City Tells

Guidelines to an emotional wayfinding system

by Daniela Giusto

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Foreword

In 2005 TU Delft joined an European partnership called *Spatial Metro*.
The partners had successfully bid for an INTERREG IIIB grant that provided the means to work on the legibility and walkability of the European historic city centre.
The project was coordinated by *Norwich, a UK* city that understood it had to help visitors to find their way around town. Visitors that understand the city better, visitor that find the many attractions hidden in the mediaeval maze of streets and alleys, are more likely to spend money than those that have trouble getting around.
Like-it-or-not but the businesses that make the city a lively and attractive place do depend on the willingness of the city's visitors to open their wallets. From this economic point of view the project combined actions improving the design of strategic urban spaces with instruments that making the city plan as legible as the famous London Tube map, thus explaining the metaphor of '*Spatial Metro*'.

After the project was completed we posted a summary of the project on our faculty's website with a link to the various outputs we produced during the three years we were involved in the project.
Years later this webpage triggered the response of a young Italian researcher that was eager to learn from our experiences, willing to expand the work that we started. *Daniela Giusto* used the grant she obtained to become a guest research at the chair of *Urban Design*.
CITY TELLS - Guidelines to an emotional way finding system - is the result of this exchange.
The book goes definitely beyond describing the context and need of good way finding systems. It developed in detail how a way finding system can be conceived and built from the ground up. As such it is a valuable tool that can help cities (like Norwich) that want to tell their visitors how the city works, what treasures it hides and which stories that are embedded beneath its layers of history.

Frank van Der Hoeven

Preface

Following the official notification of the award of the post-doctoral fellowship[1], a strong sensation of bewilderment prevailed over the initial natural joy. I was aware that the chance to study abroad would certainly lead to cultural enrichment, yet, at that time, the prospect of this new "adventure" and of a year spent in a country I did not know at all was a dilemma I had to solve quickly.

Just a few years before, I had lived a similar experience when I passed the selections for the award of an Erasmus fellowship which allowed me to attend a doctoral specialization course at *Newcastle Upon Tyne School of Architecture,* England. In spite of the early difficulties, my stay immediately proved to be fruitful: the course dealt with topics I cared, such as *Universal Design, Urban Design* techniques and the design principles of famous town planner *Jan Gehl* I had already studied when I was a tutor of the *Course on Accessibility of Spaces* at Reggio Calabria University, Italy.

Furthermore, to stay in a foreign country and know its culture and tradition had represented an extraordinary opportunity of human enrichment. In fact, to grasp behavioural and relational differences, the truthfulness or the inexactitude of clichés, the different priority given to simple facts and daily actions, such as the different capacity and willingness to guarantee opportunities and rights also to people with disabilities, has always been intriguing.

Nevertheless, probably, that "initial sensation of bewilderment", together with the early difficulties I encountered as soon as I reached my new destination, the *University of Technology* in the city of *Delft*, *Netherlands,* led me to change the research activity I was first proposed by focusing it on a specific topic: wayfinding. Later on, this decision was further strengthened by certain texts by *Romedi Passini*, who is considered one of the fathers of the wayfinding project, and by *Paul Mijksenaar's* books on environmental perception and visual design.

My research project is based on the detailed study of specific fields of interest, among which Universal Design applied to the project for orientation in open spaces, and is enriched by the personal experiences I have lived as a "traveller" that moves with discomfort when visiting an unknown city for the first time.

[1] Two-year post-doctoral fellowship abroad awarded by the Region Calabria and cofinanced by the European Social Fund within the Calabria Regional Operational Programme ESF 2007/2013, Operational Objective M2 – "Supporting individual high level education for young graduates and researchers at institutions of great national and international prestige"

The research activity originates from the willingness to offer a scientific contribution to improving the conditions that allow travelling independently, without being forced to ask for help using a foreign language, and fulfilling the desire to learn news and curiosities on the place one is visiting (e.g. the reasons for the typical shape of Dutch sabots!). Finally, the study derives from the certainty that accessible information is important for social inclusion and, in general, as a means for visitors to "*know*" a city and to be sure, when they go back home, they have lived a complete tourist experience that enabled them to fully understand the "*spirit of the place*".

Therefore, this publication is the conclusion of the two years of work devoted to the research project which involved the *DarTe Department of Reggio Calabria University and the Department of Urbanism* of the *University of Technology of Delft* (NL).

I would like to thank my research supervisor abroad, Prof. *Frank van der Hoeven,* who made this experience possible and exchanged his ideas with me many times.

I wish also to thank Prof. *Stefan van der Spek* for all his guidance and support.

Finally, I thank the research supervisor at my home university, Prof. Francesco Bagnato, that, over all these years passed side by side sharing didactics and research, has taught me to go beyond appearances, to read "between the lines", to turn the "telescope" back to front and try to change perspective in order to better understand any possible facets of reality.

Thanks.

Which strategic information system can improve public space for pedestrian mobility in order to supporting all visitors and tourist journey experience?

I. Introduction: why wayfinding is good

Background

In the prologue to *A Theory of Good City Form, Kevin Lynch*[2] asked himself:"What makes a good city?" An almost "meaning-less" question, according to Lynch, that highlights, however, that cities are too complex entities to univocally identify those factors which may influence the completely subjective perception of the level of the quality of life.

In general, the impressions and sensations felt while visiting a city or walking through the place where you live stress the need to perceive that place as friendly and peaceful: if most users can benefit from a series of advantages and lead a relatively peaceful and satisfied life, then it means that the city offers good urban quality.

2007 *Leipzig Charter*[3] states that "the quality of public spaces, urban man-made landscapes […], play an important role in the living conditions of urban populations" and that it is an important factor "[…] for attracting knowledge industry businesses, a qualified and creative workforce and for tourism."

With this respect, a study by the *Directorate-General of Enterprise - Tourism Unit of the European Communities*[4] shows that, over the last few years, minor historic cities, situated near big cities or major tourist sites, have been favourite tourist destinations. The phenomenon, which is also due to economic reasons, is attributed to a change in the tourists' target. In fact, visitors are more interested in knowing the small cities that were able to preserve their history and diversity exactly because they had long been excluded from the tourist circuits of the big cities, which, on the contrary, yielded to the processes of globalization and standardization to accommodate to visitors' demands. However, minor historic centres are often characterized by complex territories where visitors have difficulty in orient themselves.

