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Economic Benefits of Improved Accessibility to Transport Systems and the Role of Transport in Fostering Tourism for All

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Abstract

Accessibility is one of the key aspects of current transport planning, especially in reliance to public transport and pedestrian traffic facilities. This paper deals with this subject by outlining which are or could be the benefits of improved accessibility to the transport system with a special focus on economic benefits and the tourism sector. Therefore selected existing studies will be analysed. Besides the legal background and social aspects of accessibility related to the transport sector will be covered.

The first section deals with the legal background and social aspects of accessibility in the transport sector. It shows that nowadays in many countries accessibility of transport systems is not a voluntary task but a task bound by law and that an accessible environment is not only essential for people with disabilities and necessary for up to 40 % of the population but also a matter of comfort for all users.

The second section outlines which are or could be the economic benefits of improved accessibility to the transport system. Two studies from Norway used the stated preference method to monetise and prioritise different universal design measures. In general this method seems to work also as a tool for analysing economic benefits of accessibility measures. Nevertheless the results of these studies have to be interpreted with extremely caution in order to avoid discrimination.

The third section deals with the economic impact of accessible tourism using the example of Europe. The inducible impact of accessible tourism on the transport sector as well as the relevance of passenger transportation for accessible tourism is elaborated. All in all accessible tourism produces a huge economic impact on the tourism sector and beyond, and by improving accessibility in the future a significant raise of economic benefits is possible. In general traffic is precondition for tourism. Besides tourists spend a significant part of their travel expenses for the journey to the destination and back and for local transportation. This makes it clear that accessible transport systems will directly benefit from an increasing accessible tourism market.

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Introduction

Accessibility is one of the key aspects of current transport planning, especially in reliance to public transport and pedestrian traffic facilities. This paper deals with this subject by outlining which are or could be the benefits of improved accessibility to the transport system with a special focus on economic benefits and the tourism sector. Therefore selected existing studies have been analysed. Besides the legal background and social aspects of accessibility related to the transport sector have been covered.

Legal background of accessibility related to the transport sector

First of all it has to be noticed that in general "it is difficult to separate out the proportion of costs associated with the "accessible" features and to do this would be suspect, if only because defining exactly what is an accessible feature needed by disabled users is often difficult. Much that is done to meet the requirements of disabled people is of benefit to all passengers. [For example low-floor buses are necessary for wheelchair-users and at the same time reduce the boarding time and the alighting accidents, which is a clear benefit of this accessibility measure for all passengers as well as for the transport company and for the society as a whole.] It can be argued that since the ability of disabled people to use public transport is now (…) accepted as a right, attempting to apportion costs to them would be as irrelevant as attempting to apportion costs between, say, male and female transport users." (European Conference of Ministers of Transport, 2004)

Based on this it has to be stated that a full and effective participation and inclusion in society by all persons with disabilities is a human right, not only but especially for the nations having signed and ratified the "Convention on the Rights of Persons with Disabilities" (CRPD). To enable persons with disabilities to live independently and participate fully in all aspects of life accessible transportation plays an important role. Hence accessibility is one of the general principles of the CRPD. Therefore the CRPD declares that "States Parties shall take appropriate measures to ensure to persons with disabilities access, on an equal basis with others, to the physical environment, to transportation, to information and communications, including information and communications technologies and systems, and to other facilities and services open or provided to the public, both in urban and in rural areas. [In detail the CRPD demands the] (…) identification and elimination of obstacles and barriers to accessibility especially to buildings, roads, transportation and other indoor and outdoor facilities, including schools, housing, medical facilities and workplaces. (…) [Besides the States Parties have] to ensure personal mobility with the greatest possible independence for persons with disabilities." (United Nations, 2006)

In addition to the CRPD the national states usually have a complementary legislation for people with disabilities regulating also the general provisions for accessibility. For example in Germany a Disability Equalisation Act regulates that public paths, open spaces and streets as well as transport facilities and means of transportation open to the public have to be designed in an accessible way (BGG, 2002). Also the European Union has proposed at present an "European Accessibility Act, which will set common accessibility requirements for certain key products and services that will help people with disabilities at EU level to participate fully in society." (European Commission - DG Employment, Social Affairs & Inclusion, 2015) Amongst others the Act includes air, bus, rail and waterborne passenger transport services including the built environment used by clients of passenger transport services as well as the environment that is managed by service providers and by infrastructure operators.

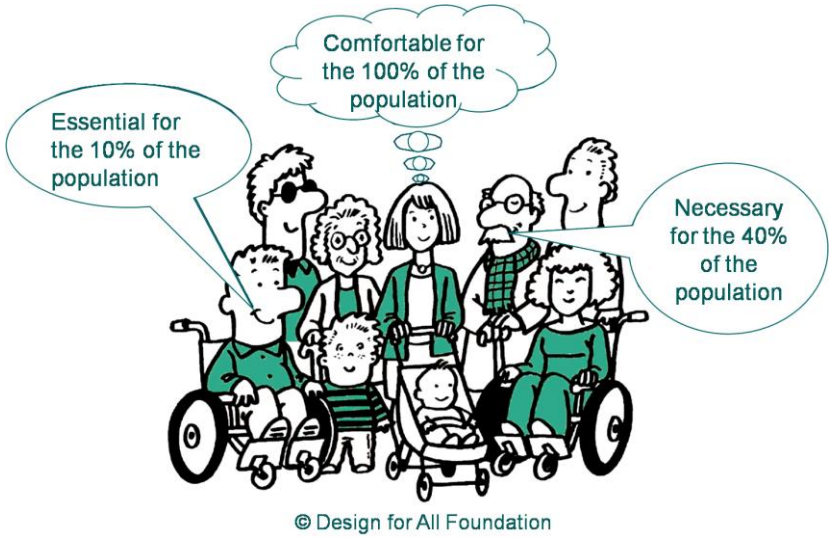
Notwithstanding that all these laws to some extent include reservations of decision regarding costs (for details see Federing and Lewis, 2016), it has to be kept in mind that in most nations the discussion

about economic effects of improved accessibility to transport systems cannot be a question of designing a system accessible or non-accessible, because they have to be designed accessible by law anyway. The pending question is in fact how to design the several transport elements with their locally specific characteristics in detail. In this context economic conditions of course play an important role for example in the context of Cost-Benefits-Analyses (CBA) for investment decisions in reliance to time and financial limits.

Social aspects of accessibility

As mentioned above on the one hand it is not easy to appoint whether a measure is of benefit only to a specific group of passengers or to all passengers. On the other hand nowadays it is well-recognised that an accessible environment is essential for about 10% of the population and necessary for about 20 to 40%. And last but not least accessible environments are comfortable for all (Rebstock, 2011), see Figure 1.

Figure 1. **Accessible environments are comfortable for all**



Source: Design for All Foundation (2016), Design for All is design tailored to human diversity, http://designforall.org/design.php, accessed 09 January 2016

