaking or accelerating. Start only when all the passengers are seated and people using wheelchairs have reached a safe position. When driving a bus, drive closely to the kerb in order to reduce the gap between bus and kerb and enable people with reduced mobility and people with prams or luggage to enter and exit the vehicle more easily.

10. **Be mindful in unforeseen events**. Even persons with reduced mobility and persons with disabilities, who under normal circumstances have no trouble using public transport services, will struggle in case of unforeseen events and emergencies. When the bus cannot stop at the bus stop because it is blocked by cars, when the automatic audio announcements in the bus do not work or when the ramp

is defective – this is also when persons with reduced mobility and persons with disabilities encounter most problems.

11. **Respect the personal space** of persons with disabilities or reduced mobility. Always ask before you touch or bend over a person or touch their equipment (e.g. their wheelchair, guide dog, crutches, etc.).

12. **Take** special **care of older people**. Many older people have one or several impairments.

The referred literature underlines how concepts like "tourism for all" and "universal design" could significantly reduce labelling and the social exclusion resulting from giving special solutions for special needs and, thus, by confirming disability stigma.

How to break down communication barriers in tourism?

Digital accessibility has been proven to be still quite distant from accomplishment (Williams and Rattray, 2004, Altinay et al., 2016). Websites and social networks appear to be a central way to arrange the touristic choice and the travel programs, thus, their accessibility should be considered fundamental. A way to standardise digital accessibility criteria has been proposed by the World Wide Web Consortium (W3C) in 1999, through the Web Content Accessibility Guide (WCAG), which recommendations have been reported by Scano (2020), starting from pointing out how words show culture, grade of civilisation, the way of thinking and the level of attention towards the weakest, highlighting the importance of **focus** attention **on the person** rather than their condition, which at most comes after. In the tourism sector we can go beyond the generic term, by enhancing the role of the PwD. In the world of **transport**, for instance, it should be defined as a **traveller or passenger with disability**, while in the **hotel** sector, it should be defined as a **guest with disability**.

Further, the author listed the WCAG rules for the International Web Association (IWA), regarding images, documents, contact methods and multimedia content.

- Images. Infographics should guarantee not only the accessibility of texts and colours for sighted people, but also make them understandable for blind people by following these rules:
    - Provide alternative text for images with important content (e.g. phone numbers);
    - Provide alternative descriptive text for infographics to allow blind or with visual impairments people to read it;
    - Use adequate and Sans Serif fonts, a spacing at least of 1,5 and left alignment;
    - Use readable pair of colours between text and background.
- Documents. To provide unstructured digital documents or not totally accessible forms impedes to some categories of users to benefit from, information and buy touristic services. Therefore, the rules for documents are:
    - Avoid the use of scanned documents

- o Avoid the use of downloadable but not accessible forms;
- o Use online modules in HTML format, accessible also to display readers, with support information to the user for the compilation without errors;
- o Use adequate font dimensions, contrast between text and background and Sans Serif;
- o Use at least 1,5 of spacing inside paragraphs and 2 between them.

- Contact methods. Use alternative ways of synchronised communication or digital aids with people who may need a real time human contact, but cannot use the phone channel. Rules in this case are, therefore:
  - o Avoid to provide a unique contact channel, limited to specific sensory abilities, providing other ways;
  - o Provide intermediation services and services of vocal communication transformation into text modes, for vocal channels.

- Multimedia contents. Images are often used to emotionally attract users. Such modalities should also include all the users with disability. Therefore, it might be useful to follow these rules:
  - o Provide subtitles for video content carrying important information;
  - o Provide audio descriptions for videos containing not verbally described visual information;
  - o Provide, when possible, a video with an interpreter of the sign language;
  - o Publish contents on platforms that allow an automatic generation of subtitles or that allow to add them manually.

Further rules regard textual contents and are the following:

1. Write useful contents in a synthetic way;
2. Be consistent (always write authoritative and complete information);
3. Avoid sensory language (sensory indications discriminate people with specific disabilities);
4. Easy write (use an easy style, possibly short phrases and words easy to understand);
5. Write correctly (no spelling, grammar and syntax mistakes, to avoid to compromise the authority of the content);
6. Balance texts and images (use images to clarify texts and texts to add details to the images);
7. Facilitate text scan (on the Web, texts are not read word by word, but scanned for a principal meaning):
   a. Use header as a micro-abstract;
   b. Divide text in paragraphs;
   c. Typographically separate paragraphs;
   d. Reduce of 50% the number of words that would be needed on paper.
8. Use micro-content (short texts inviting to elaborate on):

  a. The first word must be the most significant;

  b. Brevity and concision (avoid redundant and useless words);

  c. Simplicity (simplify syntax, avoid wordplay and cryptic texts);

  d. Completeness (micro-content has to be a complete recap of the text to which it refers).

9. Publish short multimedia contents (not more than 3-5 minutes of length);

10. Use the HTML semantic correctly:

  a. Organise pages in characteristic areas based on the type of information;

  b. Place important and recent contents as high as possible;

  c. Structure information with hierarchically organised headings;

  d. Carefully use graphic elements that could create visual "noise";

  e. Always place in the same position common functional blocks (navigation bar, back to homepage…);

  f. Guarantee a visual and clear information, coherent with the rest of the website (same graphic symbols with the same meaning).

In April 2019 The European Parliament and The Council of European Union published the directive on the accessibility requirements for products and services. Purpose of this directive is to "contribute to the proper functioning of the internal market by approximating laws, regulations and administrative provisions of the Member States as regards accessibility requirements for certain products and services, by eliminating and preventing barriers to the free movement of certain accessible products and services arising from divergent accessibility requirements in the Member States.», stating their agreement to the United Nations Convention on the Rights of Persons with Disabilities (UN CRPD, 2006). This act underlines that there is a need for coordinated action to ensure that electronic communication services and access to audio-visual media services are fully available to PwD, by harmonising accessibility requirements across the digital single market and ensuring that all Union citizens, regardless of their abilities, can enjoy its benefits.

As party of the UN CRPD, Europe has to take measures to ensure the participation of PwD, on an equal basis with others, to the physical environment, to transportation, to information and communication (including technologies), and to other facilities provided to the public.

The document gives some directives under this harmonising perspective, particularly about self-service terminals, electronic communications (including emergency communications), the consumer terminal equipment, audio-visual media services (like websites, online applications, set-top box- based applications, downloadable applications, mobile device-based services including mobile applications and related media players as well as connected television services, made accessible to PwD's assistive technologies).

Relevant for this Directive are the four principles of accessibility of websites and mobile applications: perceivability, meaning that information and user interface components must be presentable to users in ways they can perceive; operability, meaning that user interface components and navigation must be operable; understandability, meaning that information and the operation of the user interface must be understandable; and robustness, meaning that content must be robust enough to be interpreted reliably by a wide variety of user agents, including assistive technologies.

WHAT'S THE POTENTIAL OF ACCESSIBLE TOURISM MARKET?

According to Capitaine (2016), annual tourism **revenues** coming **from PwD** in the world represent **1.7 trillion of dollars**. Due to the aging of the population, this number is bound to widely increase in the next years. The World Health Organisation (WHO, 2007) predicted that by 2050, the population aged over 60 years will be doubled in a comparison with the year 2000 and stated that there is a well clear and evident connection between aging and increased accessibility needs.

Buhalis and colleagues (2005) reported that the general demand for accessibility in Europe alone exceeded 120 million people in 2005, more than 27 per cent of the European population at the time. It is estimated that **by the end of 2025** this **demand** will reach approximately **160 million people**. It is a constantly increasing market, with some 600 million people affected in the world (WHO, 2006; UNO, 2006) 127.5 million of them are **in Europe** (ENAT, 2011), a figure which represents 27% of the total number and which generates approximately **68,000€/per year**. Another important factor here is that people aged above 65 represent one sixth of the European population, and that 1 out of every 25 citizens is over 80 years old.

According to the statistics provided by the European Commission reported by Bowtell (2015), over **25 percent of European citizens do not take holidays due to perceived barriers** to accessible travel.

In 2015 Bowtell reported that, according to BMWA (2004), the travel intensity of PwD (54.3%) was below of the overall German population (75.3%). Keeping in mind these findings, it could be assumed that many tourists with disabilities effectively stay out of the travel experiences due to perceived or real accessibility barriers.

On average, PwD take 1.3 holidays and 2.3 short breaks per year (BMWA, 2004) and once they choose the destination, they tend to make use of the low season for their holiday, avoiding crowded places.

Migliaccio (2019) has reported the statistics of the Italian Institute of Statistics (ISTAT, 2017), which estimated about 3,2 million of disabled people living in Italy, of which about 2,5 were elderly. The author stated that the trend is constantly growing, due to the improvement of lifestyles and health advances that have increased the average lifespan of Italian citizens.

The author reported that the Social Investment Studies Center (CENSIS, 2014) predicted that by 2020 PwD would have reached 4,8 million and that by 2040 they will reach 6,7 million, arguing that this increase of PwD poses ethical, social and economic problems, expressed by the need for an inclusive society designed and manged for all.

What are the consumerist behaviours and attitudes of tourists with disabilities?

Kéroul (2013) has observed that **PwD** tend to prefer destinations that are able to respond positively to their needs and that the length of their **stay** is relatively **longer** than for other tourists.
Important information has been given by Donovan (2013) and reported by Capitaine (2016), who noted the **tendency** of PwD **to travel with a relative**, a friend or an aid worker, hence increasing the number of guests.
Souca (2010) has identified three main characteristics of the disabled consumer behaviour: **they tend to become regular clients** when they find a tourism facility that fits their needs, they tend to take longer holiday breaks than the average (4 days instead of the average 3), **spending more money** per trip (£216 as opposed to £197 overall) and tend to travel with caregivers (over 50% with a partner, 20% with a child, 21-25% with a companion).
Regarding the consumer behaviour of PwD, Bowtell (2015) confirmed this behaviours, noting that PwD **tend to become brand evangelists** for the brand they love, they would, for instance, being able to refer 50 of their favourite products, while usual consumer could tell only five of them (Hsu and Powers, 2002). The author also debunked the myth that PwD are poor, by reporting that they tend to spend more than able-bodied tourists, according to the researches of Horgan-Jones and Ringaert (2004) and Van Horn (2002).

Who are the beneficiaries of accessible tourism?

In 2016, UNTWO has published a study that highlighted how **persons with disabilities** are dominant, but **not exclusive beneficiaries of Accessible Tourism**. Besides the elderly, those with strollers or with temporary disability, or obese, short or tall people, or people carrying large items would benefit from this. The list also includes people with food intolerances and allergies (Gondos, Narai, 2019).

Hence, accessible tourism is not only providing wheelchair to individuals who have the mobility limitation but also making embossed signs that signalise the directions for sight disabled people, subtitle system on TV for hearing-impaired people and also forming menus intended for diabetic patients. (Özogul, Baran, 2016). A deep analysis of the economic benefits of accessibility has been done by Almici, Arenghi and Camodeca (2019), who compared the widespread concept of disability, in which the person with disability is seen as a less productive subject, or as an additional cost generator, with the business-economic doctrine that has been

built on the concept of socio-economic institution, in which persons are not seen as simple factors or resources, but as subjects that govern the technical-economic processes.

The authors have collected the arguments of many academics, such as Zappa (1957), Onida (1971) and Azzini (1978), who argued that **a company is substantially a social institution** that finds its meaning in the satisfaction of a social need and in the realisation of human well-being, and, thus, that it has an **ethical meaning**.

They reported that despite the common orientation of the founders of the Company Economy regarding the recognition of the economic importance of the social dimension, as well as the social purpose of the economic activity, the issue of accessibility has not aroused wide interest from part of business economics scholars. Emens (2008) confirmed it by precising that:

> «A prevailing assumption about disability is that it means loss or lack. Indeed, the etymology of "disability" suggests that something is missing that needs to be made up for, filled in, supplied. Disability is thus often understood as something lesser that requires the distribution of resources toward it to compensate. For this reason, disability may be generally associated with imposing costs on some for the benefits of others»

Accessibility and economy constitute two dimensions of different nature, but united by the opportunity – if managed with an integrated approach – of producing broadly pervasive economical benefits.

For the company, the attention to **benefits** is evident; these last take on a heterogeneous nature and are reflected - in general - in the advantages of **competitive**, **technological** and **reputational** type, as well as in the positive effects resulting from an inclusive personnel management approach. The public administration, on the other hand, focuses more on its own attention to costs, while the appreciation of benefits is more difficult and often overlooked.

With specific reference to costs, the company should invest in creation of products and the provision of services that can be used by all, by following universal design canons; similarly, with regard to the intra-organisational dimension, the company should guarantee environments and working methods compatible with the characteristics of each individual, according to the principles of equality, fairness, non-discrimination, respect for dignity, enhancement of skills.

In particular, the **benefits** that can be drawn from the company that invests in accessibility can derive from a double relationship:

- **between** the **company and the individuals** who, for reasons of age, health, specific physical conditions, etc. may experience difficulties in the full use of goods, services, environments (direct benefits);
- between the **company and the community** in general that can in any case be positively oriented towards corporate behaviour in support of the more "fragile" categories, or can express interest for the purchase of products originally designed for disabled people and, therefore, more accessible (indirect benefits).

In particular, the main areas in which the **company** can record the **benefits** are:

- the **technological** one, for effect of both the progressive **product and service innovation** induced by a universal design philosophy, both of systems renewal of Information & Communication Technology in order to ensure full accessibility of work (direct benefits);

- the **commercial** one compared to one **possible growth** in turnover and acquisition of new markets (direct benefits);

- the **reputational** one, **due to the improvement of the company image** perceived by the different stakeholders (indirect benefits).

In general, the efforts of businesses to ensure goods, services, employment opportunities for all, allows a general reduction of corporate risk factors, facilitating the optimisation of economic performance in the medium-long term period.

With regard to the **public administration**, the economic **benefits** from investment activities in support of accessibility find their primary expression in the possible **reduction of social costs** to be borne by the community (indirect benefits), especially with regard to health care areas, welfare, social security, employment, and accidents, as well as in a **possible increase in consumption** – and, therefore, in revenues - against the **greater participation in recreational activities** (direct benefits).

About the relation between accessibility and creation of value, Almici and colleagues (2020) reported the conclusions of the document Return on disability Group (2016), in which it is highlighted how **the most companies attentive to the issue of accessibility register better performances in** terms of **stock market in the medium to long term**, compared to their competitors.

Relying on this document the authors argue that the benefits attributable to the aforementioned areas (**innovation**, **competition**, **reputation**) are interdependent and develop a virtuous circuit: technological innovation leads to commercial exploitation of the product/service, up to the realisation of beneficial effects on a reputational level, with consequent acquisition of consents and resources to be allocated to innovation and technological development.

The reported characteristics constitute conditions susceptible to produce clear competitive **advantages** of mainly direct and measurable **in monetary terms** character and precisely:

- the **expansion of the reference market**, given that the attention to everyone's needs generally involves a significant improvement of the product with consequent increase of relative value in use;

- the **strengthening of competitive dominance**, given that attention for all classes of public - especially the weaker ones – denotes an orientation towards ethics and respect for the person that usually generates an increase in the propensity to buy from that specific company (Edelman, 2019). Attention to people with disabilities also represents a real opportunity to conquer new markets,

taking into account that these potential customers represent «the most great minority of the world» (Factsheet on Persons with disabilities);

- **greater customer loyalty** as a resulting orientation to meet the needs of a wide audience of users, although characterised by different skills;
- the **possibility of achieving better margins** as a result of an easier absorption of fixed costs against the higher volumes of sale, as well as for the application - in some cases - of a premium price taking into account that the demand for such goods is generally rigid;
- the **creation of conditions of differentiation from the competition**, through the offer of products/services that are easier to use, as well as such as to improve well-being and quality of life.

A failure provision of investments at favouring accessibility - of services and places - implies the onset of costs, often not of immediate perception, nor subject to objective quantification, whose containment allows - in fact - to realise benefits which are directly referable to the conditions of greater well-being in which the people with disabilities or with difficulties in general can find themselves. In this sense, accessibility constitutes a condition that allows - in the long term - even to **reduce public spending**.

At the same time, the benefits of accessibility refer not only to the reduction of social costs, but also to direct positive effects identifiable in **higher revenues for the public administration**, for effect of increased participation in social life (sports, recreational activities, etc.) and the increase in demand for goods and services.

These **benefits** are **generally higher than** the related **costs** incurred example for: breaking down architectural barriers; adapt public spaces and work environments to the needs of all individuals; ensure the training and job placement of people with various difficulties.

HOW CAN DIGITAL TECHNOLOGY IMPROVE ACCESSIBLE TOURISM?

The orientation towards accessibility promoted by businesses and the public administration finds in the development of **Information & Communication Technology** (ICT) an element of valid support, given that this technology has given the **opportunity to solve many problems** related to accessibility and to disability. Even if not specifically developed for accessibility, the examples are innumerable: SMS enabled the deaf people to communicate with cell phones; commands and vocal synthesis have allowed blind people to use digital tools and read texts on the computer; speech-to-text software helped transcribe the recording of speeches and lectures for those who have difficulty taking notes (Stead, 2002)..