The territory accessibility and the capability to provide all the information necessary to navigate are indeed crucial factors for a city to be a successful tourist site and a favourite accessible tourist destination. As a matter of fact, according to ENAT

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[2] "Prologue: A Naive Question" *in Lynch, K. (1981) A Theory of Good City Form,* Cambridge, MA: MIT Press.p.1

[3] Creating and ensuring high-quality public spaces - LEIPZIG CHARTER on Sustainable European Cities, http://ec.europa.eu/regional_policy/archive/themes/urban/leipzig_charter.pdf

[4] Enterprise Directorate-General Tourism Unit, European Commission (2000), *Towards quality urban tourism Integrated quality management (IQM) of urban tourist destinations,* Office for Official Publications of the European Communities, Brussels. www.europa.eu.int

(*European Network for Accessible Tourism*)[5], "*without good access, many people simply cannot travel, and the income they represent to businesses and communities is lost*". Furthermore, art. 9 of 2006 *Convention on the Rights of Persons with Disabilities* establishes the adoption of measures to assure the accessibility to the physical environment and to the information and communication system: the loss of information is considered as a barrier to the exploration and knowledge of a city.
Therefore, to aim at fulfilling the tourists' possible "expectations" means to implement an urban policy that has been worked out to meet the residents' needs related to the conditions of accessibility, to the dynamics of economic growth and local competitiveness, to the creation of an environment that is qualitative, for its naturalist, architectural and cultural resources, and attractive, for its recreational and peculiar characteristics.

Purpose

City Tells. Guidelines to an Emotional Wayfinding System were developed to provide wayfinding information to visitors walking through historic environments and to ensure that unknown urban places become more welcoming, easier to navigate and more enjoyable for both visitors and tourists.
They originated from the consideration that wayfinding is a field still to be investigated. In fact, unlike car signs, pedestrian signs are still an underestimated sector, above all with regard to the users' different physical and sensory abilities.
Actually, as early as in the '80s, defining wayfinding as "*a cognitive process* […] *to find* [a] *destination*"[6], architect and environmental psychologist Romedi Passini considered the "*person's abilities both cognitive and behavioural*"[7], involved in this process. Though pursuing those purposes, City Tells Project also provides a tool that, as *Kathy Frazier*, principal architect at *Frazier Associates*, states, is "[…] *a seamless experience for the visitor* (since it says) *something about the community*"[8] and, according to the principles of the Project for Public Space, it tells "[…]*what's happening, and what's happened*"[9] to the city people are visiting.

[5] http://www.accessibletourism.org/

[6] Passini, R. (1984), *Wayfinding in Architecture*, Van Nostrand Reinhold, New York.

[7] Passini, R. Proulx, G. (1988) *Wayfinding without vision: An Experiment with Congenitally Totally Blind People*, "Enviromental and Behaviour", Sage 1988 20: 227

[8] Cit. in Vrooman R. J., *Regional wayfinding system provides seamless signage for Historic Triangle visitors*, Virginia Town and City,Feb. 2007 p. 9

[9] PPS (Project for Public Space), (2008) *Street as a place* http://www.pps.org/reference/streets-as-places-ini-

Referring to such definitions, the project purpose is to intervene on the access to information in order to assure social inclusion, reinforce local character, promote, enhance and hand down cultures, traditions and local identities, since the quality, appearance and frequency of signage system influences the visitor's impressions and image of a city and can motivate a change in behaviour.

Project goal

The project aim is to define a guiding tool for the wayfinding project by constructing a specific process that, starting from the context analysis, gathers directions for the final project by means of:

a) An approach closely related to the peculiarities of the urban environment,

b) The definition of recommendations for information accessibility,

c) The search for an "emotional" form of communication leading to a greater involvement of tourists in the place they are visiting.

The objective of the process is to provide adequate tools to understand the territory, analyze the existing wayfinding system and revive local stories in order to define recommendations and project standards for the implementation of the emotional wayfinding system of City Tells project. In particular, the wayfinding system is organized in three groups of signs:

- **Orientational signs** ('you are here' map type signs indicating the locations of sites of interest in relation to a visitor's current position)
- **Directional signs** (finger signs guiding visitors to and from sites of interest)
- **Interpretive signs** (giving the visitors information relating to a particular attraction/ site, to a calendar of local events or specific information about what they can do in their free time according to their age and self-interest).

Such signs make use of innovative technologies, like the augmented reality, in order to make information accessible. Moreover, they use story-telling techniques to offer different "emotional" interpretations of the historical meaning of the place.

tiative/

The objective of the new City Tells system is to trigger new economic opportunities connected to tourism and located in urban areas which are usually unexplored but so interesting as to become legs of unusual pedestrian itineraries built on alternative pathways, where the starting point merges with the final main attraction.

The project

The Emotional wayfinding system of City Tells project provides Guidelines that include information and recommendations on wayfinding practices and guidance for designing an accessible pedestrian wayfinding system. Thus, it supports architects, engineers and local authorities or other actors involved in the wayfinding project as well as those who wish to investigate certain aspects of such a wide theme.
The guidelines are divided into three main steps that concern:

· The process of knowledge of the context

· The definition of the general requirements of the wayfinding system

· The description of the project standards

In particular,

Step 1_Preliminary knowledge of local context

Local context
Local identity
Legibility and accessibility of place

Step 2 _Concept vision

Principles for an effective wayfinding process

Step 3_Code

Design standard
Producing City Tells panels

Finally, the text is divided into two general parts:
The first presents and analyzes in detail the scope of the theme, the aspects related to the accessible tourism market and the case studies;

The second presents the process for the definition and construction of the guidelines for the *City Tells* emotional wayfinding project.

Therefore, the two parts are interrelated and may interest, in various ways, those who approach this theme for different reasons and purposes.

LLECTION
STREET & STUDIO

2. The need of better pedestrian wayfinding in tourist and historic cities

The role of wayfinding in the urban tourism market

Franch (2010) defines tourism as that phenomenon that can be represented as the movement of flows of people, based on the availability and use of environmental (natural and cultural) resources and on their relative capacity of attraction.
However, *Peroni's* (2007) previous definition had introduced the concept of movement of consumptions in space, thus highlighting that tourism depends on income and on the spending power generated in a place by consumers-tourists who wish to have access not only to primary user functions, such as overnight stay and catering, but also to a series of activities linked to the satisfaction of the experience of staying in a place different from their usual residence.
Over the last decades, tourism has grown significantly in terms of demand and supply and represents the greatest industry in the world, to such an extent that it has proposed new specialized "thematisms" (e.g. archaeological tourism, literary tourism, wine and food tourism) and offers to meet the new requirements of travellers.
In addition, the geographical areas that are recognized as tourist destinations depend also on other factors, such as the tourists' place of origin, their cultural background, their subjective expectations and the attraction of the destination deriving from its promotional ability and, therefore, from the quantity and quality of information available.
According to the *Enterprise Directorate-General Tourism Unit of the European Communities*, "*urban tourism accounts for 35% of the international travel of Europeans with an annual average growth of 4% over the last 10 years*" and, according to the *ETM (European Travel Monitor), urban tourism has a market share of 18 % and is a growing travel preference among consumers; this is a Europe-wide trend which seems to be more marked than for other forms of tourism.*"
As a matter of fact, urban tourism concerns large cities and small towns, cities with a tradition of tourism and others where tourism is a more recent development. Nevertheless, it is not possible to univocally define urban tourism, since it is a recent phenomenon and there is no in-depth study or research about it, yet. However, "*Urban tourism can be seen as a result of the growing mobility of Europeans for whom*

towns and cities are unavoidable stopping-off points. It is also a result of behavioural changes which are making towns and cities into centres of culture and places of relaxation where people can shop and eat or pass their time in lively squares and public areas." [10]