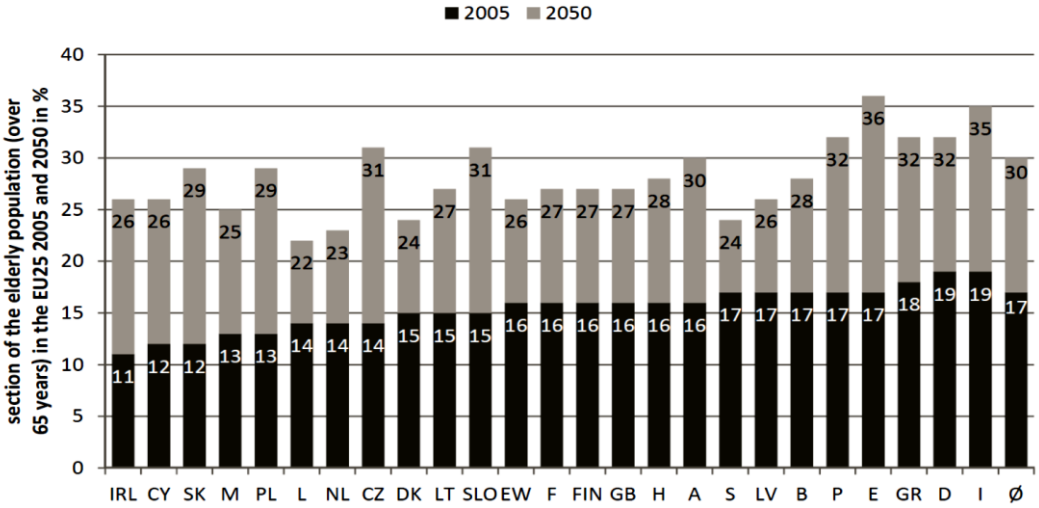
The 10% of the society with indispensability of an accessible environment are the so called people with disabilities. But of course this group is not homogeny and the individual abilities and limitations of people with disabilities vary in reliance to the built environment. Nevertheless this group can be specified as follows (Bundesministerium für Verkehr, Bau und Stadtentwicklung, 2000):

- People with locomotion limitations (e. g. limp, stand or grasp limits)
- People with sensory limitations (e.g. blindness, deafness, visual impairment)
- People with speech limitations
- People with cognitive limitations
- People with mental limitations

The size of the group with necessity of an accessible environment varies from 20 up to 40% of the society (Becker *et al.*, 2007). This includes amongst others people with temporary or age-related mobility-restrictions, pregnant women and people with buggies or dogs. Temporary restrictions occur e.g. because of heavy respectively lots of luggage or accident-related limits (Rebstock, 2011). From age-related restrictions especially small children and elderly people are affected.

In the context of age-related restrictions of elderly people the so-called demographic change has to be taken into account, because it will have a high influence on the future development of societies in many countries. In reliance to the world's population it is expected that the proportion of people over 60 years will double between 2000 and 2050 from about 11% to 22% and the absolute number will increase from 605 million to 2 billion (Frye, 2015). In Europe for example an absolute shrinkage of the general population is anticipated, while the proportion of older people will increase (Leibniz-Gemeinschaft e.V., 2007). Rates of negative growth will vary considerably across the European Union (EU). Not all of the countries in Europe expect an absolute shrinkage of the population. For example, in the United Kingdom, Ireland, Iceland, France and Portugal as well as in the Scandinavian states population numbers are predicted to remain stable or increase until 2050. By contrast, the transition countries in Central Europe will experience population shrinkage without exception (Gans and Leibert, 2007). But all nation states' populations will 'age', and this means that across the EU the median age will increase notably in the first half of this century. By 2050, about half of the European Union's citizens will be older than 50 (Aschemeier, 2007). Of particular note is that the proportion of those aged 80 and over is predicted to increase some 180% between 2005 and 2050, and growth of the 65-79 age group is expected to be 44% in the same period (Commission of the European Communities, 2005). Figure **2** shows the proportion of the population that is elderly (65+) in the EU25 member states for the years 2005 and 2050. While the proportion of elderly people will rise in all countries, it will vary and is predicted to range between 36% in Spain and 22% in Luxembourg.

Figure 2. **Section of the elderly population in the EU25 2005 and 2050 in %**



Source: Data: Dangschat, J.S. et al. (eds.) (2007), Mobilität und Verkehr im demografischen Wandel, Mobilität mit Zukunft, 1/2007, VCÖ, Wien, p.18

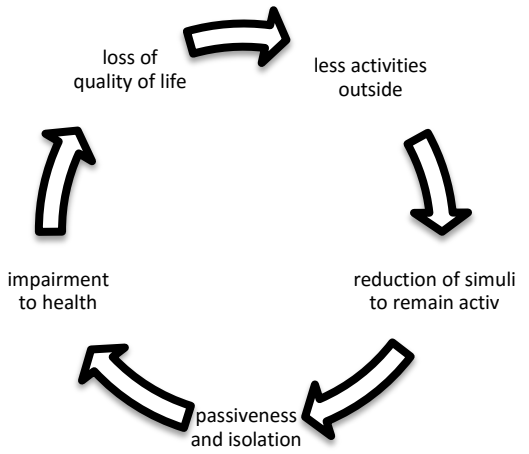
In measuring benefits of future accessibility developments in the field of passenger transport and mobility, a detailed understanding of the demographic trends is crucial; changes in the age structure are of particular importance in relation to the nature, means and timing of transport activities (Forschungsgesellschaft für Straßen- und Verkehrswesen e. V. - Arbeitsgruppe Verkehrsplanung, 2006). Several studies have shown that elderly persons "are more often immobile in the sense of not leaving the

house on a given day, make fewer trips on days they go out, use non-car transport modes more frequently, and travel over shorter distances than do younger cohorts (…). They also tend to travel less outside peak hours or at night." (Schwanen and Páez, 2010) Besides for the elderly accessibility of specific sources and objectives like medical institutions, public authorities, retail stores, municipal centers, churches and senior citizens' residential estates get more important (Hamann, 2006). Nevertheless it has also to be noted that elderly persons are not a homogenous population group. For example "lifestyle (e.g. working, semi-retired, housing, hobbies, etc.) and the socio-demographic characteristics (e.g. gender, marital status, ethnicity, driver license possession, etc.) of the old are varied." (Mercado, Páez and Newbold, 2010) In relation to this, mobility can be viewed in general as possessing five significant elements (Metz, 2000):

1. Travel to achieve access to desired people and places. (…)
2. Psychological benefits of movement – of "getting out and about". (…)
3. Exercise benefits. (…)
4. Involvement in the local community yielding benefits from informal local support networks. (…)
5. Potential travel – knowing that a trip could be made even if not actually undertaken.

In order to realise many opportunities for older people to participate fully in society, strategies need to be cognisant of the need to preserve individual mobility. If the ability to live autonomously and independently and to participate in outside activities is lost, a vicious circle of immobility can ensue: an important stimulus for elderly to stay active is lost, and this in turn leads to passiveness and loss of abilities, which can result in further isolation and passiveness, see Figure **3**. As Shoval et al. make clear, "out-of-home mobility is critical to numerous aspects of elderly people's quality of life." (Shoval *et al.*, 2010)

Figure 3. **Vicious circle of immobility**



Source: Haindl, G. and R. Risser (2007), "Mobilität und Lebensqualität älterer Menschen", Verkehrszeichen, Vol. 23, No. 3, p.14

Despite the common trend of longer-lasting health among older people, the increase (in absolute and percentage terms) in the elderly population will likely result in higher rates of personal mobility impairment (Kasper, 2005). The successful repression of so-called diseases of civilization will lead to higher incidences of chronically-degenerative illnesses (Münz, 2005), and even with comparative good health ageing can result in physical and mental insecurities (Kasper, 2005). There is "a strong correlation between age and disability, or loss of mobility." (Frye, 2015) For example "the number of citizens with

disabilities and/or functional limitations will increase significantly with the ageing of the European Union's population. Taking into account demographic ageing, it is expected that in 2020 approximately 120 million persons in the European Union will have multiple and/or minor disabilities." (European Commission, 2015) In principal age-related physical restrictions are partially comparable with those of people with disabilities. The only difference is that for physically and mentally healthy older people these restrictions generally come into effect over time (Appel, 2007). For example in Germany 7.5 million people were registered as "severely disabled" (2013), which amounts to a proportion of 9.4% of the German population. Three-fourth of them were 55 years or older and one-third were 75 years or older (Statistisches Bundesamt, 2014). As such, transport systems have in principle to be accessible to a wide range of potential passengers in varying states of health and personal mobility, if a high amount of elderly people are not to be excluded from public life (Hettrich and Herzog, 2007). So it can be pointed out that accessibility is not only a question of inclusion and equal treatment of people with disabilities but also a matter of social and health policies for the elderly. Even the demographic change will increase the need of accessible transport systems in order to avoid immobility and a raise of medical and care costs of the future elderly. Moreover the growing proportion of elderly people is also an important economic issue especially related to the tourism sector (see corresponding chapter).