In particular, with specific reference to accessibility, technological development is likely to make **different contributions**, namely:

- **fostering work inclusion** through the use of tools that allow to work from home (remote working);

- allow the **improvement of** the effectiveness of the **rehabilitation** programs that can be implemented, with a consequent improvement in the conditions of autonomy of people;
- **make use of services** (health, education, recreational, etc.) and the consumption of products **accessible** that, otherwise, would be difficult to use for people with disabilities;
- **promote social inclusion** in general, especially through the use of the web and its resources, which are likely to allow the easy sharing of information, content, activities with a clear reduction of the barriers to the accessibility of community life. (Giaconi, 2014)

More specifically, the solutions in question - which can be of hardware or software type - have the function of compensating for specific disabilities, **improving the psycho-physical well-being** and the quality of life of people and contributing to overcoming preclusive barriers to the accessibility of goods, services and places. The term **"assistive technology"** refers to technologies that **help to carry out one or more functional activities** of daily life, with a consequent increase in the level of social inclusion and reduction of the negative effects of disability conditions. In relation to the area for which assistance is requested, it is possible to distinguish **specific technologies aimed at facilitating**:

- **listening** (e.g. subtitling of video content);
- **learning** (e.g. pens for instant reading);
- **communication** (e.g. voice recognition software);
- the **use of computer systems** (e.g. keyboards and mouse)
- **specials** (e.g. software for optical character recognition);
- **manipulation** (e.g. robotic hands);
- **mobility and rehabilitation** (e.g. motorised wheelchairs);
- **behavioural and cognitive development** (e.g. smart watch);
- **vision** (e.g. optical magnifiers and speech synthesisers for reading the screen).

The growing development of technology has allowed the use of robotic solutions - with a high level of sophistication - with different goals:

- guiding the interaction and fulfilling the function of mediator with other individuals or support to express emotions and desires in daily life (social robots);
- favour the rehabilitation processes and the recovery of functionality of the person, especially in the presence of severe physical trauma.

In general, **technological development and** the availability of **IT** technique specifications **create useful conditions to improve autonomy** and participation in the social life of everyone, especially those with disabilities.

In this context, **virtual reality technologies** take on particular importance, that - through specific three-dimensional multimedia paths - **make content referable to different areas accessible to all people** (cultural, recreational, training, work, etc.).

The use of the tools in question allows, in fact, to overcome the limits imposed by conditions of disability, whether these are sensory, motor, social and intellectual in the experimentation of otherwise precluded experiences - or in any case difficult to access - a defined category of people.

Smart Tourism

The term **Internet of Things** was first used around 1999 by Kevin Ashton, British engineer, creator of the RFID (Radio Frequency Identification) standard and founder of the Auto-ID Center (laboratory dedicated to RFID technologies) at the Massachusetts Institute of Technology (MIT), introducing the idea of a system in which the **physical world** is **connected to the Internet** through sensors.

Mark Roberti, founder and editor of the RFID Journal (2016) defined the IoT as a concept that covers a wide variety of wireless technologies that enable physical objects to send information to and receive data from the Internet.

Guo (2020) stated that «**smart tourism** is an effective application of tourism embodiment, industrial development and tourism administration **based on the Internet** of Things (IoT) technology, artificial intelligence technology, cloud computing and other information technology, and its purpose is to realise the effective integration of tourism resources and provide necessary customised services to users.»

In the work of Nitti and colleagues (2018), the authors explain how the Smart Cities architectures can be involved in transportation, energy, environmental management and waste disposal, relying on IoT platforms, connecting heterogeneous devices and systems where services and applications are implemented. The researchers argued that the development of tourism is tightly linked to the concept of mobility, which can be included in the frame of the Smart Cities paradigm.

The concept of Smart City has at its core a highly capable ICT system in the form of an IoT platform, connected to sensor networks.

The **IoT**, as an enabler technology, that **can offer** to **people with disabilities** the **assistance** and support they need to achieve a good quality of life and allows them to participate in the social and economic life (Nitti et al., 2018).

Smart and accessible museums

Many interesting **projects** have been developed with the aim to improve museums' accessibility for different kinds of impairment.

Migliaccio (2019) listed some Italian accessible museums experiences, such as the **National Gallery in Rome**, the **Opera Museum of Parma**, and some tactile museums: **Tactile State Homer Museum of**

Ancona, the **Regional Braille Printing House of Catania**, the **Tactile Museum Anteros of Bologna**, and the **Tactile Museum of Lake and Mountain Natural Sciences of Trarego, Cheglio and Viggiona** (VB), which reproduces entire natural environments with living plants and naturalised animals.

In recent years, a handful of cultural institutions have taken on more ambitious mobile projects that make collection objects accessible to visitors with visual impairments.

Access American Stories (2012) is an English/Spanish bilingual crowd-sourced audio application that accompanied the *American Stories* exhibition at the **Smithsonian's National Museum of American History**. Users were invited to record their own description of an object or listen to others'.

A more recent project, **Digita11y** (2017), is a cross-institutional project funded by the **Institute of Museum and Library Services**, that aims to produce a reusable toolkit that museums can use to build accessible applications and that is exploring the concept of crowd-sourcing to populate descriptions. Core of the Digita11y platform is Roundware, an open-source audio framework that allows users to contribute with their own content and then plays back layers of audio in a soundscape based on the location of where audio was recorded (http://roundware.org) (Gonzalez, 2017).

According to Asakawa et al. (2019), current efforts carried out by museums to make their **exhibitions** more **accessible to blind people** usually fall into **three** main **categories**: **guided tours**, **accessible tactile experiences**, and **comprehensive audio descriptions**. Some museums provide specialised tours or workshops, while others allow to negotiate a specific time for accessible visits. **Other museums** either specialise in **tactile art for blind people** or provide tactile **replicas or reproductions** of a subset of their artworks. Additionally, **3D-printers** have been used to create **tactile models**, augmenting tactile reproductions with touch sensors or replacing tactile reproductions with **tactile exploration of virtual models**. Furthermore, audio guides are omnipresent in museums, also given the spread of smartphones, that are already often used for them. Recent projects as **Ping!**, **OutLoud** (iOS), **Eyes-Free-Art** and **Blind Museum Tourer** use **proximity technology**, allowing users to select and listen audio content based on their location and giving to blind users continuous assistance, providing step-by-step navigation instructions, in order to include blind people and people with visual impairments in the touristic experience and make them more independent.

The Canadian Museum of Human Rights

The **Canadian Museum of Human Rights** (CMHR), is a museum in **Winnipeg**, Canada, that opened in 2014, and that was designed focusing on inclusion and accessibility, by making its content accessible to visitors with visual impairments. The museum allows a **remote visit** from the "Explore from home" section of its website, which includes video tours, human rights stories, quizzes and exhibitions (also using augmented reality) and provides an **app** both for iOs and Android. The museum's accessibility is guaranteed by using:

- **Universal Key Pads** (UKP). Beside nearly every touchscreen kiosk, there are large, tactile keypads using symbols and audio instructions to help visitors navigate through the kiosks and discover exhibit content through audio tracks;

- **Universal Access Points** (UAP). It is a small metal square that features a number and its Braille version. By using a personal wireless device, it is possible to select the number into the museum's mobile app and hear about the exhibit. In some instances, American Sign Language (ASL) and Langue de Signes Quebecoise (LSQ) are available as well. Bluetooth can automatically produce a signal to send information directly to the device;

- The museum's **mobile app**. In addition to accessing the UAP information, the app also contains fully accessible self-guided tours and an interactive map, available in ASL, LSQ and bot French and English with audio description;

- **Accessible galleries**. The accessibility of the galleries is guaranteed by a physical design taking into account as many conditions of ability as possible. Height of exhibit displays and digital touchscreens is optimised both for sitting or standing users, size and typeface of the texts were selected for easy viewing, benches feature arms and backs, galleries are crisscrossed by glowing alabaster-clad ramps, accessible elevators, gender-inclusive, barrier-free and single-room washrooms, an adult-sized change table and baby change tables in every washrooms;

- **Tactile images**. Three-dimensional representations of some of the photographs and images are presented and accompanied by audio descriptions;

- **Accessible films**. The exhibits contain over 100 hours of video offered in both French and English, many also with audio description;

- **Accessibility online**. The social network activity of the museum is offered in the most accessible way possible, by providing photo descriptions of shared images, captions for videos and audio descriptions on the website.

This approach, which considers inclusive design as central to the experience instead of as an additional layer, would later become a guiding principle in the development of the iOS project, OutLoud (Gonzalez, 2017).

The Andy Warhol Museum

In October 2016, The **Andy Warhol Museum** in **Pittsburgh** launched **OutLoud**, an **inclusive audio guide** designed for all visitors, but with a particular focus on visitors who are blind or have low vision. OutLoud's release was the culmination of an extensive eight-month user-centred design process in which the Museums and the Web 2017 (MW17) worked closely and iteratively with Pittsburgh community members who have visual impairments. The result is an iOS-based audio guide that uses **Bluetooth low-energy** (BLE) **beacons** to push out content based on location; implements a **"smart" audio player**, breaking audio stops into modular chunks of content that are dynamically reordered based on a user's needs or preferences; and

provides a mix of voices and tones, interweaving interpretive content with content designed for accessibility (Gonzalez, 2017).

In 2019, Asakawa and colleagues developed a system to guide blind people along an intended path and to provide a way for them to enjoy visual art through audio content describing the artworks. The researchers developed a smartphone app, based on an open-source project named **HULOP** (a **localisation engine** that accurately tracks the user's location and orientation), using Bluetooth Low Energy (BLE) and **Pedestrian Dead Reckoning** (PDR). Authors tested their system capability to fully guide blind people through a step-by-step (**Navigation Mode**) guided tour letting them enjoy the artworks through audio content (**Art Appreciation Mode**).

During Navigation Mode, users received turn-by-turn instructions to proceed in the intended path while being alerted about the artworks they were passing by. Art Appreciation Mode was being activated as the users were passing next to an artwork and turned their body in order to face it, while Navigation Mode was being resumed after turning their body to the previous orientation.

The system provides a short vibration and sound effect when the user reaches the correct orientation, which prevents users from performing slighter turns.

The system has been installed at the seventh floor of The Andy Warhol Museum in Pittsburgh, the largest museum in the United States dedicated to only one artist, Andy Warhol. The seventh floor includes mostly photographs and paintings/drawings placed on the walls.

They tested the system by asking to 9 blind participants to complete two tasks (Task 1: stop at each artwork to listen to at least part of the linked audio content; Task 2: enjoy the route as they prefer). After each task, participants reported their satisfaction and answered to a post-interview to evaluate their overall satisfaction, finally they were asked if such an application would motivate them to go to museums alone and if it would still be useful when visiting with sighted peers.

Participants' **overall satisfaction** was **very high**, all participants had positive comments about their experiences, both about the ability to navigate independently in the museums and about the accessibility of the artworks through carefully prepared audio descriptions.

The highest average ratings were related to the ability to listen to the audio content; to the ability to enjoy such descriptions exactly in front of the artworks, to the proximity-based art appreciation, alone as well as when visiting with sighted peers; and to the ability to navigate independently.

Particularly relevant under a Universal Design perspective, is the fact that participants found that **also sighted peers could benefit from this system**.

The Benozzo Gozzoli Museum

The project *Museo for ALL* is intended to develop and improve the accessibility of the BeGo museum (**Benozzo Gozzoli Museum**, **Castelfiorentino**, Italy), inaugurated in **2009** under the inclusion point of view,

considering **several different needs** of the public. The concept of accessibility, as declined in this Museum, is not to pay attention only to people with disabilities, but is extended to the care of all the people visiting the museum.

The BeGo Museum offers the possibility to know the Benozzo Gozzoli artworks also through a **video/audio guide**, realised by deaf professionals and containing explanations of the museum and the artworks in **Italian sign language** (LIS), with subtitles and a narrating voice.

The aim of extending the accessibility of the heritage to a more and more wide public, has guided to the realisation of a **sensorial-tactile path**, permanent and inclusive, in order to make the whole collection accessible also to visually impaired and blind people. Every station is made up of **relief drawings with contours, volumes and specific textures**. Every artwork is accompanied by a **Braille caption**, an **introduction audio file** of the work, and by another audio file guiding the tactile exploration. Each station is equipped with a **three-dimensional** scale model of the referred artwork. The entire path can be enjoyed independently, or it is possible to request an **accompaniment**, on reservation, **by the staff** of the museum's educational services. These services perform, in addition, tactile guided tours and heritage mediation activities for groups by appointment.

Joining the project Museo for ALL, BeGo Museum has also made **accessible** the **rooms** and the works **to people with intellectual disability**. The **staff** of the museum attended a **training and awareness course**, in order to welcome people with intellectual disabilities safeguarding the correct methods of relation and communication.

Furthermore, a guide has been prepared, which, through **facilitated languages**, allows people with intellectual disabilities to familiarise themselves with the museum.

The proposed materials are suitable for people with even medium-severe intellectual disabilities and are downloadable or can be collected at the ticket office of the museum, allowing caregivers to prepare the visit in advance.

Virtual Reality

Virtual reality and technologies could provide access to heritage sites where physical barriers cannot be easily removed, according to research (Guttentag, 2010; Plimmer, Pottinger & Goodall, 2006). Further studies investigated the use of VR in heritage sites (Agostino, 2016; Jung, Dieck, 2017) and its effect on the user experience (Paladini et al., 2019; Jung et al., 2016, Dieck, Jung, Michopoulou, 2019). **VR** resulted to be **able to influence users' enjoyment** by providing a sense o being physically present in the virtual environment (Steuer, 1992), configuring as an alternative form of access to those cultural heritage sites that are threatened and where physical access barriers cannot be easily removed due to conservation requirements or prohibitive costs (Plimmer, Pottinger & Goodall, 2006; Guttentag, 2010). In their paper Plimmer and

colleagues noted the possible barriers of accessing technologies, as cost, need for assistance, inability to get adequate training and possibility that people may not perceive the virtual experience as a good substitute of an onsite visit. Further research (Guttentag, 2010; Jung, Dieck, 2017, Dieck, Jung, Michopoulou, 2019) focused on this topic, finding factors needed to accept **VR** as a **satisfying experience** (e.g. allowing people with reduced mobility to explore unreachable parts of the sites, giving them the possibility to share the visit experience with the other members of the group; or using storytelling, claimed as one of the key elderly tourists' requirement).

Results of the research conducted by Paladini et al. (2019) identified **four** main **target groups for the VR-enabled experience**. Two of them were found by administrating an online survey and were:

1. Users **reporting accessibility needs** especially in relation **to** the **pre-visit stage** with regard to the availability, completeness and trustworthiness of information; they usually take short trips and autonomously organise their travels and visits; they show a low-medium attitude towards technologies, and use them, often not autonomously, especially for information search and planning. They are moderately engaged with heritage, occasionally visit heritage sites;

2. Users **reporting accessibility needs** also in relation to the availability **of** new and **better tourism services onsite**. They are engaged with cultural heritage, frequently visiting heritage sites; they have a **high attitude towards** the use of **technologies**, use them before, during and after the visit and have **previous experience with VR**. Although this is a smaller group compared to the previous one, it is characterised by a very interesting profile for the development of future scenarios for the use of VR in this context.

The other two targets were identified through focus groups and interviews:

3. Users **reporting physical accessibility barriers once onsite**, mostly composed by **elderly people**, who are already **engaged with heritage**, **frequently visit** monuments and **sites**; they show a **low-medium attitude towards technologies** for travel/tourism and have **no familiarity with VR**;

4. Users **reporting temporary impairments**, such as visitors with fractured legs; this is the **most varied group**, **non-necessarily interested in cultural heritage or in technology**.

There are some examples in the literature of best practices using VR, such as the Virtual Museum of the Pacific, reported by Eklund et al. (2009), the Buddhist temple of Myin-pya-gu (Paladini et. al., 2019), the National Gallery of Prague and the project SMART (2019).

Virtual Museum of the Pacific

The **Virtual Museum of the pacific**, inaugurated in **2009**, is described by Eklund and colleagues as a **digital ecosystem** in which objects of a digital collection of museum artefacts are derived from facets of the physical artefacts held in the Australian Museum's pacific collection in Sydney (also made accessible for

mobility, visually and hearing impaired). The virtual museum of the pacific allows several **diverse search methods**: **attribute search** based on a control vocabulary, **search via query** refinement and **query by example**. Further to this, the system also provides a number of management **interfaces that enable**s content **to be added and tagged**, the control **vocabulary** to be **extended**, user **perceptions** to be **defined** and **narratives** added **via wiki**.

Purpose of this project is to provide museum access to the large audience through the virtual museum interface. The place of interaction is set to be completely Virtual through the interface designed as part of this project.

Buddhist temple of Myin-pya-gu in the Myanmar city of Bagan

The **Buddhist Temple of Bagan** was the subject of the VR models used in the study of Paladini and colleagues (**2019**), in which 13 participants were asked to analyse some standard information materials (pictures, drawings and maps) answering to a questionnaire, before they could try the serious game and the VR experience used by the authors.