In Europe, urban cities have always been well-established tourist destinations thanks to their historical or contemporary heritage: history, traditions, architectural and monumental heritage, art, gastronomy, folk culture and events are resources that can offer a wide range of tourist attractions.

As *Boccagna* (2010) reports, in her book, *Franch*[11] defines the following attractors of a destination as "pull" factors:

- *natural or artificial elements*, which drive visitors towards a place;
- *accessibility* (geographical, socio-political, economic);
- *information, hospitability and accommodation,* i.e. the actions a destination takes to support hospitability and the facilities it has to host visitors;
- *tourist image, i.e.* the degree of positive evaluation the market expresses on that place and on its characteristics, which becomes a factor of success, since tourists choose to visit a site because it arouses intense pleasure, bolstered by the dream and imagination of an extraordinary experience.

Nevertheless, in order to achieve the objectives of success, it is necessary to understand the answer of attractiveness in relation to the desires of the tourism demand (*push*), which depend on:

a) the individual motivations of the journey and the tourist's habits;

b) the influence of the characteristics of the space on the pedestrian's experience.

The following are some motivations of urban tourism that depend on the offer of different functions of the city, which attract a different target of people:

[10] Enterprise Directorate-General Tourism Unit, European Commission (2000).

[11] M. Franch (2010) Marketing delle destinazioni turistiche. Metodi, approcci e strumenti, Milano, McGrow-Hill.

- *leisure tourism,* related to the particular characteristics of the urban areas;
- *business tourism,* related to the prominent economic, social and cultural functions of the city;
- *conference tourism,* related to the available facilities.

As to the influence of the characteristics of the space on the pedestrian's journey experience, an effective information supply on the opportunities of a place undoubtedly plays a crucial role in its capacity to attract travellers, to prolong their stay and to repropose the experience.

The lack of certain useful information is a barrier to the exploration of a city and to its knowledge. Moreover, some visitors find it simple to access and understand information while others have difficulties even in finding the information itself.

An effective wayfinding may contribute to an urban development policy which combines the search for tourism competitiveness, aimed at meeting the visitors' expectations and different needs, with the achievement of urban quality, meant to improve well-being and social inclusion.

Therefore, wayfinding has a double impact: on the economic development, on the one hand, and on the development of urban liveability, on the other, through the improvement of accessibility and usability. It offers visitors a unique and original experience and meets, as far as possible, the residents' aspirations for a harmonious economic and social development by striking a balance between integrated resource management policies and economic results, in order to provide a development framework for sustainable tourism. [12]

One of the most interesting aspects of sustainable tourism, beyond the respect of natural, cultural and social values and the positive exchange of experience between residents and visitors, is the tourist's active involvement in the journey experience.

With reference to the last-mentioned concept, many cities[13] have been specializing their offer by relying on *accessible tourism*, i.e. on the proposal of services and

[12] The principle of sustainable tourism was defined by the World Tourism Organization in 1988: "Tourism activities are sustainable when they grow so as to maintain a living in a tourist area for an unlimited time, do not alter the environment (natural, social and artistic) and shall not restrict or inhibit the growth of other social and economic activities".
In 1996, another definition of the World Tourism & Travel Council stated that: "Sustainable tourism development meets the needs of the present tourists and host regions while protecting and enhancing opportunities for the future. It is envisaged as leading to management of all resources in such a way that economic, social, and aesthetic needs can be fulfilled while maintaining cultural integrity, essential ecology processes, biological diversity, and life support systems"

[13] ENAT sets out the list of a few countries interested in sustainable tourism, such as Portugal, which has a dedicated website (www.accessibleportugal.com/)

competitive facilities able to meet the requirements of people with special needs in a different way, allowing them to enjoy their holiday without obstacles and difficulties.
Accessible tourism is a concept which was developed in the '90s and has become increasingly well-known over the last few years, since both tourists and the tourism industry have realized its advantages.
It is linked to the demand of disabled people who wish to find a different way to spend their leisure time, abandoning their usual domestic "confinement".
Information and data on the phenomenon are available: the first research on the study of tourism for disabled people and on the consequent projections of economic development was presented in London during the meeting "*Tourism 2000 Tourism for All in Europe*", in October 1993. Other studies have shown that a considerable percentage of people with disabilities would be willing to move if certain basic conditions were fulfilled so as to ensure the usability of places.
The *Touche Ross* research[14] reports a percentage of 72%, that is, about 36 million people willing to travel but excluded from tourism for various reasons.
Today, accessible tourism is a growing market, also owing to that demographic change that, in the next few years, will lead to an increase in the population over 60. Then, the majority of the next "population" of tourists will also be characterized by an age entailing unavoidable discomforts: "*This generation that experienced the boom of mass tourism in Europe starting in the 1960s, is not prepared to give up travelling because of any disability that might come with the age.*"[15]
According to *ENAT (European Network for Accessible Tourism)*[16]*, "lack of general accessibility has a direct and negative effect on tourist numbers: without good access, many people simply cannot travel, and the income they represent to businesses and communities is lost*." [17]
Therefore, in Europe, the ageing population has transformed accessible tourism from a niche market, primarily devised for disabled people, into a mass phenomenon, taking into account the needs of the former but changing it into *Tourism for All*[18].

[14] Reference is made to the 1993 research "*Profiting from Opportunities – A new market for tourism*"

[15] *Liliana Müller*, President of ENAT - European Network of Accessible Tourism, "Accessible tourism as revealed through studies and practices in Europe" in A. Manzo, N. Bravo e V. Toffoletto (edited by) *Travel without limits: Tourism for All in Europe*, Istituto Italiano per il Turismo per Tutti, Venaria (To) 2010.