Nevertheless it has to be kept in mind that with respect to the heterogenic group of the elderly as mentioned above accessibility in terms of barrier-freedom is only one of the quality features of an age-friendly transport system (see Table 1).

Table 1. **Quality features of an age-friendly transport system**

System quality	Explanation
Affordable	Use of the transport and mobility system should be possible within older people's financial means.
Available	The transport and mobility system should exist in a way that older people can use it.
Barrier free	The system's facilities should be usable by disabled persons without any specific difficulty and without assistance from third persons. They should as such be designed to take into account the physical, sensory and cognitive impairments more likely to be experienced by older people.
Comfortable	The transport and mobility system should be designed or adapted to ensure that older people can use it without experiencing undue discomfort, pain, stress or anxiety.
Comprehensible	Information about the transport and mobility system should be communicated in ways that make it easy for older people to understand.
Efficient	It should be possible to travel to the required destination within a reasonable amount of time.
Friendly	The transport and mobility system should be approachable for older people. Where applicable staff should be available in a number of ways (phone, face to face) and should be aware of older people's particular needs.
Reliable	The transport and mobility system should perform as advertised, allowing for an element of unpredictability caused by unforeseen events, e.g. by extreme weather.
Safe	The transport and mobility system should not be dangerous for older people, with specific needs, to use. They should not feel unsafe while using it.
Secure	The transport and mobility system should be dependable and should not present unnecessary risks to older people. They should feel confident that they are not at risk when using it.
Transparent	Older people should be aware of the existence of the transport and mobility options available to them, and understand how to use them.
Complementary	The transport and mobility system should be supported by policies capable of promoting accessibility for older people by means other than personal transport, e.g. internet access, mobile services.

Source: Berding, J. et al. (2015), "Policies for transport and mobility in an ageing society: An evaluation of current practice in Europe and beyond", in Bundesanstalt für Straßenwesen (ed.), Ageing and Safe Mobilitiy: Papers, Bergisch Gladbach, p.4

Last but not least it has to be highlighted that in most cases accessibility measures have a useful effect on all users, because the comfort of the system respectively the system quality will increase. As mentioned above a low-floor bus is necessary for wheelchair-users and reduces the boarding time and the alighting accidents. But in addition these types of busses are also more comfortable for all users, because it is easier and saver to board without steps at the entrance. This is only one example, there are many other measures for people with disabilities which also provide high overall socioeconomic benefits. Nowadays many accessibility projects have already internalised this and therefore are based on a more broadly approach (see Table 1), like design for all, inclusive design or universal design concepts (Rebstock, 2011).

Notwithstanding the above, of course also some more specific measures without (or at worst with negative) effects on other users exist. Nevertheless this type of measures also has to be get off the ground for equalisation purposes, but maybe compromises have to be made. In this context and related to measures for a specific disability it has in general to be ensured not to build up a new barrier for other users (Leidner, Neumann and Rebstock, 2006).

Studies analysing the economic benefit of accessibility measures in the transport sector

First of all it has to be noted that not many studies exist, which investigate the economic benefit of accessibility measures in the transport sector. In general there is a lack of evaluation of accessibility interventions, "which makes it difficult to draw conclusions regarding their impact and success, to establish whether resources used in this field are effective and to implement changes to improve project delivery in the future." (Berding *et al.,* 2015). Nevertheless during the last years a few efforts have been undertaken to identify economic benefits of improving accessibility of the transport systems. The following analysis raises no claim to completeness.

One example from UK analysing several railway stations after improving their accessibility shows that 1% of all station users are customers with disabilities and another 5% are passengers who are temporarily encumbered, for example because of taking a buggy or heavy luggage with them. These values are surprising low in reliance to the remarks made in the previous chapter, but this could also be an indicator for low rates of use of public transport in the UK by people with mobility restrictions in general. Nevertheless about 10% of the passengers with disabilities have increased the number of trips after improving the accessibility, whereby one third of the wheelchair users, approximately a fifth of passengers with hearing impairment, and 15% with mobility impairment increased their use of the improved stations. All in all the study states an economic benefit, with benefits overall exceeding costs by 2.4:1 over a 60-year appraisal period, although the values differ from station to station (Steer Davies Gleave, 2015; for comprehensive analysis see Duckenfield, 2016).

As another example a Norwegian study analysed the passengers' valuation of universal design measures in public transport. At first the study stated that benefits arising from measures to improve accessibility for passengers with disabilities are not limited to these groups but provide benefits and ease of use for all passengers as mentioned in the previous chapter. So the study focused upon the impact of accessibility measures in public transport on all passengers as well as on passengers with disabilities.

Based on these measures passenger benefits were quantified and monetised. Therefore a full scale stated preference survey among passengers has been undertaken (Fearnley *et al.,* 2009). This "stated preference method" refers "to a family of techniques which use individual respondents' statements about their preferences in a set of transport options to estimate utility functions. The options are typically descriptions of transport situations or contexts constructed by the researcher." (Kroes and Shelton, 1988) The method is particularly useful in reliance to CBA, in order to compare the social costs and benefits of measures by aggregating them on a common monetary scale. Especially the external effects often involve impacts on public goods, which are not traded in the market and therefore, no market prices exist. One technic for valuing public goods is the stated preference method, at what experimentees were asked directly for their willingness-to-pay in order "to get an improvement or avoid a decrement in the quality or quantity of the public good." (Hensher, 1994) The Norwegian study is based on focus groups and on-board interviews with passengers in three different Norwegian cities where considerable accessibility measures in public transport were implemented. "Special care is made to present attributes and their levels in a way that enable respondents to make trade-offs as realistically as possible in the choice experiment, i. a. by extensive use of graphic illustrations. As a final exercise (…) [the researchers] obtain respondents' willingness to pay for the "package" of full accessibility for all, from door to door, using contingent valuation, and compare this with the sum of values for individual measures." (Fearnley *et al.,* 2009). According to the authors´ opinion within the stated preferences method the accessibility measures can be prioritised, ranked and compared with other investments in the transport sector as part of CBA. So as a result values for different accessibility measures were defined. Each measure is associated with a recommended value per ride in Norwegian krones (NOK). For example a low-floor bus gets NOK 1.67, a light at stops NOK 2.82 or satisfactory snow and ice removal NOK 4.97 (see Table 2). The results are representative for all passengers, and not only for those with disabilities. All in all the authors conclude that the study has provided for the first time in Norway and probably also internationally a robust set of valuation of accessibility measures in public transport useable for CBA (Fearnley *et al.,* 2009).

Table 2. **Summary of recommended valuations. NOKs per ride**

Values based on choice experiments	**Value**
Information at stops	
Local map	0.43
Speaker with info of changes, disruptions	0.69
Screen with real-time information	4.05
All three information devices: map, speaker and RTI	4.62
Information on board	
Next stop via speaker	3.62
Next stop via screen	3.67
Both: next stop via speaker and screen	4.20
Improved boarding and alighting	
Low-floor vehicle	1.67
Low-floor vehicle and adjusted (elevated) curb at the stop	2.07
Shelter at stops	
Shelter without seating	3.12
Shelter with seating	5.10
Cleaning and ice/snow removal at stops	
Satisfactory cleaning	3.62
Satisfactory snow and ice removal	4.97

Values based on contingent valuation	
Light at stops	2.82
End to end trip universally designed	3.83
Stops and vehicle universally designed	4.35

Source: Fearnley, N., S. Flügel, M. Killi, M. Dotterud Leiren, Å. Nossum, K. Skollerud and J. Aarhaug (2009), Kollektivtrafikanters verdsetting av tiltak for universell utforming, TØI rapport, Oslo, www.vegvesen.no/_attachment/121428/binary/227195 , accessed 15 December 2015, p.i-ii

Another study from Norway has used the stated preferences method in order to quantify benefits of universal design measures related to public buildings and outdoor areas. Based on an internet survey with about 800 answers benefit rates for 18 accessibility measures were defined. Their selection was based on a study of measures in different databases, for example of a Norwegian public sector administration company and from some other similar projects for counties and municipalities in Norway. Each measure was allocated to an average benefit and to benefits for different groups of people with functional limitations who are dependent on these measures. The values were used within CBA in order to compare benefits and costs of different measures and to prioritise them. As a result a spreadsheet software file and a manual which describes the calculations in general and for each measure were published for public use (Analyse & Strategi AS, WSP Norge and Vista Utredning AS, 2011). Table 3 shows the average valuations of the measures included in this study.