Te buddhist temple of **Bagan** is one of the 250 structures documented by the Zamani Project, conceptualised in 2001 by Professor Heinz Rüther at the University of Cape Town as an implementation of the *African Cultural Heritage Sites and Landscapes Database*, and that began in **2004**.

Over the past 15 years the team has worked with UNESCO and other heritage organisations as well as individual researchers, heritage professional and academics worldwide, to explore **new documentation and visualisation technologies** in order to increase accessibility to and relevance of the collection, by re-creating the sites in **virtual reality**.

Using a serious game (in which participants could explore the virtual environment using the keyboard arrows) and the VR (using an HTC Vive Head Mounted Display for an immersive experience and teleporting from one position to another using the space bar) Paladini and colleagues asked to the subjects of their study to fill in a standardised user experience questionnaire (UEQ), measuring attractiveness, perspicuity (whether the game and VR were user-friendly) and stimulation (interest and excitement of participants).

Both the virtual environments got very high results for all the three scales applied, particularly the VR, which has proved to be very effective in allowing users to recognise materials, features and state of conservation of the temple. The large majority of the subjects has experienced a relevant increase in their interests in the temple and in the recognition of the importance of conserving it, thanks to the virtual experience, demonstrating that these technologies can raise awareness about cultural heritage among users.

National Gallery of Prague - Touching Masterpieces

An extremely interesting project is **Touching Masterpiece**, developed in **2018** by NeuroDigital Technologies and Geometry Prague. It showed the high potential of Virtual Reality haptics, bringing

impaired digital natives unprecedented accessibility to Visual Art. The developers brought iconic sculptures to life for blind or visually impaired people through VR, using gloves that return tactile feedbacks.

This art experience is unveiled at the Touching Masterpieces exhibition, staged at the **National Gallery of Prague** and supported by the Czech Ministry of Culture. Michelangelo's David, the bust of Nefertiti, and Venus of Milo have been transformed into **virtual objects** which people can "see" through **haptic glove technology** for the first time. The haptic gloves control realistic hands in virtual space. When the virtual hand touches a 3D object in the virtual world, the technology identifies the object and sends feedback in the form of **vibrations**. The Avatar VR glove has been customised specifically for this project by being enriched with multi-frequency technology to stimulate different types of skin cells' tactile responses – to give the blind the most accurate perception of the 3D virtual object.

SMART Project

The Interreg **SMART Project - Small Museums Alliance Representing Territories** is a project financed by the European Fund of Regional Development and from Interreg **Italy-Austria**, lasting 30 months (September **2019-**March **2022**), involving Italian municipalities and social cooperatives, and the municipality and the University of Applied Sciences of Saalfelden (Salzburg, AUT).

SMART project's aim is to promote a museum circuit that enhances these places, by making them attractive and easy to visit, and by making them become an opportunity for local communities, promote the accessibility culture and the active participation of citizens to the strengthening of natural and cultural local treasures as a common good.

In three pilot sites (Valdagno, Resia, Saalfelden) participatory planning paths with local communities will be activated in order to collect and elaborate contents and values, with particular attention to the ones defining the uniqueness of the place. The emerged contents will then be returned to innovative devices (technological and narrative) which will enrich the existing museum sites (an **app for interactive visit, augmented reality, multimedia installations**, **thematic paths**) and enhance the natural context (multimedia itinerary of storytelling of the places) for an experiential, immersive and emotional fruition.

Accessibility will be central, with multimodal devices which will consent an involving fruition for all, thanks to the possibility to choose and combine different visit modes, designed to answer the need of diverse abilities, ages, origins, and motor, sensor and cognitive difficulties. Pilot sites will then be connected in a **virtual museum circuit** which will allow remote visits, with access to special contents, and which will be extendable to other facilities after the end of the project.

The proposed contents will not only be accessible to everyone, to guarantee an inclusive society, but also everywhere, to overcome geographical distances, particularly hindering in an alpine area. Therefore, the circuit promoted by SMART will be real and virtual at the same time: design for all and new technologies of artificial intelligence and of virtual reality will allow to the user to visit the entire museum circuit, live or in

remote mode, offering a complete experience of alpine identities and, at the same time, by relating valleys and different territories.

THE STUDY

Purposes of the study

In order to **promote** an interesting idea of **Tourism for all** both for service providers and consumers, the purposes of this study are the following:

- **Establish** the **stakeholders awareness** about the concepts of accessibility, universal design and tourism for all;
- **Establish real** (for users) **and perceived** (from service providers) **needs** to reach a true accessibility in the region;
- **Compare** the **perception of** stakeholders location's **accessibility** between the groups;
- **Compare** the **perceived needs and expectations** for accessibility between the groups;
- **Take measurement of the** level of **interest in accessibility** between the two groups;
- **Underline** the **potential revenues** from accessible tourism for service providers;
- **Evaluate stakeholder's interest in** the use of **digital technology** such as VR, augmented reality, social media and websites for touristic reasons.

Method

To aim our goals two quantitative/qualitative questionnaires have been built, one addressed to operators of te touristic field, composed by 30 items, one addressed to visitors and composed by 44 items..

In order to detect and compare the entity of the subject's perceiving, 9 of the items were asking the same to both the groups.

The first three questions for operators, asking for the meaning of the concepts accessibility, tourism for all and universal design, were open.

According to the seven principle of UD, seven items were built for the visitors questionnaire to evaluate the last visited infrastructures and other items were aimed to give feedbacks on the major criticalities.

Furthermore, 7 items in the visitors' questionnaire and 8 in the operators' one, had the goal to test the interest in technological implementation, and 3 (operators) and 4 (visitors) were intended to investigate the perceived quality of touristic information for both groups. Another question asked to specify any experienced difficulties and two items regarded the need of training for the staff (only visitors) and another one, on Likert

scale, asked the level of agreement with the statements "I believe that it is necessary to take time to properly train the staff of museums and other sites of cultural interest to improve the accessibility of these facilities" (operators) and "I believe that the lack of specific training of the staff of museums and other sites of cultural interest can cause negative experiences for users with disabilities" (visitors). A final section of the questionnaire was composed by items investigating stakeholders' interests and perception.

The questionnaire has been administered to 138 stakeholders (operators n = 56, visitors n = 82) in the partners' locations, divided in: associations for PwD, PwD, public administration sectors for tourism and cultural heritage, museums and museums associations, selected by estimating their levels of interest and power to make a change.

The survey has been built on the Google Forms platform and sent to the stakeholders by email. Three software have being used to analyse data, Microsoft Excel for descriptive statistics, QDA Miner Lite for qualitative analysis and JASP for the quantitative elaboration.

Findings

Comparisons between the groups

Operators group was so divided: 57,14% from the autonomous province of Bolzano, 19,64% from the province of Vicenza, 16,07% from the Salzburg region, 5,36% from the province of Udine and the 1,79% comes from other reported locations (Vienna, Switzerland and others).

Most of them is museum operator (51,85%), 12,96% is official in public administration of tourism and cultural sector, 11,11% reported another employment, 7,41% is socio-health operator and officials in public administration of the social sector and operators of associations of PwD were both the 5,56%.

50,62% of the visitors comes from the autonomous province of Bolzano, the 38,27% from the region of Salzburg, 4,94% from the province of Vicenza, the 3,70% reported other locations, while the 2,47% was not registered.

The 65,43% of the visitors reported to have a disability (68% motor disability, 28% sensory disability, 4% cognitive disability) and consider themselves fully autonomous in 13,58% of the cases, partially autonomous in the 12,35% and in constant need of assistance in the 4,94% of the cases.

We now ask you to report the major obstacles relating to accessibility encountered in visits to sites of cultural interest
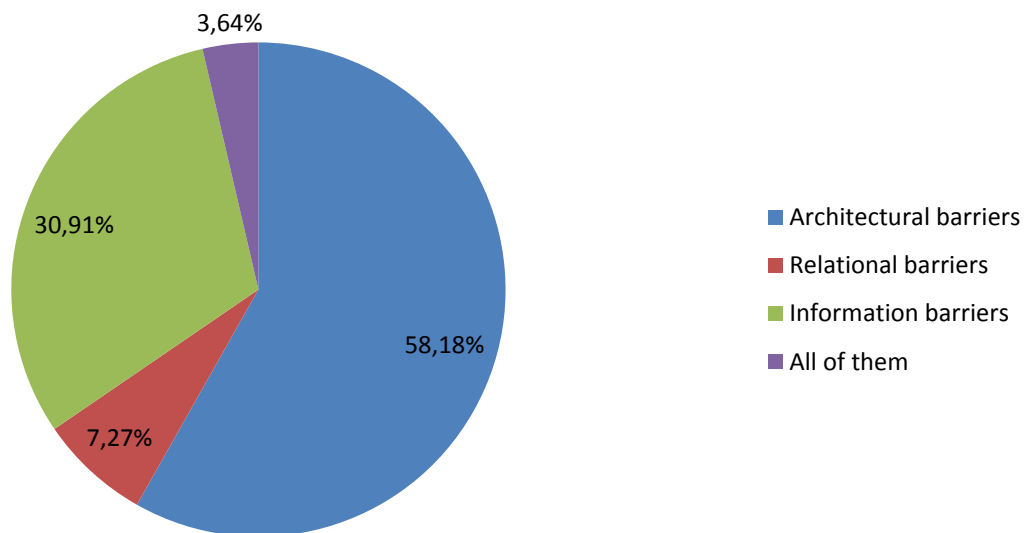

Fig. 6 Results for operators on the item

We now ask you to report the major obstacles relating to accessibility encountered in visits to sites of cultural interest
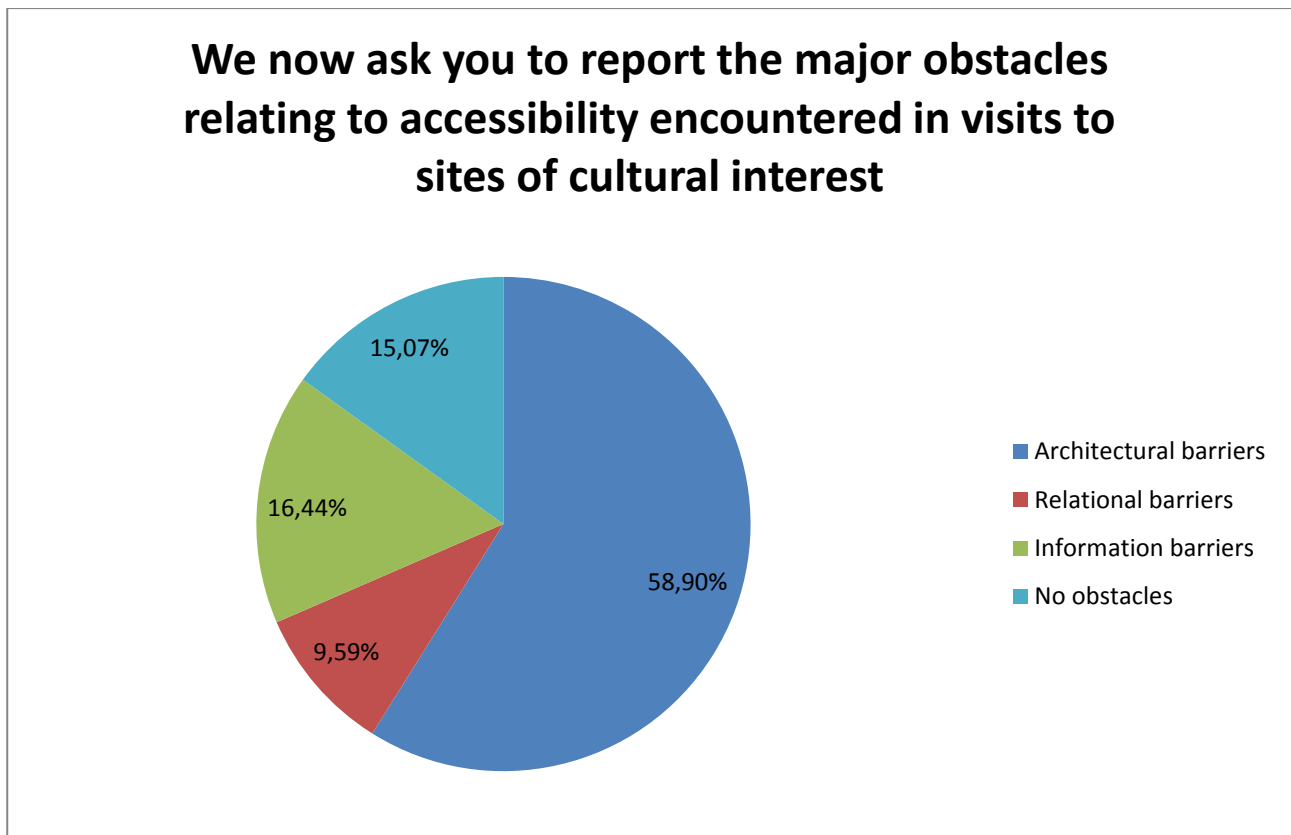

Fig. 7 Visitors

It looks like architectural barriers are still encountered as major obstacles with an almost perfect correspondence between operators' (58,18%) and visitors' (58,90%) perception, with similar results regarding relational barriers; while information barriers seem to be highly overestimated by operators. In addition, over 15% of the visitors reported no obstacles at all.

Answering to the question "In your opinion, what are the aspects to which more attention is currently being paid in the sector of museums and other places that are part of the historical-cultural heritage of the region in which you live?", opinions about the state of architectural barriers situation are still highly correspondent (61,97% of operators vs. 59,52% of visitors), operators report a higher attention paid to relational barriers (15,49% against visitors' 9,52%) and a lower one to information barriers than visitors (16,90% against 20,24%). Furthermore, visitors report as more frequent the absence of attention to accessibility issues in 10,71% of the cases.

Once again, by responding to the question "It is important that the information on the accessibility of structures and places of cultural interest is clear and comprehensive for planning the visit", operators (mean = 4,58) seem to overrate the lack of information accessibility if compared with visitors (mean = 3,19).

What information channels do you think are most appropriate to offer information on the accessibility of a site of cultural interest?

Channel	Percentage
Phone or email	18,75%
Local tourist offices	16,67%
A portal dedicated to the accessibility of places of cultural interest	13,89%
Social media of the destination	14,58%
The website of the destination	36,11%

Fig. 8 Operators

What information channels do you use most often to find information on the accessibility of a site of cultural interest?