[16] The mission of the European Network for Accessible Tourism is to make European tourism destinations, products and services accessible to all travellers, with a view to promoting accessible tourism all over the world. www.accessibletourism.org

[17] The potential market for European accessible tourism is estimated to be 130 million people, with an annual spending power of over 68 billion Euros. Source: ENAT.

[18] Cf.www.tourismforall.org.uk

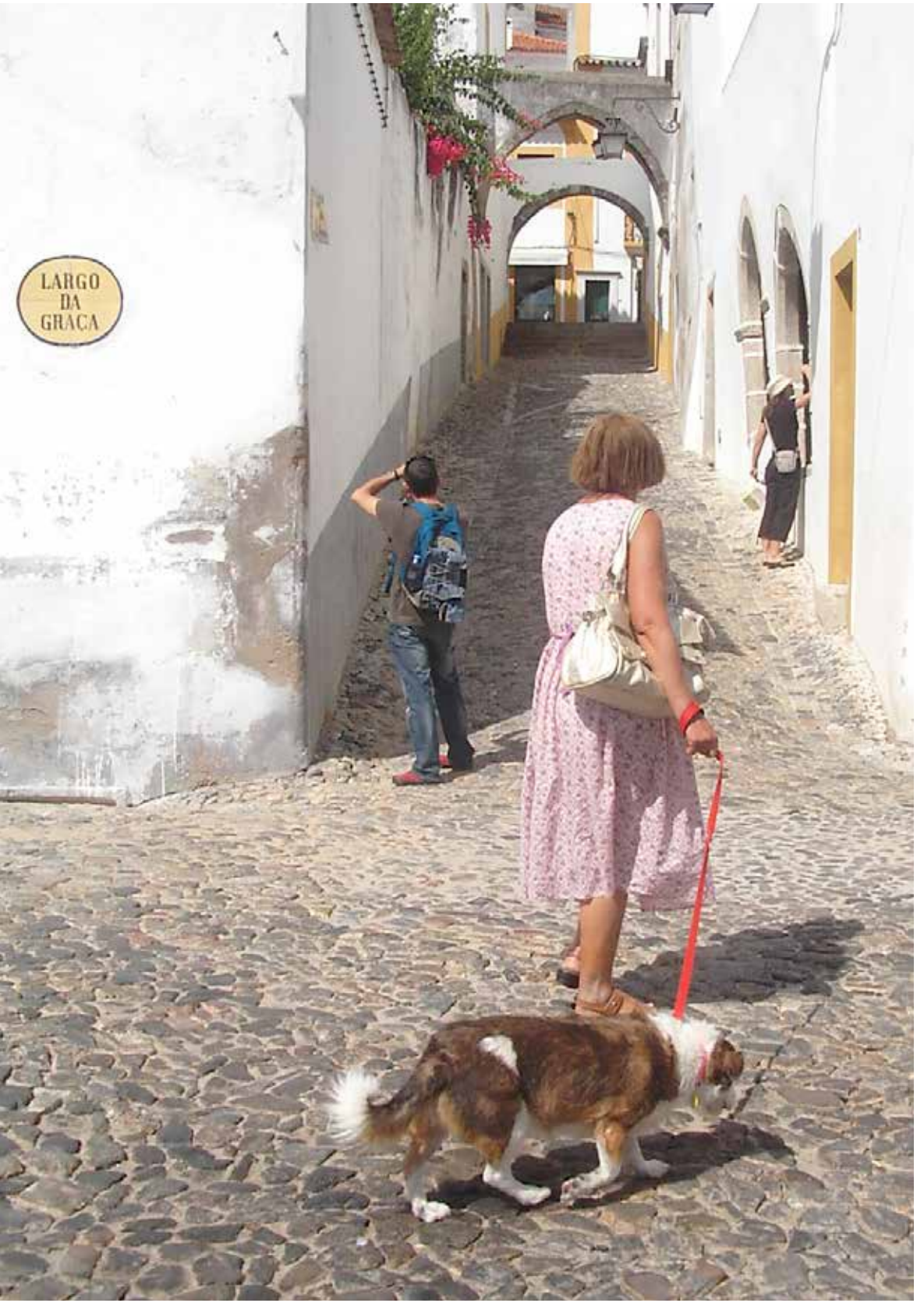
Tourism for All meets the possible requirements of as many people as possible: disabled people who travel with their friends and family for various reasons, pregnant women, elderly and young people, young children or people with temporary or permanent health problems, ensuring equal rights for all.

The concept of accessibility goes beyond the concept of architectural barriers, as far as to promote a "universal" and fulfilling fruition of common goods and services. To ensure even access to natural resources, to the environmental and cultural heritage and to tourist or cultural attractions contributes to a positive improvement in social inclusion, in the freedom of movement and in the quality of life of local communities, as recommended by the latest EC framework programme *Horizon 2020*[19].

For a tourist destination to be successful, it is essential that the whole hospitability chain is accessible, from transport systems and accommodation facilities to the services supplied and the information support system.

Therefore, the success of a destination, in terms of tourist satisfaction, depends on different interdependent components. In this scenario, information becomes the linking element which ensures the success and running of the whole system.

[19] In particular, Sub-objective "Inclusive, innovative and safe society" of the third objective "*Society challenges*" is consistent with the aim to study the social and economic processes generated by innovative systems of tourism for all. www.ec.europa.eu/research/horizon2020/indexen.cfm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Why good wayfinding in historical environments is important

In the past, cities expressed their peculiar characters and the traditions of their inhabitants through a language of easily codifiable architectural rules. Thus, it is exactly the structure of each city that reveals the reasons of its birth and the activities performed inside of it (fortified cities, with activities typically related to actions of defence and conquest; sea cities, with activities related to trade or fishery, etc.). (*Benevolo,* 1975)

For instance, in the Roman period, the cities, which had originated as military camps, were characterized by a typically simple structure, which enabled to extend them in any direction and to defend them in case of invasion or insurrection. Their layout, which was characterized by a grid of main and secondary streets dividing the territory into equal rectangular blocks, made any point of the urban fabric easily accessible.

Defensive reasons also led to the birth of medieval cities, which were characterized by what *Lynch*(1981) defines as a *Baroque axial network*, carefully built to obtain a visual effect towards the nodal points of the city by connecting them. The winding and irregular streets deeply define the character and the aspect of the city making it easily recognizable. According to *Mumford* (1961), such a seemingly careless system of pathways is the result of a precise design method: it meets the specific requirements of people who move on foot or of animals used to carry goods by taking climate into account.