Table 3. **Average valuations. NOKs per visitor.**

Effort	**NOK**
Good pedestrian walking surfaces outdoor	3
Visual marking of walkways	9
Visual and tactile marking indoors	9
Stair handrails	7
Automatically opening entrance doors	1
Visual contrast on entrance doors	0,5
Access ramps for entrances	1
Access ramps in swimming pools	1
Access ramps at beaches	1
Visual marking of doors and glass walls	2
Low counters	4
Universal designed toilet facilities	1
Installing elevators	5
Modernisation of existing elevators	2
Indoor lighting	17
Outdoor lighting	17
Assistive listening system / hearing loop	0,9
Floor space for wheelchair access	0,3

Source: Data: Analyse & Strategi AS, WSP Norge and Vista Utredning AS (2011), Tiltak for universell utforming i bygg og uteområder Veileder i samfunnsøkonomisk analyse, Oslo, https://www.regjeringen.no/globalassets/upload/bld/uurapportveileder.pdf accessed 15 January 2016, p.14

Notwithstanding the conclusions of the Norwegian studies mentioned above focusing on universal design the values have to be interpreted with extremely caution. For example lists as shown in Table 2 and Table 3 cannot be ranked without a deeper look into each single measure, because the importance of a single accessibility measure differs in reliance to the abilities of the current user. Some measures benefit many different groups of users, but the benefit per user is rather low. Other measures maybe affect only some user groups, but for them the measure could be an indispensable condition for using the whole system. For example the measure "Low-floor vehicle and adjusted (elevated) curb at the stop" in Table 2 is valued with NOK 2.07, the "Shelter with seating" with NOK 5.10. But for wheelchair-users a stepless entrance in the bus is essential for using the system and therefore this is also a matter of avoiding discrimination (see previous chapter). By contrast a seating at the shelter is mostly irrelevant for wheelchair-users, but has high overall socioeconomic benefits. Besides a sharply higher willingness to pay was recognised on non-accessible transport lines than on the accessible ones (Fearnley, 2016). Table 3 shows high benefit rates per user for indoor and outdoor lighting, for visual and tactile markings and for stair handrails and elevators. Especially good lightning conditions seem to be highly profitable and might not be considered enough so far. On the contrary measures like hearing loops have a comparatively low average valuation of NOK 0.9 per person, but of course, for people using a hearing aid, the value is much higher. As a consequence the interpretation of average benefit rates cannot be separated from non-discrimination purposes. Merging both benefit dimensions in a kind of a matrix could be a way to prioritise, with the absolutely indispensable accessibility measures for specific target groups on the one hand, and with the averagely high rated measures on the other hand. Maybe this could lead to priorities regarding high overall socioeconomic benefits as well as high individual benefits and avoidance of discrimination and exclusion. On top of this it has always to be kept in mind the country with his specific cultural and geographical background within which the study was made. For example in the northern European countries like Norway measures like "satisfactory snow and ice removal" and "good lightning" could be much more important as for example in southern European countries, because of the quite long snowy and darkness periods during winter times.

The economic impact of accessible tourism in Europe and his reliance to the transport sector

Economic impact of accessible tourism in Europe

During 2012 and 2013 the European Commission tasked a few studies to get a better understanding of accessible tourism in the European Union. One of these studies has also analysed the economic impact of accessible tourism on the tourism sector in Europe. Besides the current and future demand for accessible tourism in Europe and beyond as well the travel patterns and behaviours of tourists with accessibility needs were investigated. In fact there is no direct link to economic benefits for the transport sector in this study, but transportation is part of the services and facilities "which enable persons with special access needs, either permanent or temporary, to enjoy a holiday and leisure time with no particular barrier or problem." (GfK SE *et al.*, 2013) Amongst others it became apparent that tourists with disabilities spent less money and less nights during their journey than high-aged tourists. Thus the economic benefit of "Tourism for All" in the EU produced by people with disabilities is less than the benefit produced by elderly people, but both need accessibility features during their holidays.

Within the EU27 in 2012 both groups together spent approximately EUR 80 per one-day trip, about EUR 700 per domestic overnight trip and about EUR 1 100 per foreign overnight trip. The direct overall benefits of Tourism for All to the economy of the European Union is quoted to a gross turnover of tourism-related service providers of about EUR 352 billion and to a gross value added (GVA) of approximately EUR 150 billion. In reliance to the gross domestic product (GDP) the economic benefit was EUR 164 billion. This complies with more than 4.2 million employees who are located directly in the EU tourism businesses.

In addition to the effects coming directly from the tourism businesses the tourism-induced indirect economic effects have to be regarded. In general the tourism sector affects a wider-scale of economy through the so-called "multiplicator effects". These are the indirect and induced effects on income and employment of up- and downstream economic sectors coming from expenses and investments, for example industries producing goods and services for the tourism sector like wholesalers or the manufacturing industry (Spektrum der Wissenschaft Verlagsgesellschaft mbH, 2001). With simultaneous consideration of all direct, indirect and induced effects the accessible tourism sector produced an economic output of EUR 786 billion, a GVA of EUR 356 billion, a GDP of EUR 394 billion and about 8.7 million employees within the EU. Excluded in this study are the effects induced by tourists not travelling alone. But "of course, like other tourists, older people and people with disabilities will generally travel with friends or family." (Frye, 2015)

Besides the domestic EU-market also eleven international key inbound markets (IM11) have been analysed in this study. Tourists from outside the EU with accessibility demands traveling to the EU spent on average about EUR 1 000 per trip. The direct overall benefits to the economy of the European Union is quoted to a gross turnover of tourism-related service providers of about EUR 16 billion and to a GVA of approximately EUR 7 billion. In reliance to the GDP the economic benefit was about EUR 8 billion. This complies with approximately 286 000 employees working directly in the EU tourism businesses. Considering the multiplier effect the accessible tourism key inbound markets produced an economic output of EUR 34 billion, a GVA of EUR 15 billion, a GDP of EUR 17 billion and about 538 000 employees within the EU.

Furthermore the potential increase of demand for accessible tourism offers in the EU by 2020 was investigated on the basis of three scenarios of improved accessibility measures. Within the framework of these scenarios, a certain amount of people who did not travel in the past would be willing to travel in the future in case of improved accessibility offers of tourism facilities. For scenario A representing minimum improvements of accessibility, the economic benefit of demand for accessible tourism offers in the EU would increase by 18.3-19.7% in comparison with the indicators used for the status quo analyses (economic output / gross turnover, GVA, employment) as mentioned above. For scenario B representing medium improvements of accessibility the economic benefit would increase by 24.8-26.6% and for scenario C representing extensive improvements of accessibility the economic benefit would increase up to 39.4% against the baseline. Based on this scenario including all direct, indirect and induced effects the economic output would be EUR 1 073 billion, the GDA EUR 484 billion and the GDP EUR 537 billion within the EU. In addition the international inbound markets would also increase significantly. For scenario A, up to 33% of people with special access needs who haven`t visited the EU yet would do so in the future, under scenario B it will be up to 40% and under scenario C up to 46%. So the overall economic benefit would increase by 28.9% under scenario A, by 53.3% under scenario B and by 74.9% under Scenario C. In the best case and under consideration of the multiplier effect the accessible tourism key inbound markets will produce an economic output up to EUR 60 billion, a GVA up to EUR 26 billion, a GDP up to EUR 30 billion and up to 940 000 employees within the EU (GfK SE *et al.*, 2013).