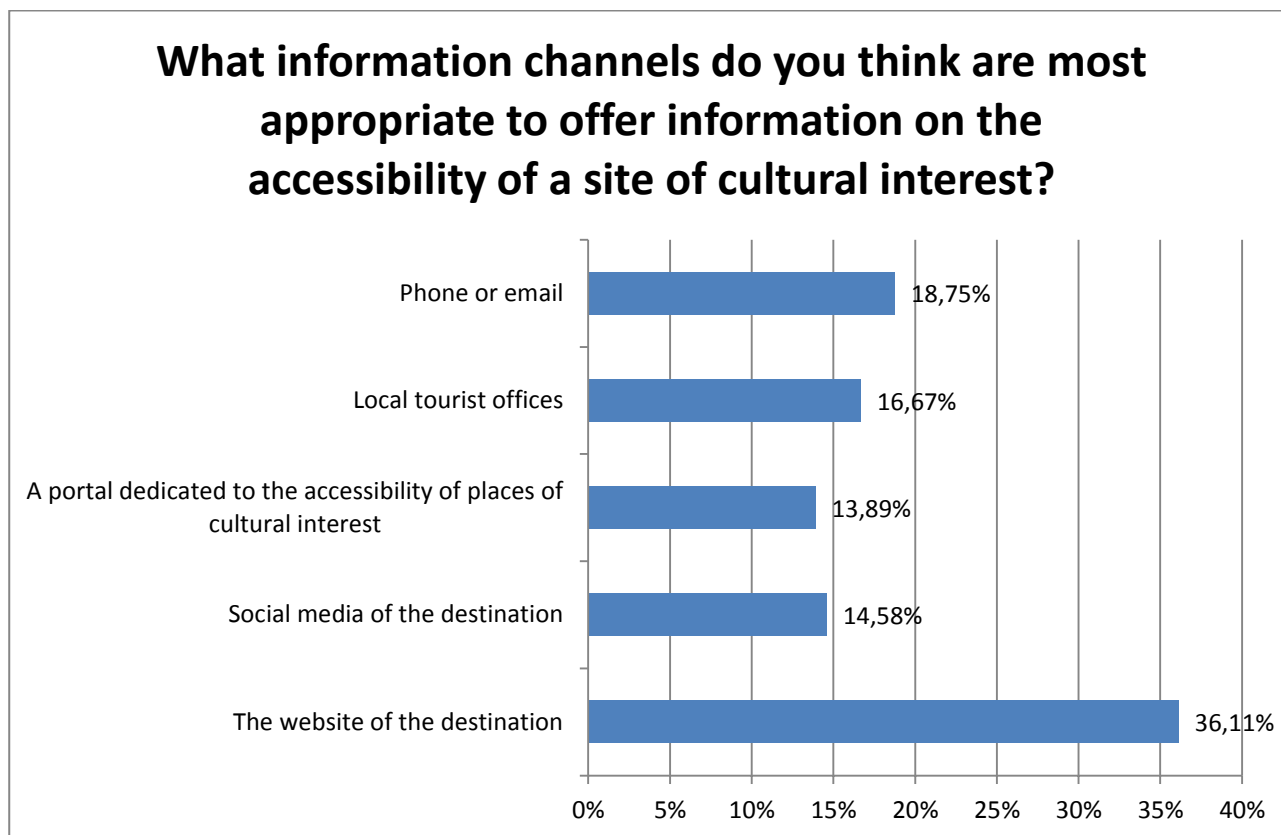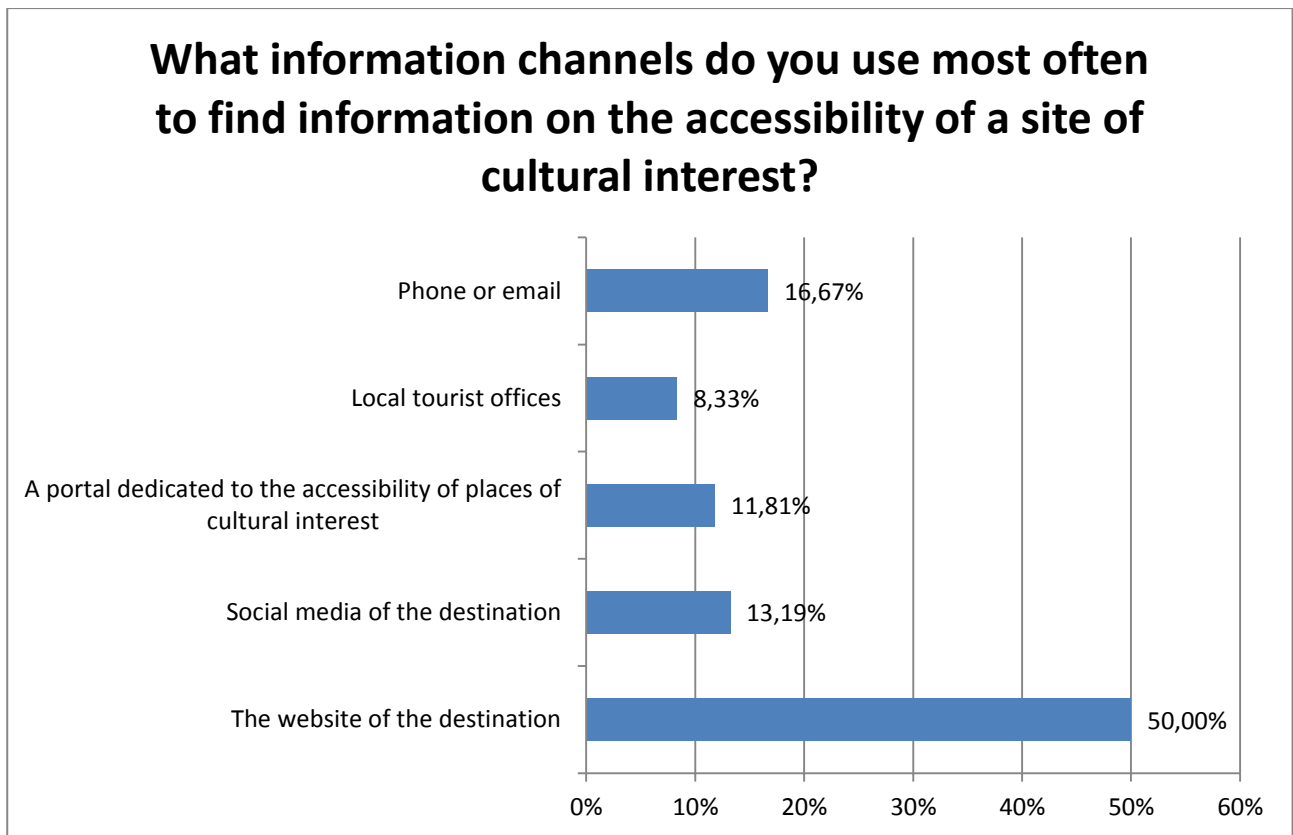| Channel	Percentage
Phone or email	16,67%
Local tourist offices	8,33%
A portal dedicated to the accessibility of places of cultural interest	11,81%
Social media of the destination	13,19%
The website of the destination	50,00%

Fig. 9 Visitors

The website of the destination, is widely preferred by both the groups, particularly by visitors (50% against the 36,11% of operators), there is agreement between them for social media, dedicated portals and phone or e-mail, while operators consider local tourist offices appropriate in the double of the cases than visitors. Operators (60%) consider information about the facility's accessibility way more relevant than visitors (42,57%), and consider information about staff (13,75%) a little more important than visitors (9,90%), who, on the other hand report information about transportation (41,58%) as way more relevant than operators (26,25%).

I believe that it is necessary to take time to properly train the staff of museums and other sites of cultural interest to improve the accessibility of these facilities

Fig. 10 Operators

I believe that the lack of specific training of the staff of museums and other sites of cultural interest can cause negative experiences for users with disabilities
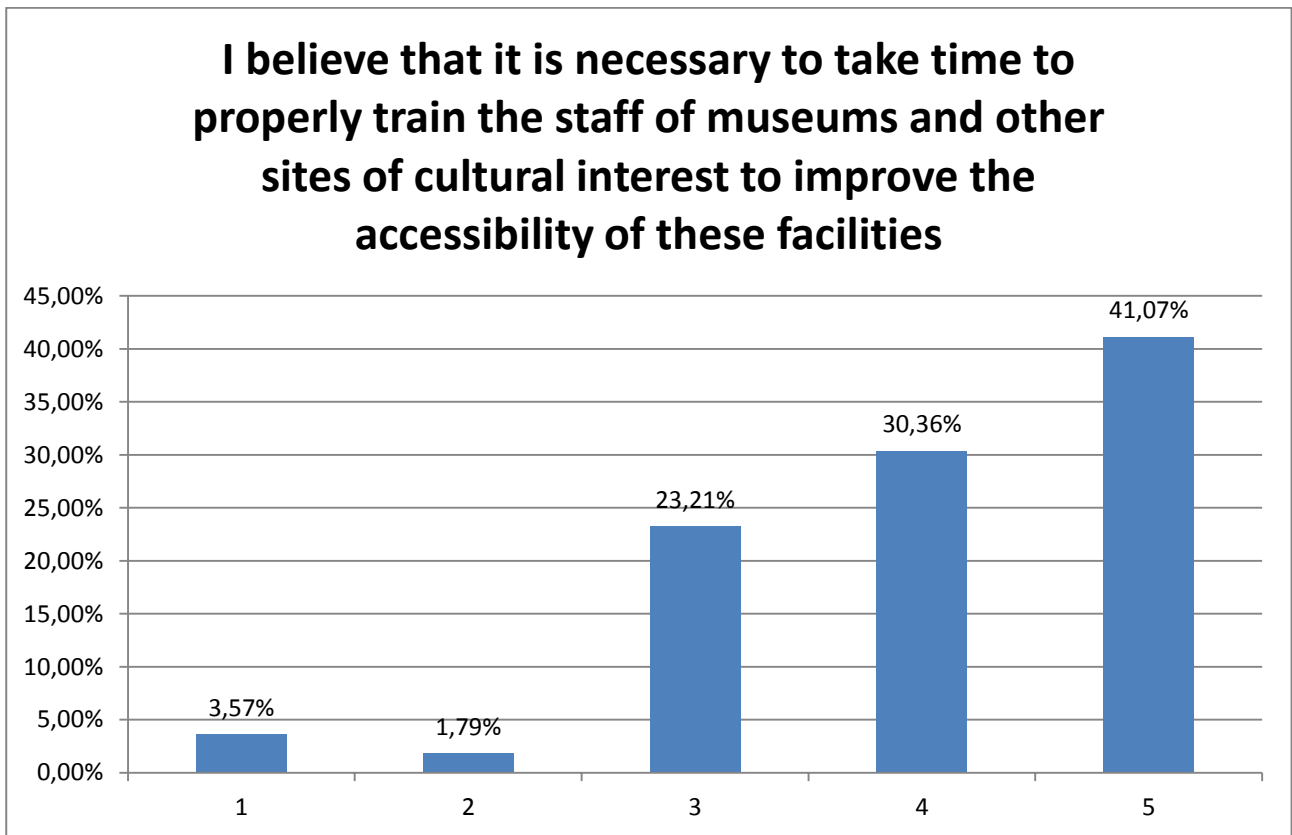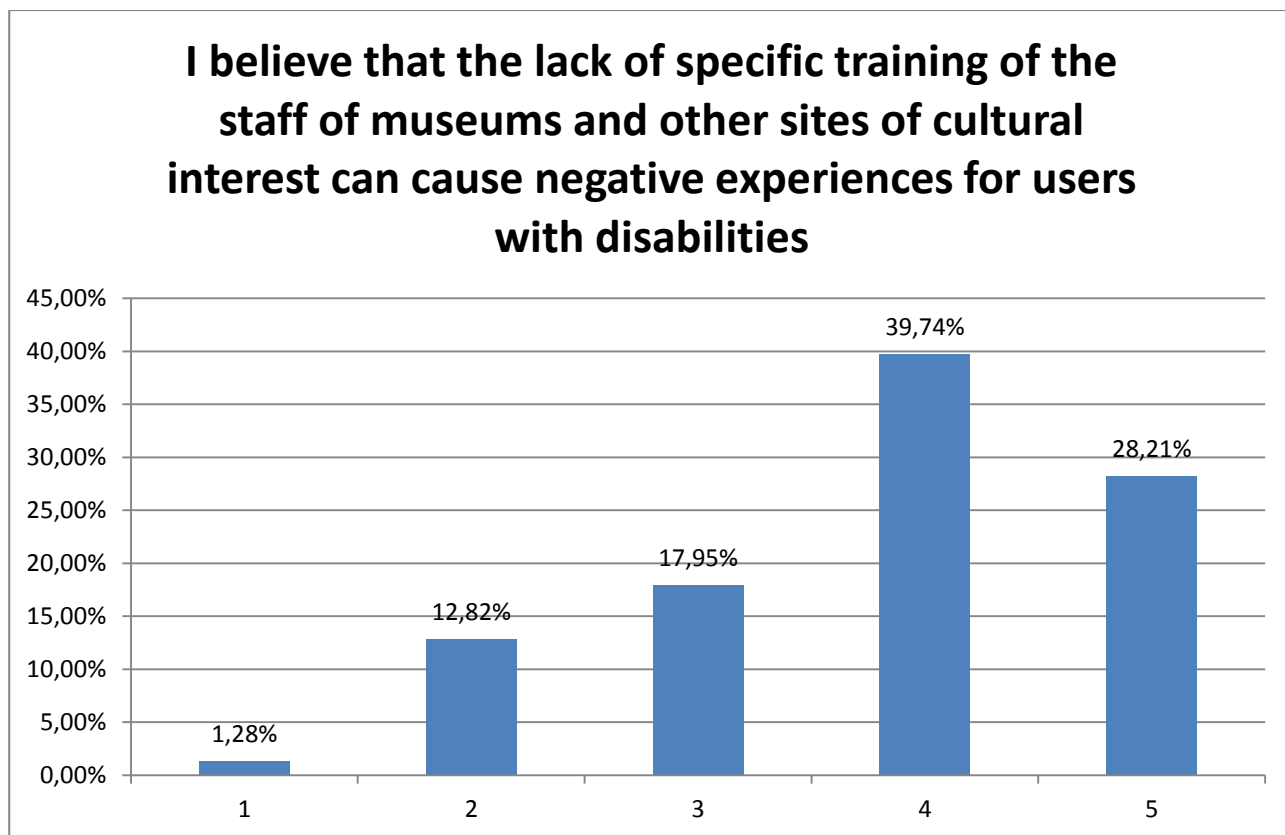

Fig. 11 Visitors

There is a correspondence between the groups on this scale, agreeing on average (operators' mean = 4,03; operators' mean = 3,81), about the importance of staff training.
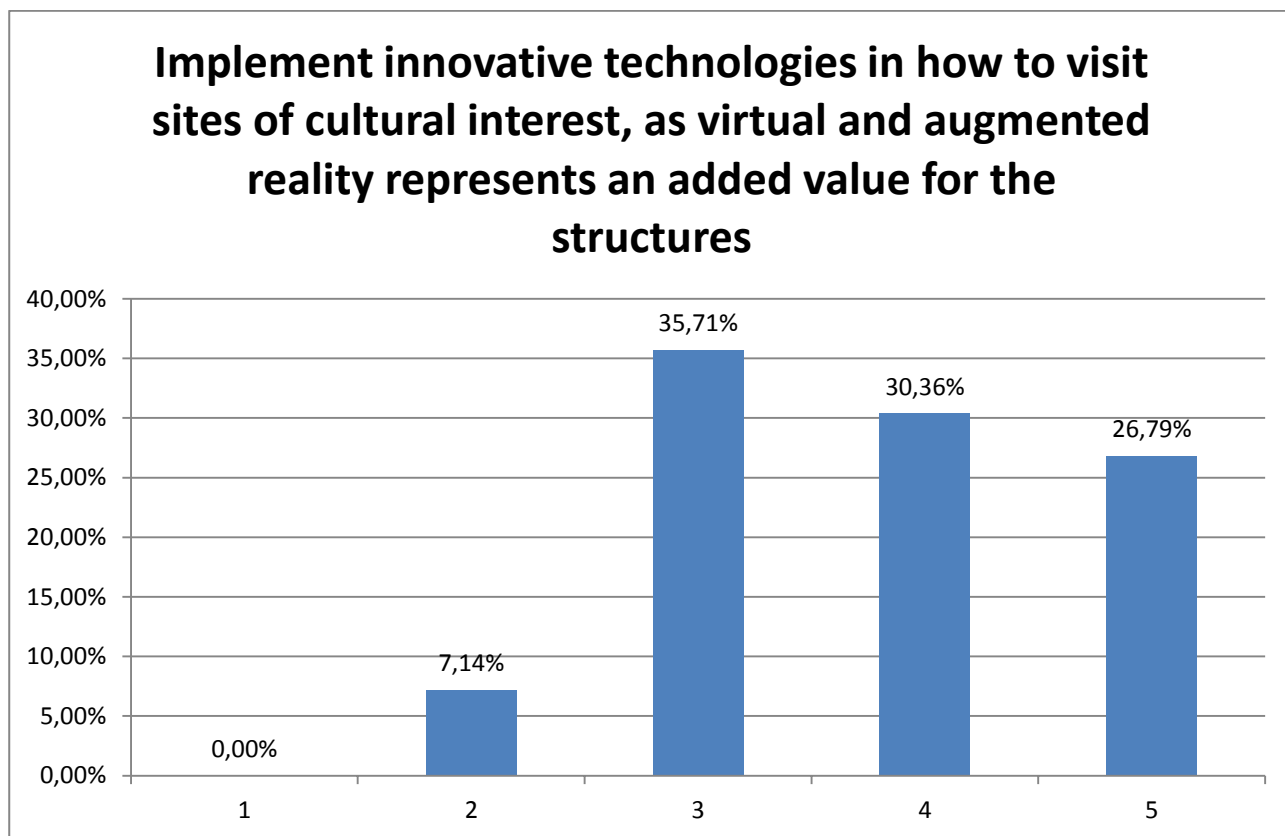
Implement innovative technologies in how to visit sites of cultural interest, as virtual and augmented reality represents an added value for the structures

Fig. 12 Operators (mean = 3.77)

Implementing innovative technologies in how to visit sites of cultural interest represents an added value for the structures
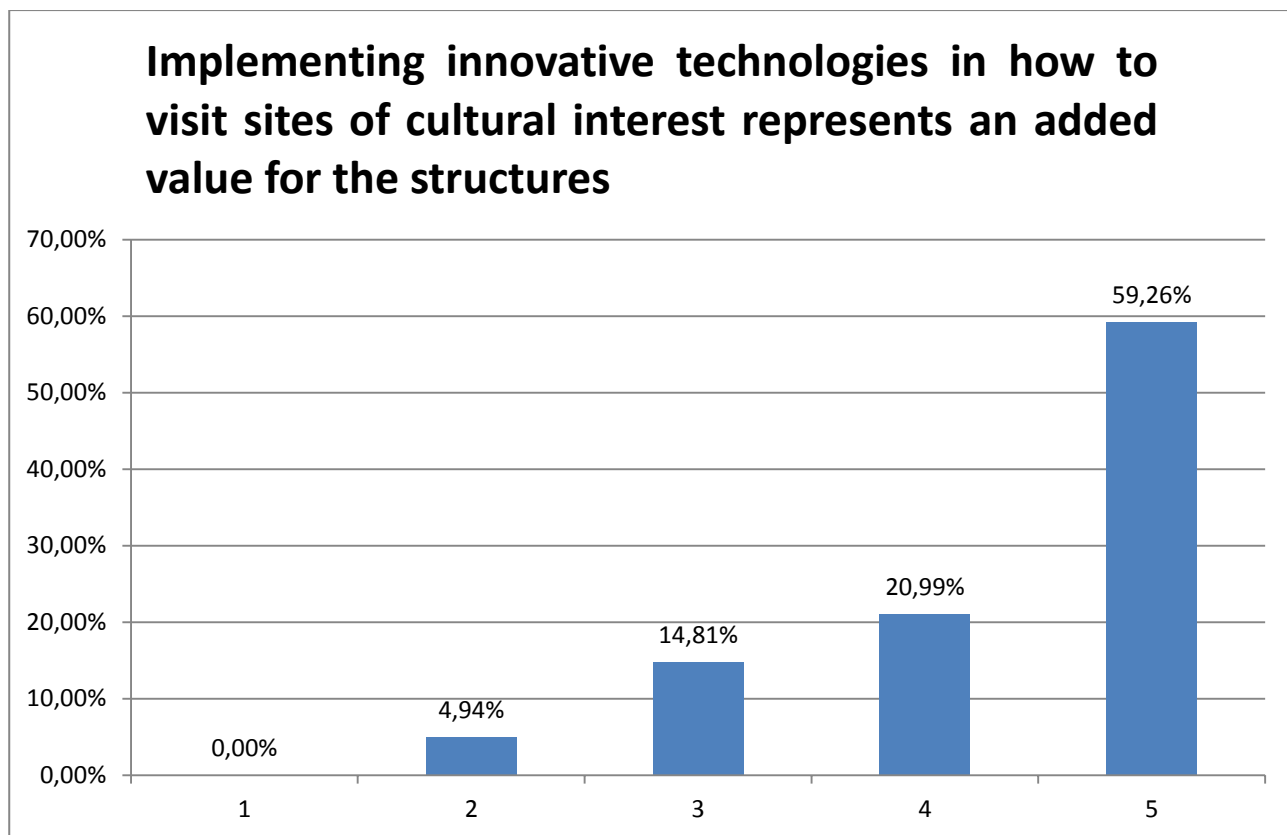

Fig. 13 Visitors (mean = 4.35)

Visitors show higher values of agreement with this statement, suggesting a higher interest in museum technological innovation, seen as an attractive characteristic.