Climate has always greatly influenced social activities and is undoubtedly related to the propensity of people to use open-air spaces. (*Hass-Klau et al*. 1999)

Therefore, the narrow and irregular streets of medieval cities, devised to protect people from the winter weather, above all in North European cities, which are often lashed by heavy rainfalls and wind, are built as a maze easily accessible to its inhabitants but not to its visitors who, being in an unknown city, can hardly orient themselves in such a web of streets and pathways.

Thus, pathways, as well as the presence of buildings, landscapes, rivers, etc., have always been the core elements of a city and of its historic identity. It is exactly through these elements that visitors build their "image" of city.

The industrial revolution has considerably transformed the modes of transfer of goods and people by changing cities into "nodes" of a dynamic network of relations, able to redesign the organization of the urban space.

Over the last few centuries, the development of modern transport networks and the

technological progress have enabled an expansion process which has gradually incorporated the old town centre, the suburbs and the surrounding small- and medium-sized towns, definitively modifying the skyline of modern cities.
As architect *Paul Mijksenaar* states *"In Rome, as well as in Paris, we always know on which bank of the river we are. Besides, there is often a hill, a raised spot, a focal point, like a cathedral or a castle. In addition to these first two orientation points, above all in medieval urban structures, there are the walls of the neighbouring cities. Thus, in order to navigate through historic cities, we have at least these 3 elements at our disposal."* [20]
Yet, historic cities are not all the same.

"In the Netherlands there are no hills; thus, cathedrals are higher than in any other place and, above all, than any other surrounding building. Like in the rest of Europe, Dutch cities have developed around their cathedral, all their streets lead to it and the tower rising above our eyes always allows us to know where we are.
In cities like New York, this kind of orientation becomes impossible. Of course, there are many tops, but, sometimes, they are hidden and so we have created an environment where it is difficult to navigate without any help. "[21]

The image, the recognisability of contemporary cities is now left to advertising slogans or to the presence of great crowd-pulling architectural works which have replaced the ancient and famous cathedrals.
This is what has happened in cities like Barcelona, where the *Sagrada Familia,* which has always been a landmark for visitors and an icon of the city, has been replaced by the modern building of architect *Jean Nouvel*, visible from any spot.
"Many cities and urban areas have become fast-paced, complex & divided. In the past, buildings and spaces could be far more easily identified. Today, buildings can change names, functions and identities quickly. Cities have sprawled and become a series of specialised areas and precincts each with unique characteristics."(*Grant and Herbes, 2007*)
In the race for global competition, new advantages have revived big urban centres: over time, cities have tuned into cultural centres, ideal places for relaxation, shopping, leisure and work, able to attract a higher number of tourists and various types of visitors

[20] *From the Conference "La città senza nome" – Bari 2009*
[21] *Ibidem*

and to meet their expectations.
It is obvious that, in this continuous transformation, also territorial reference points change continuously.
Already strained by the fact of being in an unknown and differently organized place, visitors are plunged into such an amount of stimuli that they often lose their bearings.
In fact, language and forms of communication have adapted themselves to the new characteristics of the more complex and better organized contemporary cities adopting ever-changing systems and conceptions: from road and service signs, to big posters and advertisements on trams and means of transport.
Though offering a recognizable image of themselves, over time, these big urban historic centres, which are a historic, artistic and economic treasure, have been forced to surrender to a kind of globalization, specially built on tourists' expectations, that has trivialized and standardized them.
On the contrary, minor historic centres, which are outside the most important tourist routes, have been able to keep their diversity and, today, are a strong attraction for tourists. According to a research by the *Italian National Tourism Observatory*, in the past, people preferred to stay in big cities and then visit the surroundings; today, the opposite trend is increasingly observed, i.e. people stay in less expensive minor centres, which are rich in history and local resources, and then visit big centres.
As a result, the tourism industry bets on the strengthening of the peculiar characteristics of such minor centres, on the revitalization and conservation of their landscape, on the revival of arts and crafts or ancient products, keeping environmental quality as its final goal[22].
In these typically complex urban centres, often made up of winding roads, of views between the façades of buildings, which hide open squares or overlook streams or breathtaking sceneries, to move on foot becomes arduous.
Therefore, maps, signs and other types of information play a crucial role in welcoming, orienting and guiding visitors in an unknown environment by making the urban space legible in order to boost transfers on foot and to establish a space/user interrelation.
However, it is not unusual that the signs dedicated to pedestrians/tourists/visitors have only a marginal role and provide fragmented, disorderly and not homogeneous indications, without managing to follow visitors step by step and leaving them to numerous doubts and "counter-indications". Furthermore, the information offer often

[22] *Nature Tourism* is referred to as that type of tourism where one of the basic reasons for a journey is to observe and cherish nature and traditional cultures.

gives indications only for the major attractions of a city, leaving out other destinations, perhaps less important but certainly pregnant with unexpected charm.
It is exactly the lack of essential information that does not allow reading and having a clear perception of a place, making a list of opportunities or of interesting places to see in order to grasp the sense of that place, the soul of a city with its history and tradition.
To move in an unknown urban space, relying only on oneself and on one's capacities, or to have "to ask for help" to reach one's destination, causes a sense of "disorientation", of frustration for "not being able" to understand where one is, where one should go, what one can do in that place.
This situation gives rise, almost unconsciously, to a negative evaluation of the city, related to the generated sense of confusion, to the time wasted to look for the right signs or to ask for information, to the invisible "barrier" which keeps off the destination.
In order to understand an environment and to be able to move, clear and precise information is needed, which provides the right indication at the right moment. The goal of wayfinding is to act on the behaviours of people in the built environment, taking into account their abilities and perceptive capacities necessary to understand its spatial characteristics, to select different information and make decisions which may lead to their destination, even in complex environments, such as historic cities.
Moreover, wayfinding can be an essential tool to contribute to the knowledge and diffusion of local memories, to the maintenance of the cultural heritage over time for future generations, to the strengthening of local peculiar characteristics and to the development of close "familiar" terms, which are so important to visitors.
As a matter of fact, historic cities are an incomparable heritage of cultural and social values and, owing to the diversity of their image, they are also the evidence of all the transformations they have undergone over time. This wealth must be considered as an asset to safeguard with a view to enhancing an economic, social and cultural growth in keeping with the new pressing needs of the contemporary urban life.

Sligro

Andavano spesso a Parigi: Ogni volta che avevano una vacanza che durasse più di quattro giorni: in modo da starci almeno tre giorni pieni, considerando le ore che ci volevano con l'andare in treno.