Table 4 summarises the economic benefits of accessible tourism in Europe.

Table 4. Economic benefits of accessible tourism in Europe.

			EU27	IM11
Average expenditures for day trips			EUR 80	-
Average expenditures for domestic overnight trips			EUR 700	-
Average expenditures for foreign EU overnight trips			EUR 1 100	EUR 1 000
Gross turnover	**Tourism**		EUR 352 billion	EUR 16 billion
	All		EUR 786 billion	EUR 34 billion
	Scenario C		EUR 1 073 billion	EUR 60 billion
Gross Value Added GVA	**Tourism**		EUR 150 billion	EUR 7 billion
	All		EUR 356 billion	EUR 15 billion
	Scenario C		EUR 484 billion	EUR 26 billion
Gross Domestic Product GDP	**Tourism**		EUR 164 billion	EUR 8 billion
	All		EUR 394 billion	EUR 17 billion
	Scenario C		EUR 537 billion	EUR 30 billion
Employees	**Tourism**		EUR 4.2 million	EUR 268 000
	All		EUR 8.7 million	EUR 538 000
	Scenario C		EUR 12.1 million	EUR 940 000
Increase of tourism demand	**Scenario**	**A**	24%	33%
		B	37%	40%
		C	44%	46%
Increase of economic contribution	**Scenario**	**A**	18.3 % – 19.7%	28.9%
		B	24.8 % – 26.6%	53.3%
		C	up to 39.4%	74.9%

Source: Data: GfK SE, University of Surrey, Neumannconsult and ProA Solutions (2013), economic impact and travel patterns of accessible tourism in Europe. final report, Nürnberg, Surrey, Münster, Barcelona, www.media.designforall.org/publico/index.php?opc=documento&document='3106' , accessed 16 December 2015, p.26-32, p.165, p.174

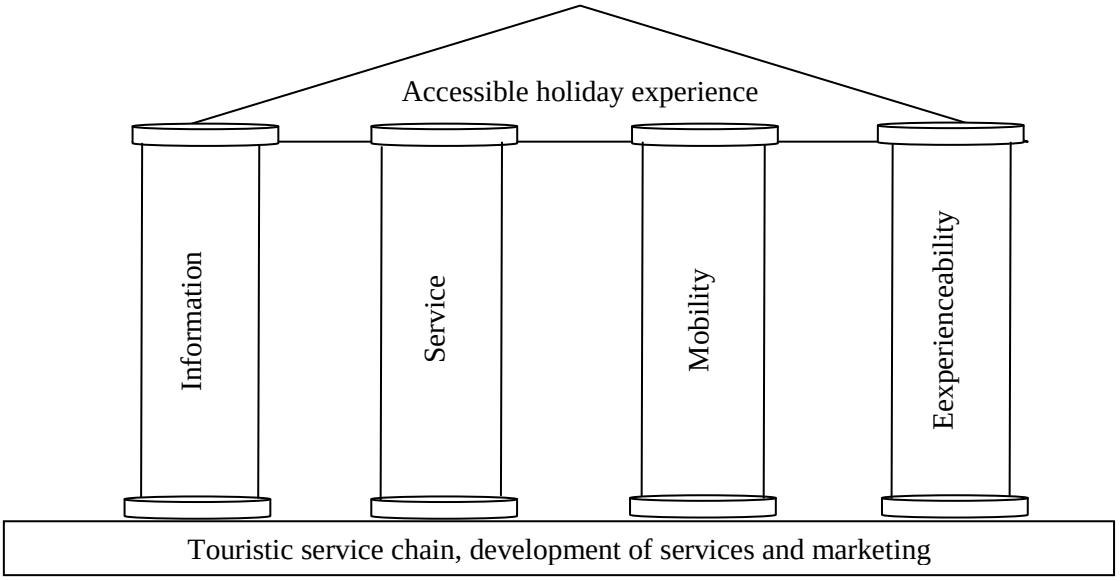
As mentioned above no direct link to economic benefits for the transport sector was found in the European study. But some points of reference can be elaborated from other publications. For example in a German study about the economic benefits of Tourism for All commissioned by the Federal Ministry for Economics and Labour the structure of the daily expenses was analysed. So tourists with disabilities in Germany spent about 39% of their one-site tourism expenses for accommodation, 24% for gastronomy, 14% for other services, 13% for goods from the local retail sector, 7% for leisure offers and 3% for local transportation (Neumann and Reuber, 2004). Unfortunately the journey to a destination and back has not been considered. Nevertheless by all journeys a large part of the travel expenses account for changing of location. Estimations assume that between 25% and 60% are allotted to the journey to and from one's destination. Of course the single parts of the travel expenses and the total travel prices are different in reliance to the kind of a journey and to the means of transportation used (Freyer, 2009). But

all in all it can be assumed that a significant part of the economic benefits named in Table 4 accounts directly for the transportation sector. Only as an indication hereof the expenditure rates for travelling mentioned above can be set in reliance to the today`s economic benefits of tourism-related service providers and to scenario C representing extensive future improvements of accessibility, nonetheless the results won't be resilient. This would imply that the gross turnover coming from the transport to and from one's destination would increase from at least EUR 92 billion at present up to almost EUR 130 billion, the GVA from EUR 39.25 billion up to EUR 55.3 billion and the GDP from EUR 43 billion up to EUR 60.7 billion. And for local transportation the gross turnover would increase from EUR 8.3 billion up to EUR 11.9 billion, the GVA from EUR 3.5 billion up to EUR 5.1 billion and the GDP from EUR 3.9 billion up to EUR 5.6 billion.

Relevance of passenger transportation for the accessible tourism sector

As mentioned above no direct link to economic benefits for the transport sector was found in the European study about the economic impact of accessible tourism on the tourism sector. But nevertheless tourism is not possible without transportation and its elements like transport routes and means of transportation (Gross, 2005). And, as shown in Figure **4**, especially for an accessible holiday experience mobility is one of the four key pillars.

Figure 4. **Key pillars of an accessible holiday experience**



Source: Data: Neumann, P. and P. Reuber (2004), Ökonomische Impulse eines barrierefreien Tourismus für Alle. Münstersche geographische Arbeiten, Münster, p.54

Following this, accessible transportation is one of the most important elements of the so-called "accessible touristic service chain". This service chain takes into account several parts of a journey subdivided in the following elements (Rebstock, 2010 / Rebstock, 2011):

- Travel preparation (preparation, provision of information, booking)

- Travel action (journey to a destination, arrival and orientation, accommodation, catering, leisure time and sports, service and assistance, entertainment and culture, tours and shopping, return journey)

- Travel post-processing: memories and confirmation

In general people with disabilities have the same needs as people without disabilities (Hrubesch, 1998). However related to accessibility implementation processes a considerable difference occurs. So it is not possible only to look after access for some parts of the touristic service chain, because otherwise people with disabilities will meet several barriers during their holiday activities (Treinen *et al.*, 1999). Thus people with disabilities make different demands to the touristic service chain and their single elements (ADAC, 2003). So it´s very important not to forget one of these chain links, because "a journey is like a chain - it is only as good as its weakest link." (European Commission - Directorate General Transport, 1999)

Accessible Tourism "needs products and cooperation all along the touristic service chain, (…) [if a destination wants to be successful in this sector]. Unrestricted accessibility to the transport sector is one of the key requirements for success, because at least half of the terms of the touristic service chain (journey and departure, arrival and orientation, locomotion on location, leisure time and sports, entertainment and culture, tours and shopping) are directly hooked on barrier-free mobility." (Rebstock, 2010) Therefore accessible transport systems are an essential condition to reach the other accessible elements of the touristic service chain like hotels, restaurants or points of interest. According to this it`s indispensable to develop the transport sector of a destination in a way that it`s accessible for all, whenever a region wants to be successful in the accessible tourism sector (Rebstock, 2011).