	T	df	p	Cohen's d
Technology as an added value	-3.613	135	0.0002	-0.628
Technology helps to personalise the visit	-2.847	133	0.003	-0.497

Note: for all tests, the alternative hypothesis specifies that Operators' group is less than Visitors' group

Note: Student's t-test

Tab. Student's t-test

An independent samples t-test provided significant results in the comparison of the means of two variables: "Implementing innovative technologies in how to visit sites of cultural interest represents an added value for the structures" and "Implementing innovative technologies in the ways of visiting sites of cultural interest helps to personalise the way of visiting"; allowing to reject the null hypothesis for which there is no difference between the groups and confirming a significant difference in technology attractiveness.

In your opinion, what are the digital and multimedia technologies on which to focus primarily to make sites of cultural interest more accessible?

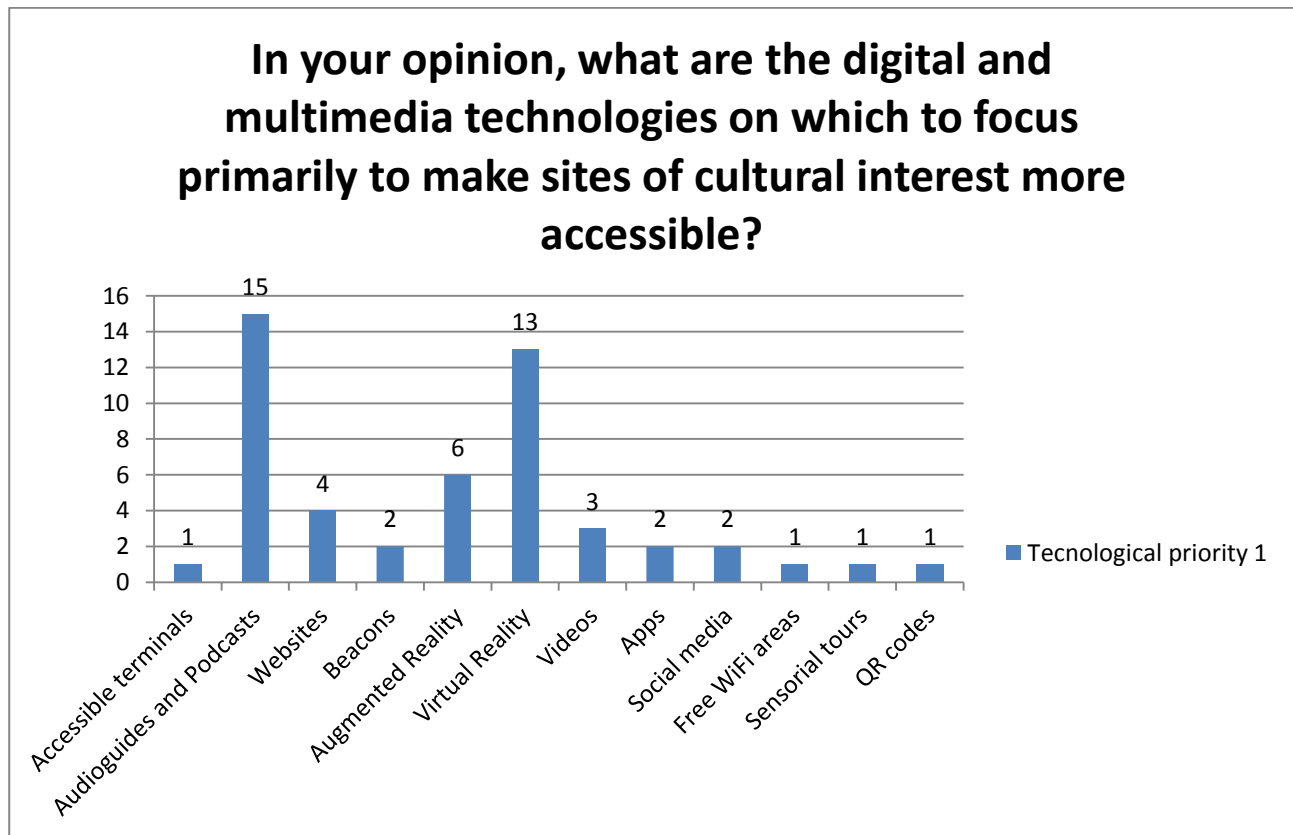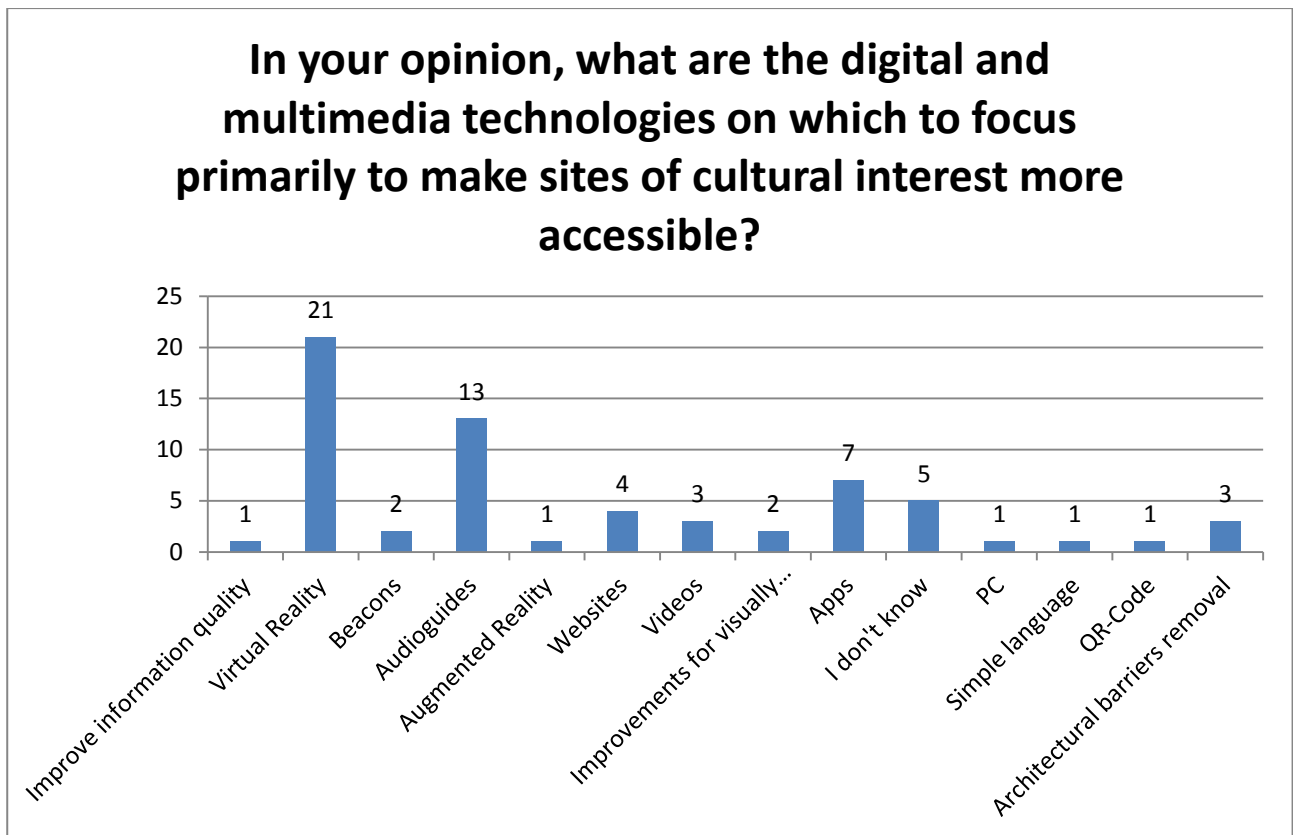**Fig. 14 Operators' references to technological priority in an open item**

Fig. 15 Visitors' references to technological priority in an open item

Virtual reality (preferred by visitors) and audio guides (preferred by operators) are seen as the main priorities in technological development for sites of cultural interest by both the groups, being mentioned quite more than other technological innovations as first priorities.

What do you consider a priority to make museums and places of cultural interest accessible?

Category	Percentage
Train the staff of museums and other cultural structures	12,21%
Raise awareness of the needs of people with disabilities	25,95%
Remove architectural barriers	29,01%
Share and disseminate knowledge about innovative solutions	16,03%
Invest in information and communication technologies to improve accessibility	16,79%

Fig. 16 Operators' priority on accessibility of cultural facilities

What do you consider a priority to make museums and places of cultural interest accessible?

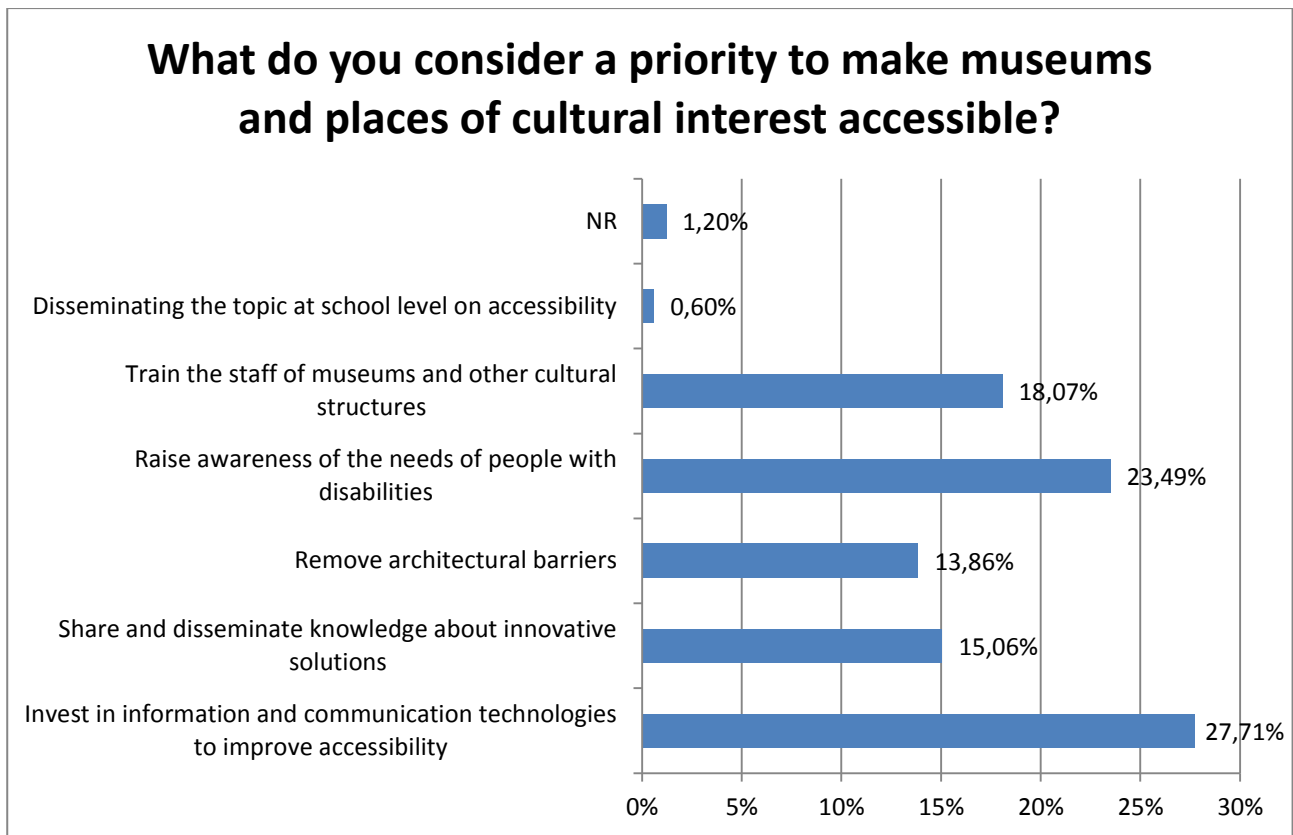| Category	Percentage
NR	1,20%
Disseminating the topic at school level on accessibility	0,60%
Train the staff of museums and other cultural structures	18,07%
Raise awareness of the needs of people with disabilities	23,49%
Remove architectural barriers	13,86%
Share and disseminate knowledge about innovative solutions	15,06%
Invest in information and communication technologies to improve accessibility	27,71%

Fig. 17 Visitors' priority on accessibility of cultural facilities

Again, visitors show a higher interest in innovation technologies than operators, who, instead, are more on architectural barriers removal. Visitors also show a higher preference for staff training than operators, while there is a closest agreement about disseminating knowledge and raising awareness.

Visitors behaviour and experience

According to our collected data, visitors show to have a big interest in museums and other sites of cultural interest, even with the 13,58% of them claiming to visit these kind of attractions more than 12 times a year.
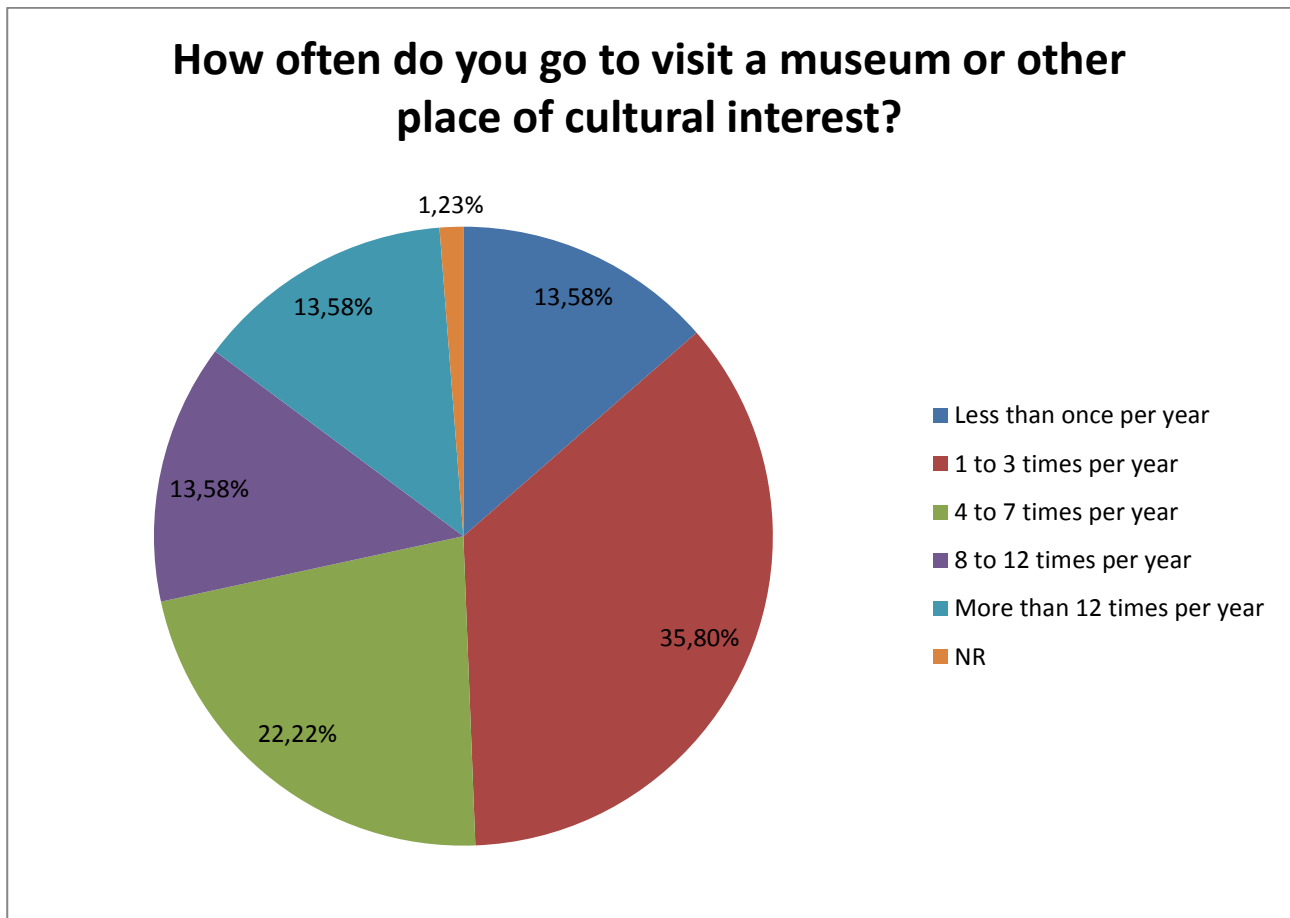
Fig. 18 Visitors' frequency of visits to museums

The most often visited sites are museums (54,38%), followed by buildings dedicated to religious worship (14,38%), Historical and botanical gardens (13,13%) and other (6,88%). Other mentioned places are: Industrial Redevelopment Buildings, Agricultural complexes, Artistic Exhibitions, Theatres, Cinemas, Architecturally Interesting Modern Buildings, Natural sites & panoramas, Archives and Galleries.