Non avevano automobile; l'avevano come naturalmente rifiutata, abitando quella città da cui le automobili in tutta Italia dilagavano. E una delle loro ragioni per l'amore a Parigi – oltre quelle dell'amore all'amore, dell'amore alla letteratura, dell'amore alle piccole e vecchie cose e ai piccoli e antichi mestieri – stava nel fatto che vi si poteva ancora camminare, ancora passeggiare, ancora svagatamene andare e fermarsi e guardare. Soltanto a Parigi, per esempio, camminavano tenendosi per mano; soltanto a Parigi il loro passo assumeva una goduta lentezza. Vi si sentivano insomma sciolti e liberi. Ed era si un fatto mentale, un fatto letterario: ma qualcosa c'era negli spazi, nei ritmi dell'architettura e della vita che vi si muoveva, che consentiva all'idea, e magari al luogo comune, che della città si aveva prima di conoscerla […].[23]

That is how Italian novelist *Leonardo Sciascia* outlines the sensations, emotions and impressions aroused by walking.

In the past, strolling was an opportunity for relaxation, walking was something sacred and an integral part of the European cultural tradition. In the past, the urban space was adapted above all to that purpose and favoured social relationships by offering varied and comfortable pathways and resting areas.

Today, it has become an action people perform to cover the distance between the vehicles they use to move and the buildings they have to reach.

Originally, it was the means to satisfy the human curiosity to discover new worlds, new lands; it was the only available means to travel. The technological development in the industrial sector has led man to abandon his body to use other modes of transfer: train, car or plane.

[23] L. Sciascia, (2010), *Candido – ovvero un sogno fatto in Sicilia*, Adelphi, Milano p.119
[They often went to Paris: every time they had a holiday of more than four days, so that they could stay for at least three full days, considering the time they took to go by train.
They had not a car; they had rejected it as if it was natural for them, who lived in the town from where cars were spreading all over Italy. And one of the reasons of their love for Paris – besides their love for love, their love for literature, their love for small and old things and for small and old trades – was that they could still walk, still stroll, still dreamily go about and stop and watch. Only in Paris, for example, did they walk holding hands; only in Paris, did their pace delightfully slackened. They felt essentially unconstrained and free there. Of course, it was a matter of thinking, a matter of literature: yet, there was something in the spaces, in the rhythms of architecture and of life, which moved, which assented to the idea, and perhaps to the cliché, people had of the city before knowing it.]

However, such faster transfers did not give more time to people: higher speed only meant being able to cover longer distances in shorter time.[24]

Therefore, it can be said that the decline of walking and the biggest barrier to pedestrian movement, are to be ascribed to the lack of time, to the absence of suitable places, to the "*volume and speed of traffic and infrastructural provision for it*" (*Grant and Herbes,* 2007) and to the supremacy of cars.

The data of the European Community Project SMILE show that around 80% of the European population use cars, preferring them to other public means of transport. Over time, the huge number of motor cars has changed the way of designing roads[25]: roads were supposed to support car movements, thus pedestrian pathways and the richness and variety of use of public spaces were reduced. People on foot have been forgotten and pedestrian spaces, deprived of any comfort, security and attraction, have become areas of hurried transit.

Motorists have become the main users of the road and motor cars have come to be the symbol of modern society. Barthes defines motorcars as "absolutely common objects" people cannot do without: the toy people buy for younger and older children (who has never received a remote-controlled car or a *Polistil* track as a present!); the subject of films and cartoons with almost human emotions and expressions; the vehicle everybody longs for after coming of age. (Barthes in Marrone 1998)

They represent the need for independence of individuals who, thanks to cars, can move towards destinations that can change unexpectedly, without being tied up to time: that is why people cannot do without them.

In the famous film *Il sorpasso,* directed by *Dino Risi* in 1962, while driving his car, *Vittorio Gasman* says: "*A me il ciclismo non è piaciuto mai…per carità…è uno sport antiestetico, ingrossano le cosce…!*"[26]. Yes, things had already changed by 1962: no

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[24] The development of high-speed rail travel took off after the 1974 petrol crisis. Italy was the first European country to inaugurate a High Speed Line (between Florence and Rome) in 1977, but it was France that led the technological boom, introducing the first high-speed train (HST) between Paris and Lyon, in September 1981. Germany joined the venture at the beginning of the 1990s, with the Intercity Express (ICE), followed shortly by Spain, which introduced the Alta Velocidad Española (AVE) in 1992. At the end of 2009, Europe had 6 214 km of high-speed lines on which trains could run at speeds in excess of 250 km/h. Multimodal railway stations in city centres provide quick, easy access to the rail network. The development of HSLs has consistently cut journey times between various urban and economic centres in the Union. At present, London is 2 hours 15 minutes from Paris and 1 hour 51 minutes from Brussels and Brussels is 3 hours 15 minutes from Frankfurt. This compares with 5 hours 12 minutes from London to Paris, 4 hours 52 minutes from London to Brussels and 5 hours from Brussels to Frankfurt in 1989. Cf: *High-speed Europe*, Brouchure of Europen Commission 2010
http://ec.europa.eu/transport/infrastructure/studies/doc/2010_high_speed_rail_en.pdf

[25] In Europe, 6 cities, out of over 160, record over 500 motor cars per 1000 inhabitants. Only the city of Rome peaks at 732. Source: III Rapporto Apat Ambiente Urbano.

[26] [I never liked cycle racing… good heavens, no!.. it is an unaesthetic sport, thighs thicken…!]

longer were bicycles the most common means of transport for daily transfers; the symbol of romanticism (men used to carry women on the crossbar of their bicycle); the image of the first step children took towards independence, when they learnt to ride in spite of their repeated falls; the icon of women's emancipation from the obtuseness of a culture that, for long time, had considered inappropriate for them to ride bicycles.

Bicycles were instead considered as means of the past that collective imagination linked to the idea of a poor society.

Only in the last few years, bicycles have rid themselves of the supremacy of cars and have increasingly become the symbol of a new lifestyle, almost a fashionable and even a little snobbish choice, particularly appreciated by the fanatics of fitness and of environmental protection, against the negative effects of cars on man's health and on the urban environment.

Actually, in certain cities, like Amsterdam or Copenhagen, the situation is completely different. For instance, in the Netherlands, to move by bicycle is a great tradition, which was abandoned only in the years of the car boom and then was relaunched in the second half of the '60s, when people demonstrated against the increase in road accidents involving children and asked for safer roads for pedestrians and cyclists. [27]

Even the city of Paris had to take action to reduce vehicular traffic and smog by implementing the *Velib* project: a bicycle rental service that is well appreciated by tourists and locals and has been so successful that it has been proposed in many other European cities.