This statement is underlined by a German study commissioned by the Federal Ministry for Economics and Labour, which detected that locomotion on location for 76% of the tourists with mobility restrictions was an important criteria for the choice of their travel destinations. 74% mentioned the journey to and from one's destination, 71% named tours (see Table 5).

Table 5. **Importance of the elements of the touristic service chain for people with disabilities.**

Relevance	1	accommodation	82%
	2	locomotion on location	76%
	3	journey to and from one's destination	74%
	4	tours	71%
	5	travel preparation	71%
	6	cultural activities	62%
	7	arrival and orientation	61%
	8	service on location	58%
	9	health care on location	52%
	10	catering	51%
	11	shopping	37%
	12	sports	19%

Source: Data: Neumann, P. and P. Reuber (2004), Ökonomische Impulse eines barrierefreien Tourismus für Alle. Münstersche geographische Arbeiten, Münster, p.33

This is in line with the European study mentioned above, which has analysed the importance of different aspects related to the choice of travel destinations by people with disabilities. 63% of them named "accessible transport types to and from destination" as important or very important for their choice and about 60% "transport once at destination" (GfK SE *et al.*, 2013). Also "the majority of older people rate comfort and ease of travel highly and (…) their choice of destination will be determined both by the ease with which they can arrive and leave and the convenience with which they can move around the resort or city at their destination." (Frye, 2015)

The German study also analysed which elements of the touristic service chain have been negatively affected people with disabilities during their journey (see Table 6). Thus the greatest barriers exist in reliance to cultural activities, locomotion on location plus tours and sports. Furthermore half of the people with disabilities are confronted with barriers during their journey to and from one's destination. This situation is accentuated by the fact that especially for the journey to the destination and back, for the locomotion on location and for tours the most clearly disproportions between the demands of the traveller and the real observed conditions exist (Neumann and Reuber, 2004). These results are in line with a previous German study, which amongst others identified that people with disabilities meet several barriers during their holidays especially by using the public transport system and the local walkway networks (Treinen *et al.*, 1999).

Table 6. **Ranking of impairments during traveling.**

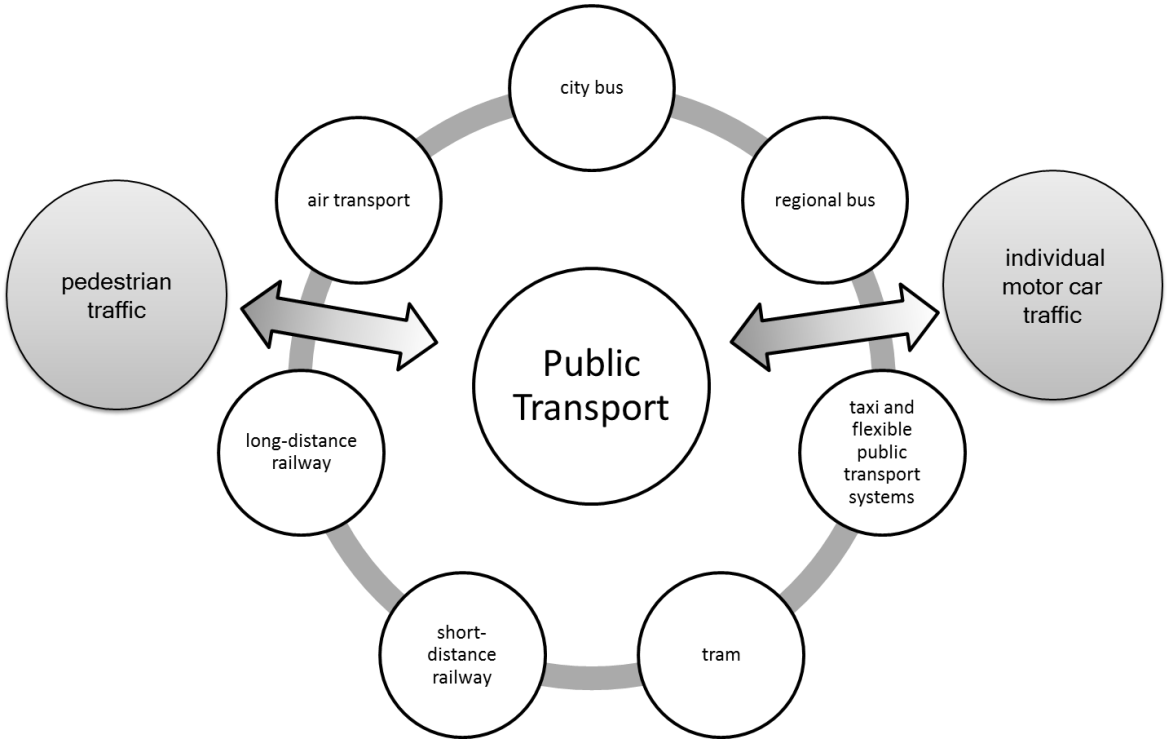
Impairment		
1	cultural activities	67%
2	locomotion on location	65%
3	tours	63%
4	sports	55%
5	journey to and from one's destination	52%
6	accommodation	47%
7	arrival and orientation	44%
8	shopping	42%
9	service on location	42%
10	travel preparation	40%
11	health care on location	35%
12	catering	24%

Source: Data: Neumann, P. and P. Reuber (2004), Ökonomische Impulse eines barrierefreien Tourismus für Alle. Münstersche geographische Arbeiten, Münster, p.33.

For the accessible tourism sector this implies that besides an accessible journey to the destination and back with private cars or public transport systems also an accessible locomotion on location has to be obligatory ensured. This includes the individual motorised transport as well as local public transport systems and local walkway networks (Rebstock, 2011). About 80% of the people with special access needs used the private car for the transport to and from one's destination or at destination during the last 12 months, as investigated in the European study about the economic impact of accessible tourism on the tourism sector. Half of them used the airplane, around 40% took the train, 40 % used the local public transport, one-third used a taxi and one-third took a long-distance bus (GfK SE *et al.*, 2013). Indeed the private car is foregrounded also for tourists with access needs, but in comparison to travel analyses of all

tourists, people with disabilities using public transport systems more often as tourists without special access needs (Treinen *et al.*, 1999). Therefore the provision of an accessible public transport is not only necessary because of enabling people with disabilities to use public transport at the destination but also for building up an plausibly image of an accessible destination. Accessibility is getting more and more a matter of course, at least in bigger cities, because by now many cities have made their public transport systems accessible or are just doing it step by step. Thus many tourists "expect and demand the same level of accessibility when they travel abroad." (Frye, 2015) Without local accessible public transport offers it cannot be expected that tourists perceive a destination as accessible. Besides it`s difficult or maybe not possible at all to convincingly impart an image of an accessible destination. Hence accessible public transport offers are also necessary because of touristic marketing reasons (Rebstock, 2005). However to design the public transport useable to the greatest extent possible it`s essential that the four thematic sectors infrastructure, rolling stock, operations and services as well as information are taken into consideration. Aside this complexity within one single public transport system the public transport sector as a whole also is very complex and all sectors have to link to each other in an accessible way of using (see Figure **5**).

Figure 5. **Complexness of public transport**



Source: Rebstock, M. (2010), "Success factors for the development of a Tourism for All approach in low mountain ranges - possible solutions and implementation difficulties on the basis of the Thuringian pilot project "model region for a barrier-free Tourism for All"", in Andeas Kagermeier und Joachim Willms (ed.), *Tourism Development in Low Mountain Ranges*, Studien zur Freizeit- und Tourismusforschung, Mannheim, pp. 70.