A large majority of the visitors (87,65%) declared to visit museums and cultural places in company (9,88% alone, 2,47% did not respond).

The 67,42% of the visitors group reported barriers to mobility as most common, while 30,34% of them complains of a lack of tactile signs along the tour routes (no other barriers have been reported).
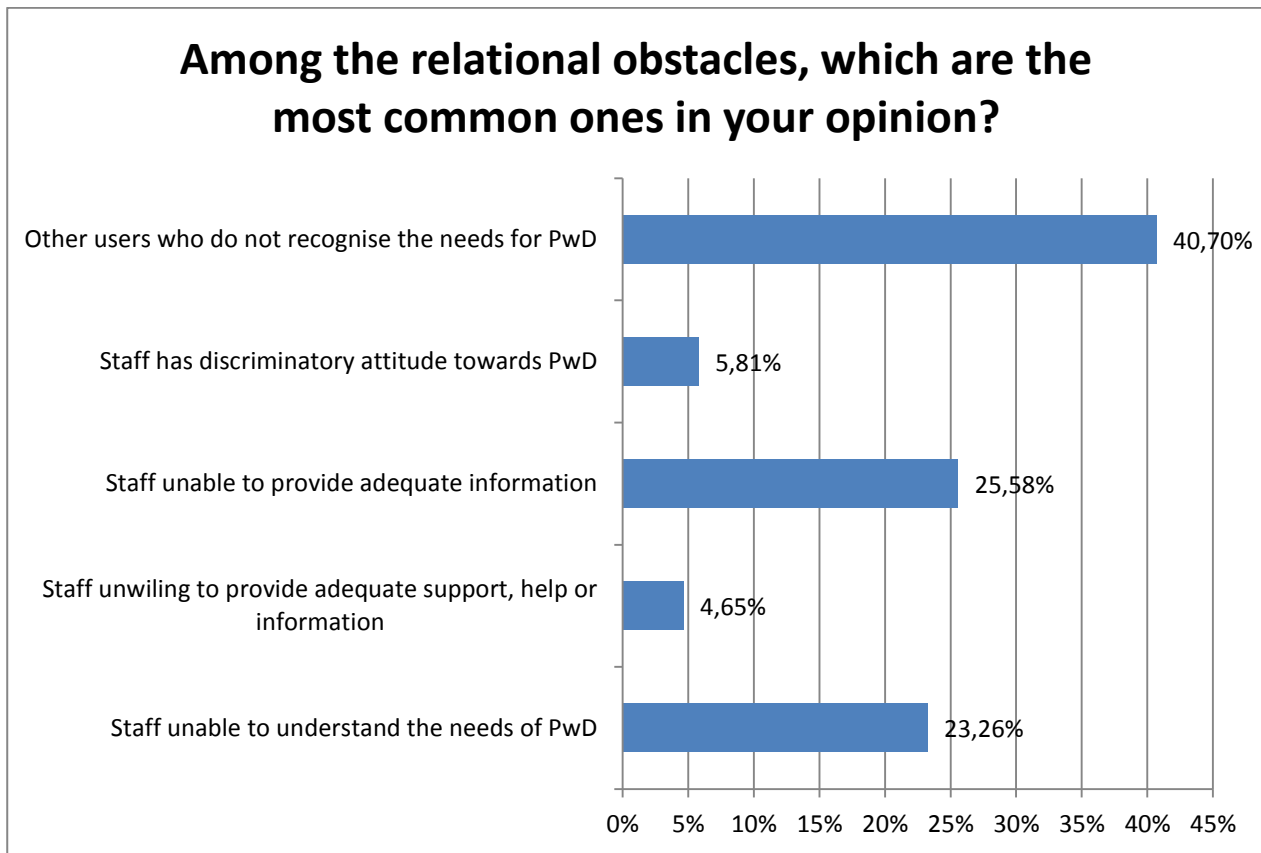
Among the relational obstacles, which are the most common ones in your opinion?

Category	Percentage
Other users who do not recognise the needs for PwD	40,70%
Staff has discriminatory attitude towards PwD	5,81%
Staff unable to provide adequate information	25,58%
Staff unwiling to provide adequate support, help or information	4,65%
Staff unable to understand the needs of PwD	23,26%

Fig. 19 report of visitors' relational obstacles experience

Most of the visitors' answers about bad experiences regarding relational barriers do not signal a lack of staff training, coherently with other answers, where relational barriers have been reported as less common, in comparison with operators, but forms of discrimination put in place by other users, highlighting how raising awareness should be particularly addressed to the population.

Due to a high reliability of the scales investigating interest in technology (Cronbach's $\alpha = .85$) an index has been obtained by aggregating variables together. On average, interest on technology rate for visitors was 4,27 on 5, underlining a very high attractiveness for technological innovations for visitors in museum context.
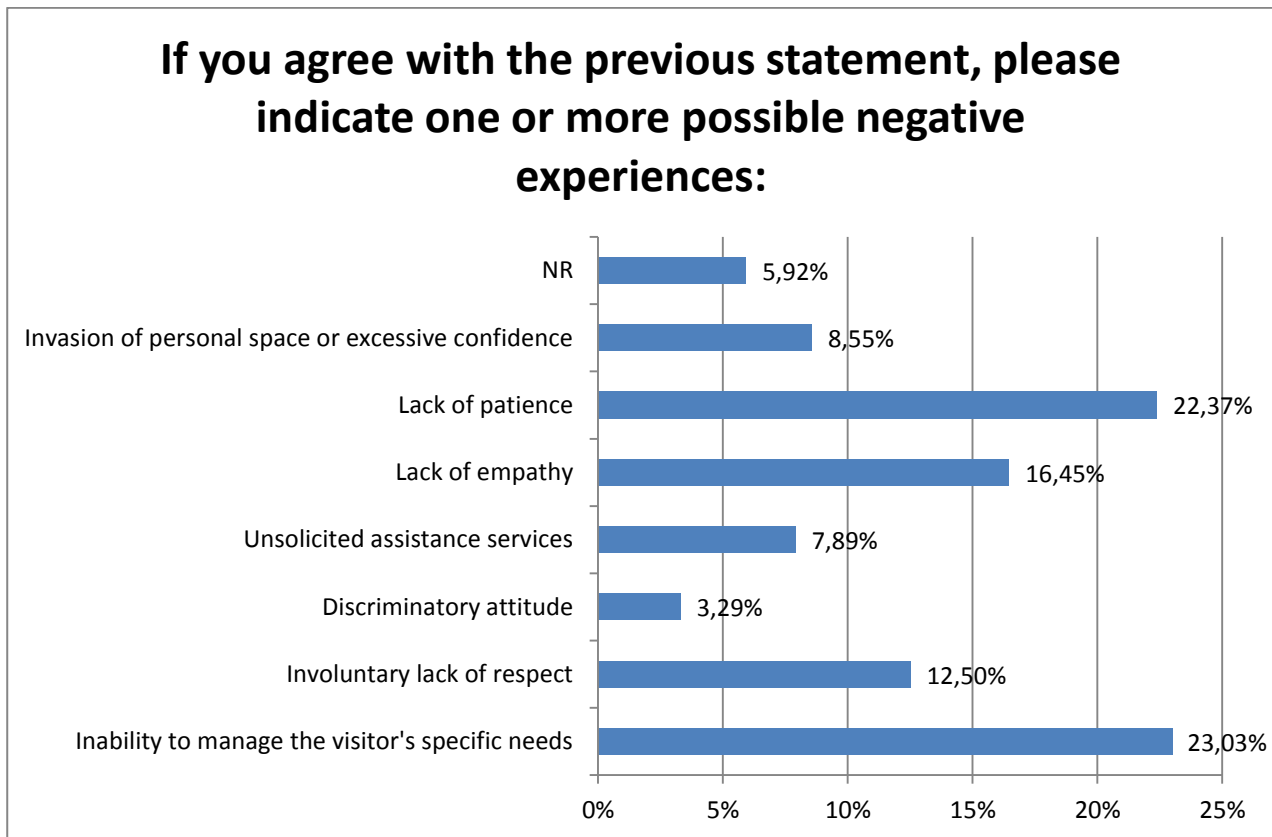
If you agree with the previous statement, please indicate one or more possible negative experiences:

Category	Percentage
NR	5,92%
Invasion of personal space or excessive confidence	8,55%
Lack of patience	22,37%
Lack of empathy	16,45%
Unsolicited assistance services	7,89%
Discriminatory attitude	3,29%
Involuntary lack of respect	12,50%
Inability to manage the visitor's specific needs	23,03%

Fig. 20 visitors' bad experiences specifically related to staff training lack

Regarding relational barriers related to staff preparation, inability to manage visitor's specific needs and lack of patience have been reported by the most of the respondents with very similar percentages, followed by lack of empathy.

Significant correlations were found between some items in the visitors questionnaire:

- o Age relates positively with disability ($p<.05$)
- o Disability relates positively with frequency of visits to museums and other sites of cultural interest ($p<.01$)
- o Accessibility of the region relates:
- ▪ Negatively with barriers perceived frequency($p<.001$)
- ▪ Positively with accessibility of information ($p<.001$)
- ▪ Positively with the UD index ($p<.001$)
- o Perceived barrier frequency relates:
- ▪ Positively with lack of staff training ($p<.05$)
- ▪ Negatively with the UD index ($p<.001$)
- o Relevance of clear information relates positively with the technology attractiveness index ($p<.001$)
- o Accessibility of information relates positively with the UD index ($p<.001$).

These correlations are in line with previous research data as they underline a better perception of the visit experience when accessibility is guaranteed and when UD principles are satisfied and also, that at higher levels of this principle satisfaction correspond higher levels perceived accessibility of information, which are bond to attractiveness of technology.

Operators awareness, perception and intention

When asked to explain their opinion on accessibility meaning, the most common recalled concepts was above all inclusion, followed by barriers removal and disability, suggesting a nowadays high widespread awareness of the concept of accessibility.

	Count	% Codes	Cases	% Cases	Nb Words	% Words
Accessibility						
Disability	27	7,2%	19	33,9%	72	3,5%
Independency	9	2,4%	7	12,5%	59	2,9%
Barriers removal	28	7,4%	23	41,1%	169	8,2%
Participation	6	1,6%	6	10,7%	22	1,1%
Possibility and freedom	24	6,4%	20	35,7%	145	7,1%
Inclusion	59	15,7%	37	66,1%	396	19,3%
Usability	9	2,4%	9	16,1%	42	2,0%
Pragmatic aspects as costs, timetables, etc	5	1,3%	4	7,1%	18	0,9%
Self gratification	1	0,3%	1	1,8%	5	0,2%
Need for funds	1	0,3%	1	1,8%	19	0,9%
Responsibility	1	0,3%	1	1,8%	1	0,0%
Attractive offer	1	0,3%	1	1,8%	2	0,1%

Tab. 1 Frequency of operators' recalled constructs to define accessibility

Less optimistic seems to be the level of awareness about the concept of Tourism for all, often reported as "never heard before" and confused with Accessible tourism, one of its three components.

	Count	% Codes	Cases	% Cases	Nb Words	% Words
Tourism for all						
Never heard before	61	16,2%	35	62,5%	143	7,0%
Business concept	1	0,3%	1	1,8%	6	0,3%
It refers to local and guests	2	0,5%	2	3,6%	11	0,5%
Social tourism	6	1,6%	6	10,7%	44	2,1%
Accessible tourism	24	6,4%	20	35,7%	114	5,6%
I know it	7	1,9%	6	10,7%	27	1,3%

Tab. 2 Frequency of operators' recalled constructs to define Tourism for all

Better results have been obtained regarding the concept of Universal Design, for which, for most of the subjects, the meaning is to design objects and spaces for everyone's autonomy, but others have reduced it to specific targets and goals or linked it to meanings very distant to its definition. This results suggest that to disseminate clear explanation of the concepts of Tourism for all and Universal Design, aiming to a culture of inclusion of all, should be one of the goals of a raising awareness campaign.

🍀 Universal Design						
● Understandable	1	0,3%	1	1,8%	1	0,0%
● Design objects and spaces for everyone's autonomy	13	3,5%	13	23,2%	192	9,4%
● Suitable choices	1	0,3%	1	1,8%	33	1,6%
● Design objects and spaces usable by people with reduced autonomy	1	0,3%	1	1,8%	28	1,4%
● Design dedicated to a specific target with specific needs	3	0,8%	3	5,4%	42	2,0%
● Enjoy the beauty	1	0,3%	1	1,8%	9	0,4%
● A design for all is not good	1	0,3%	1	1,8%	7	0,3%
● Not only aesthetic, but also functional design	2	0,5%	2	3,6%	28	1,4%
● Same design for all the facilities	1	0,3%	1	1,8%	12	0,6%
● A universally appreciated design	1	0,3%	1	1,8%	4	0,2%
● A common and uniform aspect	1	0,3%	1	1,8%	12	0,6%

Tab. 3 Frequency of operators' recalled constructs to define Universal Design

The mean of the technology attractiveness index for operators was 3.72, lower than the mean of visitors of 4.27.
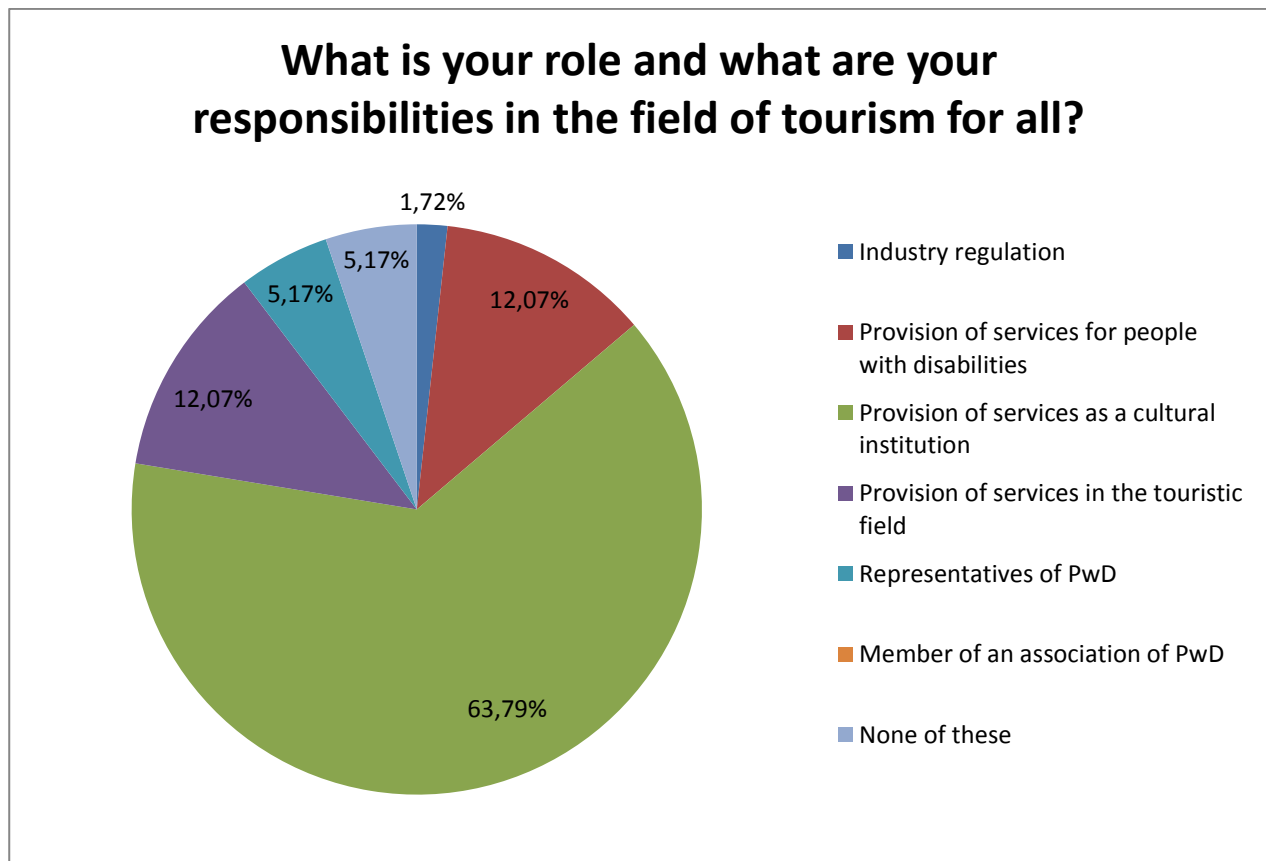