The system is completely automatic and offers the possibility to rent bicycles 24 hours a day, 7 days a week. Bicycles are parked in racks that are located in the urban territory, at a distance of some 300 metres from each other, and serve as stations. They can be rented by simply inserting a credit card or a pass and then they can be dropped off in any other station of the city. The success of the Velib project is also due to the shrewd service charge policy: the service is free of charge for the first thirty minutes and very cheap for the following hours. Thus, the system rewards those who choose to ride a bike instead of driving a car to cover short distances. [28]

According to *Grant and Herbes* (2007), "*We are still a car-based culture, although that is changing*".

The impact of traffic on cities has prompted the EC to intervene identifying in the

[27] http://www.pps.org/how-the-dutch-got-their-cycle-paths/

[28] Le ville est plus belle à velo www.velib.paris.fr

*Green Paper. To*wards a new culture for urban mobility[29], the right to mobility as one of the strategies for the sustainable development and the liveability of urban centres. Making cities more accessible and safer contributes to promoting a "new culture of urban mobility", capable of modifying people's mobility behaviour towards pedestrian and other alternative mobility modes.

In communities across the world, there is growing responsibility to provide options that give people the opportunity to walk, to walk more often, to walk to go to school, to work or to visit a place, and to feel safe while doing so.[30] As Grant and Herbes highlight, this is due to the now common notion that "improving the quality of the walking environment and enabling more people to walk safely and conveniently to more destinations has a large number of benefits. The economic benefits of better walking conditions can be substantial when more people find the environment safe and welcoming, and they browse, shop and spend money on goods and services. The benefits also include improved personal health, safety and fitness, reduced traffic (as people walk rather than drive), less pollution and decreased greenhouse gas emissions and climate change."

Moreover, the major benefits of more people walking and cycling (at the expense of car use) are experienced by the rest of the population, because:

- They encourage social interaction;
- They strengthen the sense of community.

In addition, over the last few years, numerous health prevention programmes against certain diseases, like coronary heart disease, diabetes, etc., encourage a change in the lifestyle of the population towards less sedentary habits, which may also hinder the diffusion of another risk factor, i.e. obesity, through simple physical activities like walking. The goal is to assert a conception of movement as source of physical and psychological wellbeing for all, the young and the not so young, without any kind of discrimination.

Before promoting walking, conditions need to be adequate and safe. The freedom to walk, to securely access places and services, according to the timing, modes and

[29] Cf: COM (2007)

[30] The result of a 2007 EUROBAROMETER survey shows a change in the way of thinking of the European population, who is in favour of measures to promote the use of public transport and to encourage more sustainable mobility. http://ec.europa.eu/transport/strategies/facts-and-figures/all-themes/index_it.htm

needs expressed by users, profoundly affects the quality of life and the wellbeing of individuals, the achievement of social inclusion and the quality of urban environment. Once there are safe places for walking, it is time to think about how to get people walking more and how to continue building support to expand the availability of walkable places.

The *Manual for Streets* (*Department for Transport, 2007*) applies a design approach, also shared by *Urban Design* (*DETR and CABE, 2000*), which modifies the observation point and identifies a hierarchy of users where pedestrians hold the most important place in the achievement of the *quality of public realm,* thus meeting the requirements of the road "weak users", i.e. children, elderly people, women with pushchairs, people with disabilities, etc., and not of cars, though finding more balanced solutions for all. (fig.1)

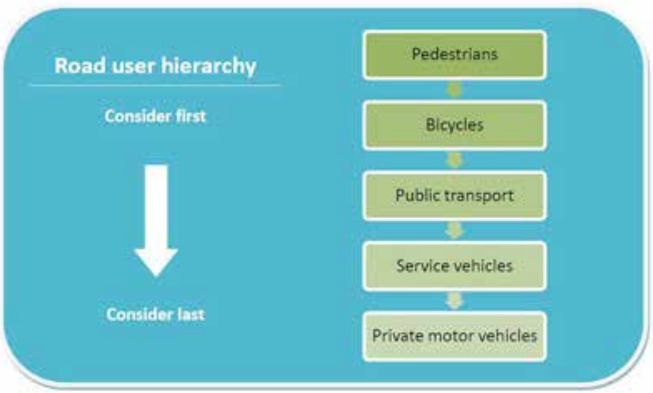


fig.1 Road user hierarchy
Source: Premier's Council for Active Living NSW (2010) adopted from Dept for Transport UK (2007), Manual for Streets.

As *Gehl* explains, only walking transforms a common situation into a significant opportunity and it is important that all the meaningful social functions, intense experiences, conversations and displays of affection take place while people are walking down the street, or simply standing, sitting or lying down on a bench, or carrying out other activities. [31]

Therefore, there exists a special relation between physical environment and social

[31] Jan Gehl describes three types of pedestrian activities: *Necessary activities* (the things that have to be done: going to school, waiting for the bus and going to work); *Optional activities* (urban recreation: activities people are tempted to do when weather conditions, surroundings and the place are generally inviting and attractive); *Social activities* (these activities occur whenever people move about in the same spaces. Watching, listening, experiencing other people, passive and active participation). Cf. (Gehl, 1971)

relationships and their intensity. According to *Lauria* (2004), such a relation is filtered just while people are walking, through a synthesis of the different sensory inputs: visual, auditory, kinaesthetic, olfactory and thermal.

Human dimension and social function are the parameters to take into account in urban design in order to obtain a lively and sustainable public realm. That is the reason why, during the design process, it is crucial to understand how people "live" the urban space and the relationships that are established between people and the urban space and, only then, to proceed to build. (*Gehl,* 1971)

This belief is strongly supported by the *Project for Public Space* (PPS), a non-profit planning, design and educational organization, dedicated to helping people create and sustain public spaces that build stronger communities. Through its project "*Street as Place*"[32], the organization has based its research on the concept that it is possible "*to transform the design and construction of public streets into places that improve the quality of human life and the environment rather than simply move vehicles from place to place*". Its aim is to recover the social function of roads, pathways, turnouts and squares as interesting and pleasant spaces, suitable to social interaction, by improving their usability, accessibility, perceived security level, liveability, sense of belonging to the community people live and work in or visits.

The design and usability of outdoor living spaces can promote the use of those areas and *PPS* research aims at identifying the qualities they should have in order to achieve this goal[33] :

• ***Attractions & Destinations***. *Having something to do gives people a reason to come to a place—and to return again and again. When there is nothing to do, a space will remain empty, which can lead to other problems. In planning attractions and destinations, it is important to consider a wide range of activities for people; different times of day, week and year; and for people alone and in groups. Create an enticing path by linking together this variety of experiences.*

• ***Identity & Image***. *Whether a space has a good image and identity is key to its success. Creating a positive image requires keeping a place clean and well-maintained, as well as fostering a sense of identity. This identity can originate in showcasing local assets. Businesses, pedestrians, and drivers will then elevate their behaviour to this vision*

[32] PPS: *Street as a place* initiative http://www.pps.org/reference/streets-as-places-initiative/

[33] PPP: *Qualities of Great Streets* http://www.pps.org/reference/qualitiesofagreatstreet/

and sense of place.