One example for the implementation of Tourism for All in a touristic marketing strategy is the city of Erfurt, capital of the federal state of Thuringia, Germany. Since 1999 the tourist marketing board is working on accessible tourism issues and Tourism for All is part of marketing plans and strategic planning. Tours by minibus with wheelchair-access or guided in German Sign Language as well as the brochure "Erfurt erlebbar für Alle" (Erfurt Tourismus und Marketing GmbH, 2014) listing accessible offers are examples of these activities. Moreover in 2008 the city of Erfurt was one of the founding

members of the more national and internationally oriented touristic marketing association “Barrier-free destinations in Germany” (Arbeitsgemeinschaft „Barrierefreie Reiseziele in Deutschland“, 2008). Nowadays “Erfurt is considered to be one of the most famous accessible destinations in Germany.” (GfK SE *et al.,* 2013). One of the key factors of this success are the widely accessible local public transport system (tram and bus) and walkway networks. This progress was critical driven by the presence of the local working group “Barrier-free city of Erfurt”, a network headed by the city representative for people with disabilities and with members coming from the city administration, from associations of people with disabilities, from the University of Applies Sciences, from the tourism sector, from the local public transport company and from the Chamber of Architects (Landeshauptstadt Erfurt - Stadtverwaltung, 2015).

Usually Tourism for All should be integrated in more holistic approaches to capitalise on tourism. From there and in terms of inclusion Tourism for All purposes should always be kept in mind by all activities and developments made for the tourism sector. In this context transportation is one of the key sectors.

Conclusion

This paper has shown that nowadays in many countries accessibility of transport systems is not a voluntary task but a task bound by law. Besides it was elaborated that an accessible environment is not only essential for people with disabilities and necessary for up to 40 % of the population but also a matter of comfort for all users. Thus measures for travellers with special access needs in most cases provide benefits and ease of use for all passengers.

Moreover a few studies dealing with economic benefits of accessibility measures were analysed. Two studies from Norway used the stated preference method to monetise and prioritise different universal design measures. In general this method seems to work also as a tool for analysing economic benefits of accessibility measures. Nevertheless the results of these studies have to be interpreted with extremely caution in order to avoid discrimination, especially in reliance to measures, which are on the one hand valued rather low on average and on the other hand are an indispensable condition for specific user groups to use the system.

Finally the economic impact of accessible tourism and his inducible benefits on the transport sector as well as the relevance of passenger transportation for accessible tourism was elaborated. All in all it can be stated that accessible tourism produces a huge economic impact on the tourism sector and beyond, and by improving accessibility in the future a significant raise of economic benefits is possible. In general traffic is precondition for tourism. Besides tourists spend a significant part of their travel expenses for the journey to the destination and back and for local transportation. So it can be assumed that accessible transport systems will directly benefit from an increasing accessible tourism market.

However tourism is more dependent on transportation than the other way around, because transportation has more fields of action in reliance to passenger and freight traffic. Nevertheless for example in Germany about 40% of all ways and 50% of all passenger kilometres are leisure or holiday traffic (Gross, 2005). Anyhow accessible transportation is essential for accessible tourism respectively for Tourism for All. According to this it`s indispensable to develop the journey to the destination and back as well as the transport on the location in a way that it`s accessible for all, whenever a region wants to participate in the economic benefits induced by accessible tourism.

References

ADAC (2003), *Barrierefreier Tourismus für Alle,* München, pp.20.

Analyse & Strategi AS, WSP Norge and Vista Utredning AS (2011), *Tiltak for universell utforming i bygg og uteområder Veileder i samfunnsøkonomisk analyse,* Oslo, *https://www.regjeringen.no/globalassets/upload/bld/uurapportveileder.pdf*, accessed 15 January 2016, pp.6-15.

Appel, L. (2007), *Demografische Entwicklung und öffentlicher Personennahverkehr im ländlichen Raum. Dissertation,* Kassel, p.65.

Arbeitsgemeinschaft "Barrierefreie Reiseziele in Deutschland" (2008), *Principles of the Barrier-free Destinations in Germany Association,* www.barrierefreie-reiseziele.de/index.php?id=45&l=1, accessed 06 February 2016.

Aschemeier, R. (2007), "Zahlen und Fakten zum demographischen Wandel", *Geographische Rundschau*, Vol. 59, No. 2, pp. 62–64.

Becker, J. Schubert, S.; Vollmer, P. and M. Wahlster (2007), "Schwerbehinderung und Mobilitäts-einschränkung", *Internationales Verkehrswesen: Fachzeitschrift für Wissenschaft und Praxis*, Vol. 59, No. 12, pp. 580–584.

Berding, J. Gather, M.; M. Rebstock and R. Johnson (2015), "Policies for transport and mobility in an ageing society: An evaluation of current practice in Europe and beyond", in Bundesanstalt für Straßenwesen (ed.), *Ageing and Safe Mobilitiy: Papers,* Bergisch Gladbach, p.8.

BGG (2002), *Gesetz zur Gleichstellung behinderter Menschen (Behindertengleichstellungsgesetz - Behindertengleichstellungsgesetz vom 27. April 2002 (BGBl. I S. 1467, 1468), das zuletzt durch Artikel 12 des Gesetzes vom 19. Dezember 2007 (BGBl. I S. 3024) geändert worden ist. BGG*.

Bundesministerium für Verkehr, Bau und Stadtentwicklung (2000), *Bürgerfreundliche und behindertengerechte Gestaltung des Straßenraums - ein Handbuch für Planer und Praktiker,* direkt: Verbesserung der Verkehrsverhältnisse in den Gemeinden, Bad Homburg v.d.H., p.45.

Commission of the European Communities (2005), *Green Paper "Confronting demographic change: a new solidarity between the generations".* Brussels, pp.4-5.

Duckenfield, T. (2016), *Case Study: benefits of improving access to the GB Rail Network via the Access for All programme.* OECD/ITF Discussion Paper prepared for the Roundtable on The Economic Benefits of Improved Accessibility to Transport Systems, Organisation for Economic Cooperation and Development - International Transport Forum, 3-4 March 2016, Paris.

Erfurt Tourismus und Marketing GmbH (2014), *Erfurt - Erlebbar für Alle. Barrier-free Erfurt*, www.erfurt-tourismus.de/fileadmin/download/broschueren/barrierefreier_rp_2014_final.pdf , accessed 06 February 2016.

European Commission (2015), *Proposal for a directive of the European Parliament and of the Council on the approximation of the laws, regulations and administrative provisions of the Member States as regards the accessibility requirements for products and services*, COM(2015) 615, Brussels, p.2.

European Commission - DG Employment, Social Affairs & Inclusion (2015), *Commission proposes to make products and services more accessible to the disabled persons*, http://ec.europa.eu/social/main.jsp?langId=en&catId=89&newsId=2400, accessed 13 January 2016.

European Commission - Directorate General Transport (1999), *COST 335 - Passengers' accessibility of heavy rail systems. final report of the action*, Transport research, European cooperation in the field of scientific and technical research, EUR, Luxembourg, https://cordis.europa.eu/pub/cost-transport/docs/335-01-en.pdf, accessed 17 January 2016, p.193.

European Conference of Ministers of Transport (2004), *Improving Access to Public Transport*, Paris, http://internationaltransportforum.org/pub/pdf/04Access.pdf, accessed 15 December 2015; p.47.

Fearnley, N. (2016), *Passengers' valuations of Universal Design in local public transport*, Roundtable on The Economic Benefits of Improved Accessibility to Transport Systems, Organisation for Economic Cooperation and Development - International Transport Forum, 3-4 March 2016, slide 17, Paris.

Fearnley, N., S. Flügel, M. Killi, M. Dotterud Leiren, Å. Nossum, K. Skollerud and J. Aarhaug (2009), *Kollektivtrafikanters verdsetting av tiltak for universell utforming*, TØI rapport, Oslo, www.vegvesen.no/_attachment/121428/binary/227195, accessed 15 December 2015, pp.i-ii.

Federing, D. and D. Lewis (2016), *Towards a Framework for Identifying and Measuring the Benefits of Accessibility*. OECD/ITF Discussion Paper prepared for the Roundtable on The Economic Benefits of Improved Accessibility to Transport Systems, Organisation for Economic Cooperation and Development - International Transport Forum, 3-4 March 2016, Paris.