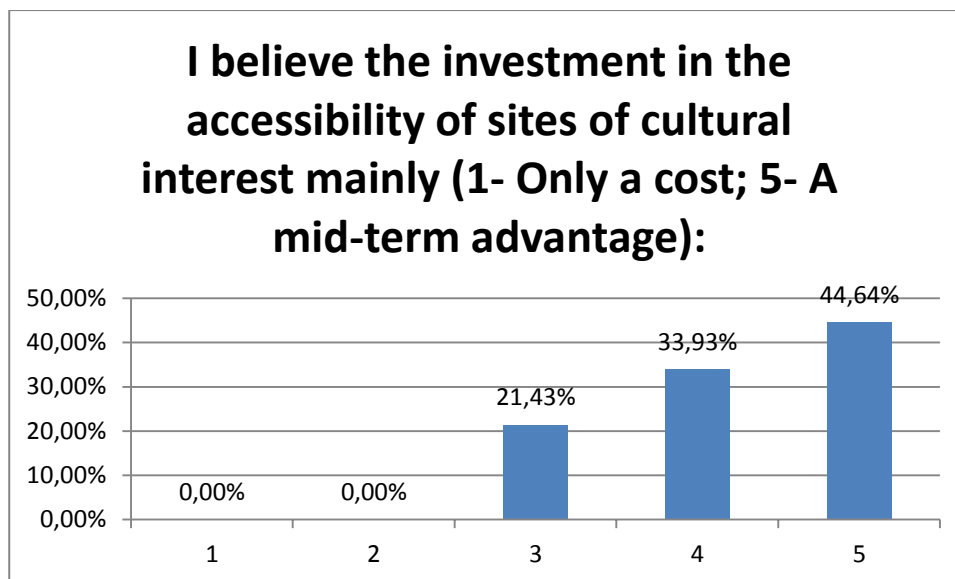**Fig. 21 Roles covered by operators**

Fig. 22 Operators' evaluation of accessibility of the cultural facility as a cost or a mid-term advantage

Most of the respondents (44.64%) considers investment in accessibility as a mid-term advantage, confirming that the culture of accessibility and its meaning awareness is quite wide, a reason that suggests that referring to accessibility with its specific language could be well understood and appreciated by operators in a raise awareness campaign.
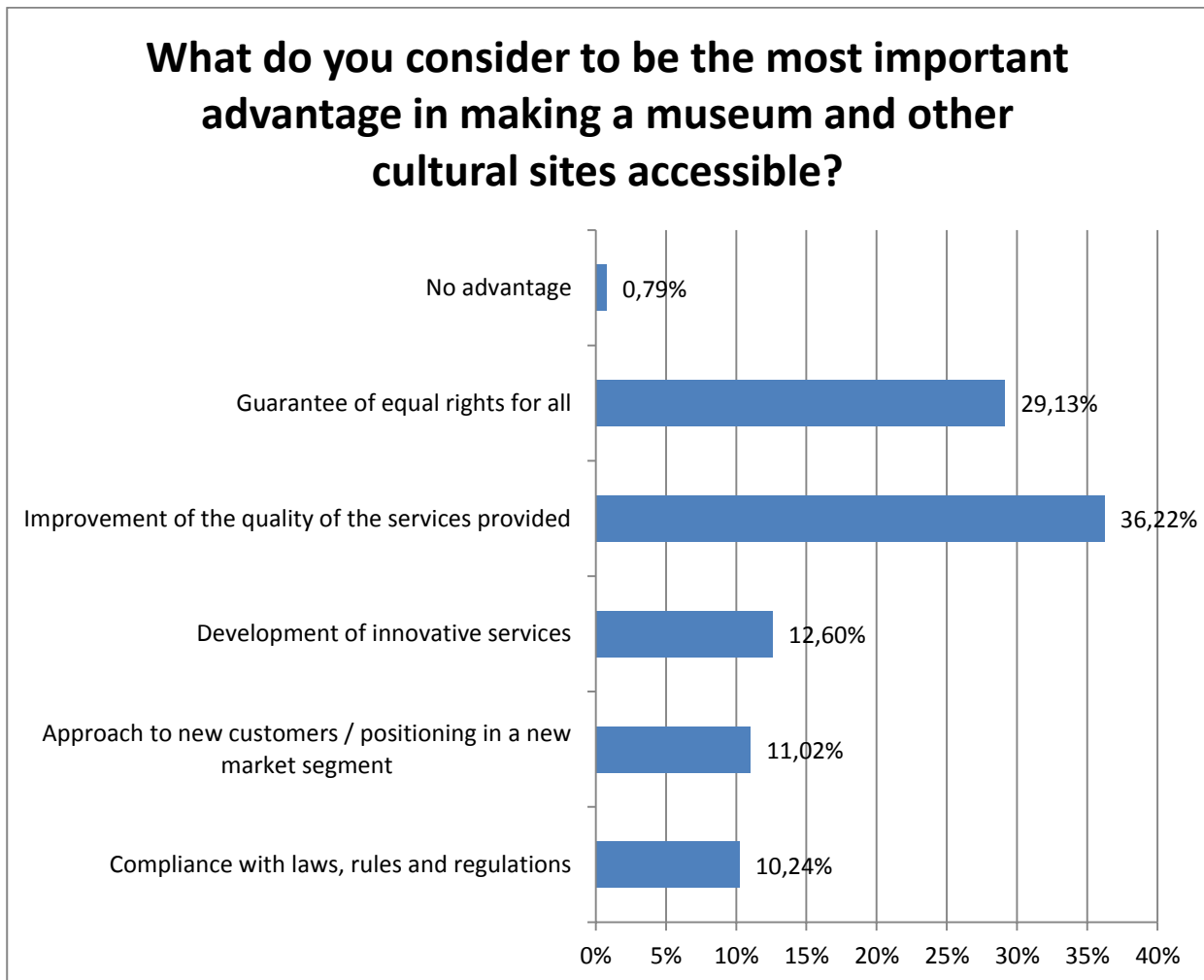
What do you consider to be the most important advantage in making a museum and other cultural sites accessible?

Category	Value
No advantage	0,79%
Guarantee of equal rights for all	29,13%
Improvement of the quality of the services provided	36,22%
Development of innovative services	12,60%
Approach to new customers / positioning in a new market segment	11,02%
Compliance with laws, rules and regulations	10,24%

Fig. 23

As predictable, the most perceived advantage of accessibility interventions is an improvement of the quality of the provided services, highlighting the relevance for operators to find a reason in accessibility of increase of the incomes, but also an awareness of its potential as an improvement. In second place (29,13%), the biggest advantage is the social responsibility of the company represented by accessibility investments. These beliefs of operators should be considered in a campaign about accessibility.
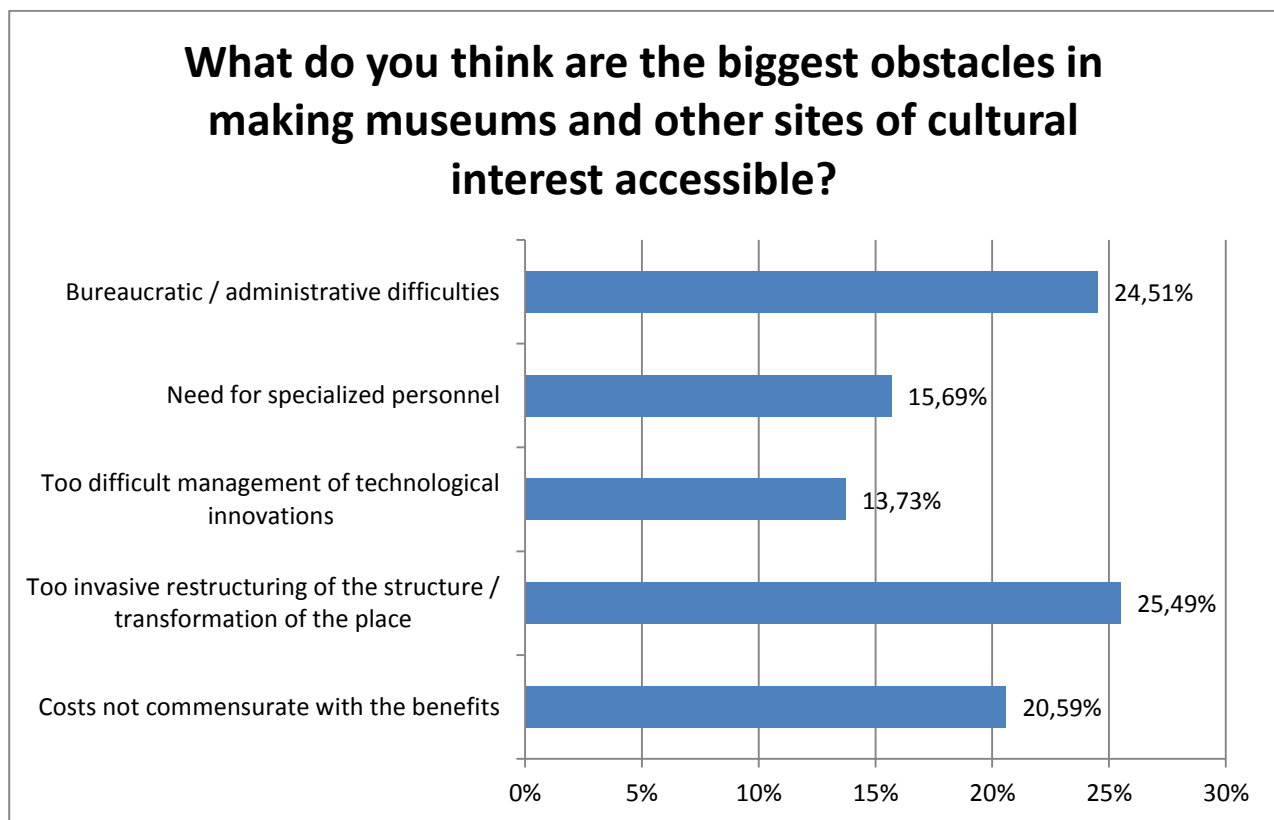
What do you think are the biggest obstacles in making museums and other sites of cultural interest accessible?

Bureaucratic / administrative difficulties	24,51%
Need for specialized personnel	15,69%
Too difficult management of technological innovations	13,73%
Too invasive restructuring of the structure / transformation of the place	25,49%
Costs not commensurate with the benefits	20,59%

Fig. 24

As the invasive restructuring of facilities has been chosen more often as an obstacle to make sites of cultural interest accessible, a campaign should highlight how not only the physical barrier removal has to be considered as accessibility intervention, but also the implementation of technological innovations, such as IC&T, VR, AR and others.
The reported bureaucratic difficulties should, instead, be communicated to public administration and an information campaign on the practical implementation of renovations should be done.
Lastly, the actual economical potential of technological innovation needs to be disclosed.
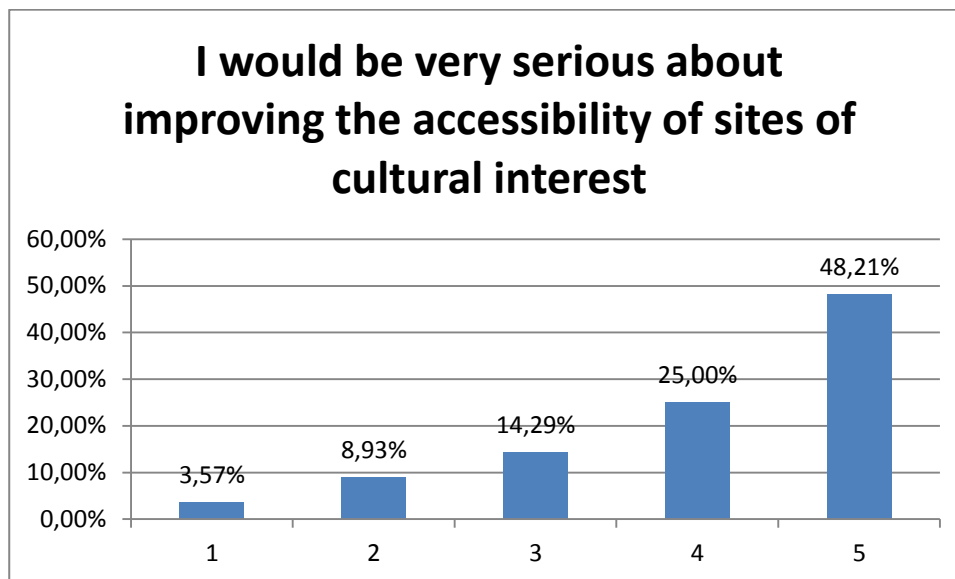
I would be very serious about improving the accessibility of sites of cultural interest

Fig. 25

Answers to this item confirm, once again, how operators are aware of the importance of accessibility realisation.

DISCUSSION

«Disability rights campaigners have long campaigned against viewing disability from the perspective of biologically based personal tragedy, instead looking to a social constructionist view of disability, with the concept of disability rooted in discourses of prejudice and exclusion" (Best, 2010).

The medical approach can configure as a problem, because it can make PwD feel stigmatised and of less value to society in general if seen only from the perspective of their dysfunction. Under the bio-psycho-social perspective, the concept of UD fits in the "stigmatisation" matter, as it could reduce it significantly. Results of the previous research suggest that it could be optimal to project new buildings and touristic facilities directly with a standard design for all (Capitaine, 2016).

According to the data collected by the previous literature, UD could generate significant incomes from the touristic field and could be made easier by implementing new technologies in the facilities. Technologies such as VR, AR, storytelling audio guides have shown to improve the facility attractiveness for PwD, but may improve it for every kind of customer, under a UD perspective.

According to the White book on tourism for all in Italy (2013), projects were still generic, but designers' attention, and above all of local communities, has been concentrated on some specific needs, maybe neglecting others:

-        projects related to motor disabilities were, as could be expected, the majority, almost two thirds;

- more than a quarter of the projects was addressed to people with special needs bound to sensor disabilities (blind, deafblind, and so on…).

- less attention has been paid to more specific issues, probably because they require a higher specialisation and are addressed to a less wide market. To confirm this is that, in most cases, these are projects aimed at those with feeding problems.
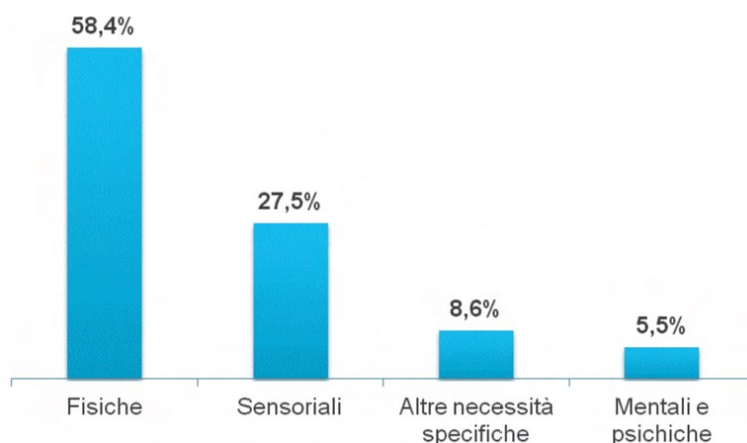
Graph 1: Types of disabilities that projects address

Source: SL&A elaborations in the White Book Database, 2012

As underlined by the authors of The White Book, there is the need of a Country touristic system capable of welcome and host all, in order to guarantee to everybody the right to participation, comfort, fun, security and information. They suggested to systematise a vision made up of knowledges and skills that are a today's heritage of a few, to make it instead a shared heritage, by involving tourist operators and Italian entrepreneurs in the process, without forgetting to obtain a real proactive inclusion of PwD, by effectively applying the principles enshrined in fundamental charters such as the Italian Constitution, the Madrid Declaration and the UN Convention on the rights of people with disabilities.

There are some crucial points, as observed in the *To do list* of The White Book, such as:

- Communication, outlined as the promotion of the awareness raising about the concept of "tourism for all" and the themes of hospitality, mobility, training and information;

- Awareness raising on the aspects of Accessible Tourism, addressed to touristic field operators, actuating a factual collaboration between employers' organisations and of the sector category, and national associations of PwD, and of the third sector;

- Support, understood as incentive tools in favour of tourist facilities that improve the accessibility of their facilities such as tax credit or capital payments, or contributions on interest rates, and non-monetary benefits, such as volume bonuses, urban simplification etc.