Forschungsgesellschaft für Straßen- und Verkehrswesen e. V. - Arbeitsgruppe Verkehrsplanung (ed.) (2006), *Hinweise zu verkehrlichen Konsequenzen des demografischen Wandels*, FGSV, No. 144, Köln, p.I.

Freyer, W. (2009), *Tourismus. Einführung in die Fremdenverkehrsökonomie*, Lehr- und Handbücher zu Tourismus, Verkehr und Freizeit, München [u.a.] p.158.

Frye, A. (2015), *Capitalising on the Grey-haired Globetrotters. Economic aspects of increasing tourism among older and disabled people*, OECD/ITF Discussion Paper, 2015-11, Paris, p.4, p.6, p.9, p.17.

Gans, P. and T. Leibert (2007), "Zweiter demographischer Wandel in den EU-15-Staaten", *Geographische Rundschau*, Vol. 59, No. 2, pp. 4–13.

GfK SE, University of Surrey, Neumannconsult and ProA Solutions (2013), *economic impact and travel patterns of accessible tourism in Europe. final report*, Nürnberg, Surrey, Münster, Barcelona, www.media.designforall.org/publico/index.php?opc=documento&document='3106', accessed 16 December 2015, pp.26-32, p.165, p.174.

Gross, S. (2005), *Mobilitätsmanagement im Tourismus*, Schriftenreihe Tourismus-Forschung, 1, Dresden, p.46, p.49.

Haindl, G. and R. Risser (2007), "Mobilität und Lebensqualität älterer Menschen", *Verkehrszeichen*, Vol. 23, No. 3, pp. 14–20.

Hamann, R. (2006), "Kaum noch finanzierbar", *Regionalverkehr*, Vol. 9, No. 3, pp. 65–67.

Hensher, D.A. (1994), "Stated preference analysis of travel choices: the state of practice", *Transportation, No.* 21, http://courses.washington.edu/cee500/State%20Preference%20Analysis%20of%20Travel%20Choices.pdf, accessed 15 January 2016, pp. 107–133.

Hettrich, P. and R. Herzog (2007), "Wenn Straßen zur Altlast werden", in A. Zahrnt and J. Radloff (eds.), *Demografischer Wandel*, Politische Ökologie, Oekom, München, pp. 33–36.

Hrubesch, C. (1998), *Tourismus ohne Barrieren. Leitfaden für eine behindertenorientierte Angebotsgestaltung in touristischen Zielgebieten*, Reihe Mensch - Natur - Bewegung, Rüsselsheim, p.34.

Kasper, B. (2005), "Mobilität im Lebenszyklus. Motive und Bedeutung der Mobilität älterer Menschen", in H.H. Topp (ed.), *Workshop „Demografischer Wandel, Mobilität und Verkehr". 19. Oktober 2004 in Kaiserslautern*, Schriftenreihe der Deutschen Verkehrswissenschaftlichen Gesellschaft, Reihe B, Seminare. No. 279, DVWG, Berlin, pp. 51–76.

Kroes, E.P. and R.J. Shelton (1988), "Stated preference methods. an introduction", *Journal of Transport Economics and Policy, No.* 1, www.bath.ac.uk/e-journals/jtep/pdf/Volume_XX11_No_1_11-25.pdf, accessed 15 January 2016; pp. 11–25.

Landeshauptstadt Erfurt- Stadtverwaltung (2015), *Projekt: Erfurt barrierefrei*, www.erfurt.de/ef/de/rathaus/bservice/leistungen/leistung-963.htmc, accessed 06 February 2016.

Leibniz-Gemeinschaft e.V. (ed.) (2007), *Demographischer Wandel – Raumentwicklung – Regional-politik*, Zwischenruf - Raumwissenschaftliche Forschung für die politische Praxis, 1/2007; Bonn, p.1.

Leidner, R., P. Neumann and M. Rebstock (2006), "Design für Alle und Barrierefreiheit als Herausforderung für Kommunen: Leben ohne Barrieren", EUROPA kommunal, No. 6, pp. 203–206, Köln.

Mercado, R., A. Páez and B. Newbold (2010), "Transport policy and the provision of mobility options in an aging society: a case study of Ontario, Canada", *Journal of Transport Geography, No.* 18, pp. 649–661.

Metz, D.H. (2000), "Mobility of older people and their quality of life", *Transport Policy, No.* 7, pp. 149–152.

Münz, R. (2005), "Demographischer Wandel in Deutschland - Analyse, Prognose, Konsequenzen", in H.H. Topp (ed.), *Workshop „Demografischer Wandel, Mobilität und Verkehr". 19. Oktober 2004 in Kaiserslautern*, Schriftenreihe der Deutschen Verkehrswissenschaftlichen Gesellschaft, Reihe B, Seminare. No. 279, DVWG, Berlin, pp. 9–17.

Neumann, P. and P. Reuber (2004), *Ökonomische Impulse eines barrierefreien Tourismus für Alle.* Münstersche geographische Arbeiten, Münster, p.109.

Rebstock, M. (2005), "Barrierefreie Wege in die Natur und zur Kultur – mit Auto und ÖPNV. Tagungsdokumentation 16. Fachtagung LVR vom 21 -23.04.2005 in Bad Honnef", in LVR - Landschaftsverband Rheinland – Umweltamt (ed.), *Barrierefreies Natur- und Kulturerlebnis,* Beiträge zur Landesentwicklung, Köln, pp. 82–95.

Rebstock, M. (2010), "Success factors for the development of a Tourism for All approach in low mountain ranges - possible solutions and implementation difficulties on the basis of the Thuringian pilot project "model region for a barrier-free Tourism for All"", in Andeas Kagermeier und Joachim Willms (ed.), *Tourism Development in Low Mountain Ranges,* Studien zur Freizeit- und Tourismusforschung, Mannheim, pp. 63–72.

Rebstock, M. (2011), *Instrumente zur Umsetzung der Barrierefreiheit im öffentlichen Personennah-verkehr. Fallstudie zur Anwendbarkeit in ländlich geprägten Tourismusregionen*, Erfurt, Trier p.4, p.42, pp. 45-46.

Schwanen, T. and A. Páez (2010), "The mobility of older people - an introduction", *Journal of Transport Geography, No.* 18, pp. 591–595.

Shoval, N. Auslander, G.; Cohen-Shalom, K.; Isaacson, M.; R. Landau and J. Heinik (2010), "What can we learn about the mobility of the elderly in the GPS era?", *Journal of Transport Geography, No.* 18, pp. 603–612.

Spektrum der Wissenschaft Verlagsgesellschaft mbH (2001), *Multiplikatoreffekte,* Lexikon der Geographie, *www.spektrum.de/lexikon/geographie/multiplikatoreffekte/5280*, accessed 17 January 2016.

Statistisches Bundesamt (2014), *7,5 Millionen schwerbehinderte Menschen leben in Deutschland,* *https://www.destatis.de/DE/PresseService/Presse/Pressemitteilungen/2014/07/PD14_266_227.html;jsessionid=EE68F8B88A2E77E8FDF23C47A7E6081A.cae2*, accessed 15 January 2016.

Steer Davies Gleave (2015), *Access for All Benefit Research_Draft_v2.0. Impacts of Station Accessibility Improvements,* London.

Treinen, H.; Kreuz, D.; S. Wenng and D. Bittner *(eds.)* (1999), *Reisen für behinderte Menschen. eine Untersuchung im Auftrag des Bundesministeriums für Gesundheit*, Schriftenreihe des Bundes-ministeriums für Gesundheit, No. 113, Nomos Verlagsgesellschaft, Baden-Baden, p.21, p.130.

United Nations (2006), *Convention on the Rights of Persons with Disabilities, www.un.org/disabilities/convention/conventionfull.shtml*, accessed 07 January 2016, article 3, article 9, article 20.

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