Data collected from our survey confirm the previous literature, also providing a series of considerations on stakeholders' perception of the current situation about accessibility of cultural interest structures, with the goal to outline an efficient raising awareness campaign.

CONCLUSIONS

Our analysis confirmed the potential market of sites of cultural interest for People with Disabilities and people close to them, as they claimed to visit them often and in company.

Our collected data suggest that architectural barriers removal is still a central concern about accessibility, while it seems that the efforts done in the touristic field about relational and information barriers are producing a good satisfaction for users, who are, however, very interested in IC&T innovation of the museum sector. Their great preference, over operators, for information on transport, underlines the importance of coordination between all stakeholders (public and private) providing services.

Technology innovation of cultural interest sites has been proven to be more an interest of visitors than of operators, who consider physical barriers removal more important, and that seems to be linked to their fear of a too invasive restructuring of facilities as an obstacle to accessibility interventions .

Because of this, and that the information accessibility is considered very important from operators, IC&T should become a central concern for them, allowing to improve accessibility (particularly, but not only of information), without the need of physical restructuring.

Correlations between data showed how technological innovations positively relates with Universal Design principles and accessibility of information, offering a better perception of the visit experience and, thus, an objective improvement of the offered service revealing the potential of technological innovation in the museum sector.

Promising results are that operators seem to be aware of the constructs widespread by the United Nations aimed to inclusion of all and their inclination to invest in accessibility, as they see improvement of their provided service and in the company social image in it.

From a public administration point of view, our analysis show that the achievement of a level of accessibility such as to allow the active participation of all citizens, requires a de-bureaucratisation of interventions aimed to it.

These results give a clear idea of the current perception of tourist services providers and of visitors, regarding accessibility of sites of cultural interest, giving also some suggestions about the potential market of technological innovation and for the sensitive arguments on which to build a raising awareness campaign.

REFERENCES

Bibliography

Almici, A., Arenghi A., Camodeca, R., (2019). Il valore dell'accessibilità – Una prospettiva economico-aziendale, *Collana di Studi e Ricerche Aziendali*

Altinay, Z., Saner, T., Bahçelerli, N. M. & Altina F., (2016). The Role of Social Media Tools: Accessible Tourism for Disabled Citizens. *The Journal of Educational Technology & Society.*

Asakawa, S., Guerreiro, J, Sato, D., Takagi, H., Ahmetovic, D, Gonzalez, D, Kitani, K., M., Asakawa, C. (2019). An Independent and Interactive Museum Experience for Blind People. Available 08, October, 2020, at https://dl.acm.org/doi/10.1145/3315002.3317557

Bedini, L. A. (1991). Modern day freaks?: The exploitation of people with disabilities. *Therapeutic Recreation Journal*, 250), 60-69.

Bedini, L. A. (2000). Just sit down so we can talk: Perceived stigma and the pursuit of community recreation for people with disabilities. *Therapeutic Recreation Journal*, 34, 55-68.

Best, S. (2010). Leisure Studies. Themes & Perspectives, *SAGE Publications,* London.

Bizjak, B., Knezˇevic,́ M. & Cvetrezˇnik S., (2010). Attitude change towards guests with disabilities. *Annals of Tourism Research.*

BMWA (2004). Federal Ministry of Economic and Labour–economic impulses of accessible tourism for all", Report, *Bundesministerium für Wirtschaft und Arbeit*, Berlin.

Bowtell, J., (2015). Assessing the value and market attractiveness of the accessible tourism industry in Europe: a focus on major travel and leisure companies. *Journal of Tourism Futures.*

Butler, R. and Bowlby, S. (1997). Bodies and spaces: an exploration of disabled people's experiences of public space. *Environment and Planning D: Society and Space*, Vol. 15 No. 4, pp. 411-33.

Capitaine, V., (2016). Inciting tourist accommodation managers to make their establishments accessible to people with disabilities, *Journal of Tourism Futures.*

Chouinard, V., Hall, E. and Wilton, R. (Eds) (2010). Towards Enabling Geographies: "Disabled" Bodies and Minds in Society and Space, *Ashgate Publishing*, Surrey, Burlington, VT.

Cohen-Tottenberg, R., (2012). Caught Inside a Paradox: How Cultural Representations Perpetuate Disability Stigma. Available 18 July, 2012, at http://www.disabilityandrepresentation.com/caught-inside-a-paradox-how-cultural-representations-perpetuate-disability-stigma/

Coleman, L. M., (2010). Stigma: An Enigma Demystified. *The Disability Studies Reader*, 179-192. New York, NY: Routledge.

Crîșmariu, O. D., (2017). Accessible tourism – an expression of social responsibility. *Cactus Tourism Journal.*

Cruces Portales, R., (2015). Removing "invisible" barriers: opening paths towards the future of accessible tourism. *Journal of Tourism Futures.*

Darcy, S. and Buhalis, D. (2011). Conceptualising disability. *AccessibleTourism: Concepts and Issues*, Chapter 2, Channel View Publications, Bristol, pp. 21-44.

Darcy, S. and Dickson, T. (2009). A whole-of-life approach to tourism: the case for accessible tourism experiences. *Journal of Hospitality and Tourism Management*, Vol. 16 No. 1, pp. 32-44.

Darcy, S. and Pegg, S. (2011). Towards strategic intent: perceptions of disability service provision amongst hotel accommodation managers. *International Journal of Hospitality Management*, Vol. 30,pp. 468-76.

Darcy, S., Camron, B. and Pegg, S. (2010). Accessible tourism and sustainability: a discussion and case study. *Journal of Sustainable Tourism*, Vol. 18 No. 4, pp. 515-37.

Donovan, R. (2013). Sustainable value creation through disability. The global economics of disability. Available, 12, February, 2015, at http://returnondisability.com/wpcontent/uploads/2012/09/The%20Global%20Economics%20of%20Disability%20-%202013%20Annual%20 Report.pdf

European Network for Accessible Tourism (ENAT) Services and Facilities for Accessible Tourism in Europe. Brussels, 2007. Available, 25, September, 2020, at: http://www.accessibletourism.org/resources/enat_study-2_services_and_facilities_en.pdf

Fine, M., & Asch, A. (1988). Disability beyond stigma: Social interaction, discrimination, and activism. *Journal of Social Issues*, 44, 3-21.

Gaines, D. (2004). Geographical perspectives on disability: a socio-spatial analysis of the mentally disabled population in Russia Middle States. *Geographer*, Vol. 37 No. 1, pp. 80-9.

Gardner, C., B., (1991). Stigma and the public self. *Journal of Contemporary Ethnography*, 20, 251262.

Gillovic, B., McIntosh, A., (2015). Stakeholder perspectives of the future of accessible tourism in New Zealand perspectives of the future of accessible tourism in New Zealand. *Journal of Tourism Futures.*

Goffman, E., (1963). Stigma: Notes on the Management of Spoiled Identity. New York, NY: Simon and Schuster.

Gondos, B., Narai, M., (2019). The opportunities in accessible tourism. *The Usv Annals of Economic and Public Administration.*

Gonzalez (2017) "A path with choice: What we learned from designing an inclusive audio guide." *MW17: MW 2017*. Available, 6, October, 2020 at https://mw17.mwconf.org/paper/a-path-with-choice-what-we-learned-from-designing-an-inclusive-audio-guide/

Guo, R., (2020). Exploration and Analysis on the Development Path of Smart Tourism in Shandong Province in the Era of Artificial Intelligence. *Journal of Physics: Conference Series.*

Horgan-Jones, M. and Ringaert, L. (2004). Accessible tourism in Manitoba. Available, 30, November, 2014, at www.ttra.com/pub/uploads/AccessibleTourismInManitoba.htm

Hsu, C. and Powers, T. (2002). Marketing Hospitality, *John Wiley and Sons*, New York, NY.

Huang, L. Lau, N., (2020). Enhancing the Smart Tourism Experience for People with Visual Impairments by Gamified Application Approach through Needs Analysis in Hong Kong. *Sustainability.*

ICF, (2002), Towards a Common Language for Functioning. *Disability and Health*, WHO, Geneva I.

Imperatore, D., (2018). A Legal and Social Framework for the Inclusion of Persons with Disability through Accessible Tourism and Transportation by Bus. *Science & Philosophy.*

Jahoda, A., Wilson, A., Stalker, K. and Cairney, A, (2010). Living with stigma and the self-perceptions of people with mild intellectual disabilities. *Journal of Social Issues.*

Kéroul (2013),"Tourisme et culture: vecteurs d'inclusion des personnes handicapées. As part of the conference organised by Université Laval on 2nd november 2013: "Les défis de la participation sociale des aînés ayant des incapacités: interagir pour des politiques, des recherches et des pratiques porteusesde changement".

Kolodziejczak, A., (2019). Information as a factor of the development of accessible tourism for people with disabilities. *Quaestiones Geographicae.*

Lazarro, N., (2004) Why We Play Games: Four Keys to More Emotion Without Story. *Proceedings of the Game Developer's Conference*, San Jose, CA, USA, 22–26.

Linveh, H. (1980). Disability and monstrosity: Further comments. *Rehabilitation Literature*, 41,(11-12), 280-283.

Marasco, A., Balbi, B., (2019). Designing Accessible Experiences for Heritage Visitors Through Virtual Reality. *e-Review of Tourism Research (eRTR).*

Maslow, A. H., (1943). A Theory of Human Motivation. *Psychol. Rev.,* 50, 370–396. [CrossRef]

Michopoulou, E., Buhalis, D., (2013). Information provision for challenging markets: The case of the accessibility requiring market in the context of tourism.

Michopoulou, E., Darcy, S., Ambrose, I., Buhalis, D., (2015). Accessible tourism futures: the world we dream to live in and the opportunities we hope to have. *Journal of Tourism Futures.*

Migliaccio, G., (2018). Accessible museums in Italy: an overview, *African Journal of Hospitality, , Tourism and Leisure.*

Migliaccio, G., (2019). Tourism for people with disabilities in Italy: an overview, *African Journal of Hospitality, Tourism and Leisure.*

Ministero per beni e le attività culturali,(2008). Linee guida per il superamento delle barriere architettoniche nei luoghi di interesse culturale. *Supplemento ordinario alla GAZZETTA UFFICIALE.*

Nitti, M., Giusto, D., Zanda, S., Di Francesco, M., Casari, C., Clemente, M. L., Lai, C., Milesi, C., and Popescu, V., (2018). Using IoT for Accessible Tourism in Smart Cities. IntechOpren, available, 20, October, 2020, at https://www.intechopen.com/books/assistive-technologies-in-smart-cities/using-iot-for-accessible-tourism-in-smart-cities#B9

Oliver, M. (1990), The Politics of Disablement, *Macmillan*, Basingstoke, Houndmills.

Özogul, G., Baran, G. G., (2016). Accessible tourism: the golden key in the future for the specialised travel agencies. *Journal of Tourism Futures.*

Paladini, A., Dhanda, A., Reina Ortiz, M., Weigert, A., Nofal, E., Min, A., & Santana Quintero, M. (2019). Impact of Virtual Reality Experience on Accessibility of Cultural Heritage. The International Archives of the Photogrammetry, *Remote Sensing and Spatial Information Sciences*,42, 929-936.

Pescosolido, B. A., Martin, J. K., Lang, A. and Olafsdottir, S. (2008). Rethinking theoretical approaches to stigma: A Framework Integrating Normative Influences on Stigma (FINIS). *Social Science & Medicine,* 67, no. 3, 431-440.

Popiel, M., (2016). Barriers in Undertaking Tourist Activity by Disabled People. *Kultura Fizyczna.*

Prat-Forg, J. M., Cànoves-Valient, G., (2012) Relational dynamics of accessible tourism in France, Spain and Morocco, Enlightening Tourism. *A Pathmaking Journal.*

Sambhanthan, A., Good, A., (2013). A Virtual World Model to Enhance Tourism Destination Accessibility in Developing Countries. Available, February, 2013, at *CoRR abs/1302.5199*

Scano, R., (2020) Report della consulenza sul tema della semantica nell'ambito del turismo accessibile, *IWA (International Web Association).*

Schleien, S. J., Ray, M. T., & Green, F. P. (1997). Community recreation and people with disabilities: Strategies for inclusion (2nd ed.). Baltimore: Paul H. Brookes Publishing Co.

Seligman, M. E. (1975). Helplessness: On depression, development, and death. San Francisco, CA: Freeman.

Seligman, M.E., Csikszentmihalyi, (2014). M., Positive psychology: An introduction. *Flow and the Foundations of Positive Psychology*, Springer: Dordrecht, The Netherlands, 2014; pp. 279–298.

Souca, M. L., (2010). Accessible Tourism: an ignored opportunity. *Babeş-Bolyai University Cluj Napoca*, Faculty of Economics and Business Administration.

Struttura di Missione per il Rilancio dell'Immagine dell'Italia, (2013), Primo Libro Bianco sul Turismo per Tutti,   *Comitato per la Promozione e il Sostegno del Turismo Accessibile*

The European Parliament And The Council Of The European Union, (2019). Directive (EU) 2019/882 of the european parliament and of the council of 17 April 2019 on the accessibility for product and services, *Official Journal of the European Union.*

Union Internationale des Transports Publics (UITP), International Road Transport Union (IRU), European Disability Forum (EDF), (2016), Accessibility Guide Improving public transport services through awareness of staff about persons with disabilities and persons with reduced mobility. Available, 29, September, 2020, at https://www.uitp.org/publications/uitp-edf-iru-accessibility-guide/

United Nations, (2006), United Nations Convention on the Rights of Persons with Disabilities, Available, November, 2020, at: http://www.un.org/esa/socdev/enable/rights/convtexte.htm

United Nations, (2016). Identifying social inclusion and exclusion. *Leaving no one behind*. Available, September, 2020, at https://www.un.org/esa/socdev/rwss/2016/executive-summary.pdf

UNWTO (2001), Tourism 2020 Vision. UNWTO, Madrid, available, August, 2020, at www.unwto.org/facts/eng/vision.html

UNWTO, (2016), Manual on Accessible Tourism for All - Principles, tools and best practices. Available, September, 2020, at https://www.e-unwto.org/doi/book/10.18111/9789284418091

Van Horn, L. (2002). Travellers with disabilities: market size and trends. Available, September, 2020, at http://ncpedp.org/access/isu-travel.htm

Wang, W., Wang, H., Lan, Y, Du, K. & Liu, Y., (2015). Evolutionary Game Analysis on the Major Stakeholders in Disabled Accessible Tourism. *International Conference on Management Science and Innovative Education.*

Wendell, S., (1996). The Rejected Body: Feminist Philosophical Reflections on Disability. New York, NY: Routledge, 1996.

West, P. (1984). Social stigma and community recreation participation by the mentally and physically handicapped. *Therapeutic Recreation Journal*, 18(1), 40-49.

Williams, R., Rattray, R., (2004). UK hotel web page accessibility for disabled and challenged users. *Tourism and Hospitality Research.*

World Health Organisation (WHO), (2001) International classification of functioning, disability and health (ICF), Available, November, 2020, at: https://apps.who.int/iris/bitstream/handle/10665/42407/9241545429.pdf

World Health Organisation, (2007). Global age-friendly cities guide, Available, August, 2020, at: www.who.int/ageing/age_friendly_cities/en/index.html

World Health Organisation (WHO), (2015). Available, 18, February, 2015 at www.who.int/topics/disabilities/en/

Wyman, B., C. Timpson, S. Gillam, & S. Bahram. (2016). "Inclusive design: From approach to execution." *MW2016: Museums and the Web 2016*. Available, 08, October, 2020, at http://mw2016.museumsandtheweb.com/paper/inclusive-design-from-approach-to-execution/

Yen-Chun, Wu, J., (2014). Enhancing Learning Experience of the Disabled: An Accessible Tourism Platform. *Sustainability*.

Zajadacz, A. and Śniadek, J. (2014). Disability models as the determinants of structure changes of the tourism market supply side available for the disabled", in Walas, B. and Sobczuk, J., *Ewolucja podażyipopytu w turystyce*, Press WSTiE, Sucha Beskidzka, pp. 208-30.

Zajadacz, A., (2015). Evolution of models of disability as a basis for further policy changes in accessible tourism, *Journal of Tourism Futures*.

Sitography

American stories

http://origin.apps.usa.gov/access-american-stories.shtml

Benozzo Gozzoli (BeGo) Museum:

http://www.museobenozzogozzoli.it/it

https://it.wikipedia.org/wiki/BEGO-Museo_Benozzo_Gozzoli

Canadian Museum of Human Rights:

https://humanrights.ca/

Digita11y

https://www.digita11y.org

Pacific Virtual Museum Project:

https://natlib.govt.nz/

https://digitalpasifik.org/search?media_type=Object

https://australian.museum/

Project SMART:

https://www.smart-museums.eu/

Touching Masterpieces:

https://touchingmasterpieces.com/

https://www.thedrum.com/creative-works/project/geometry-prague-national-gallery-prague-touching-masterpieces

https://www.lovethework.com/entries/498739

Zamani Project:

https://zamaniproject.org/