• ***Active Edge Uses.*** *Buildings bases should be human-scaled and allow for interaction between indoors and out. Preferably, there are active ground floor uses that create valuable experiences along a street for both pedestrians and motorists. For instance, a row of shops along a street is more interesting and generally safer to walk by than a blank wall or empty lot. Sidewalk activity also serves to slow vehicular traffic. At the very minimum, the edge connection should be visual, allowing passers-by to enjoy the activity and aesthetics of the indoor space. These edge uses should be active year-round and unite both sides of the street.*

• ***Amenities.*** *Successful streets provide amenities to support a variety of activities. These include attractive waste receptacles to maintain cleanliness, street lighting to enhance safety, bicycle racks, and both private and public seating options—the importance of giving people the choice to sit where they want is generally underestimated. Cluster street amenities to support their use.*

• ***Management.*** *An active entity that manages the space is central to a street's success. This requires not only keeping the space clean and safe, but also managing tenants and programming the space to generate daily activity. Events can run the gamut from small street performances to sidewalk sales to cultural, civic or seasonal celebrations.*

• ***Seasonal Strategies.*** *In places without a strong management presence or variety of activities, it is often difficult to attract people year-round. Utilize seasonal strategies, like holiday markets, parades and recreational activities to activate the street during all times of the year. If a street offers a unique and attractive experience, weather is often less of a factor than people initially assume.*

• ***Diverse User Groups.*** *As mentioned previously, it is essential to provide activities for different groups. Mixing people of different race, gender, age and income level ensures that no one group dominates the space and makes others feel unwelcome and out of place.*

• ***Traffic, Transit & the Pedestrian.*** *A successful street is easy to get to and get*

through; it is visible both from a distance and up close. Accessible spaces have high parking turnover and, ideally, are convenient to public transit and support walking and biking. Access and linkages to surrounding destinations must be a part of the planning process. Automobile traffic cannot dominate the space and preclude the comfort of other modes. This is generally accomplished by slowing speeds and sharing street space with a range of transportation options.

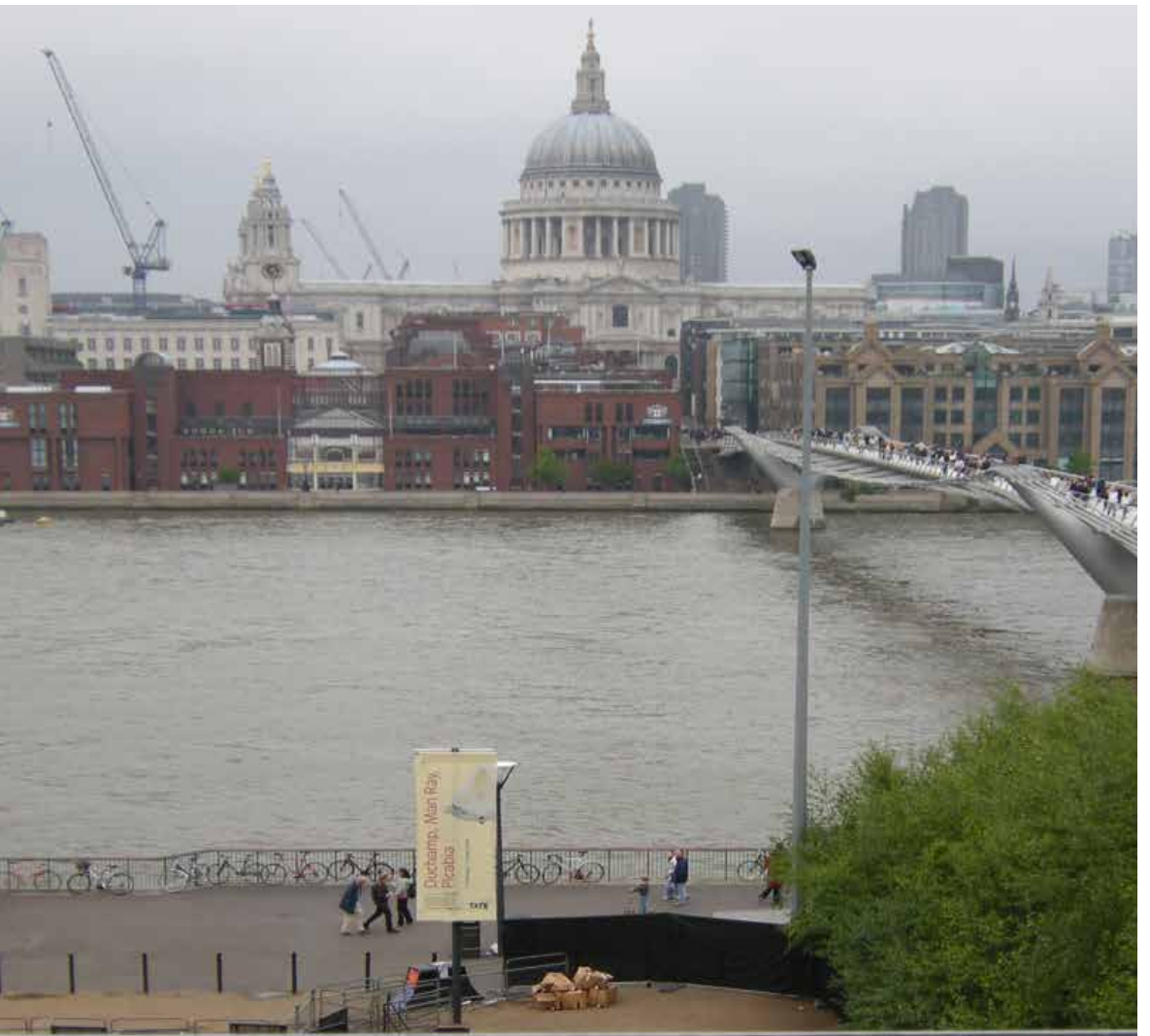
• ***Blending of Uses and Modes.*** *Ground floor uses and retail activities should spill out into the sidewalks and streets to blur the distinction between public and private space. Shared street space also communicates that no one mode of transportation dominates.*

• ***Protects Neighborhoods.*** *Great streets support the context around them. There should be clear transitions from commercial streets to nearby residential neighbourhoods, communicating a change in surroundings with a concomitant change in street character.*

State and government policy now promotes sustainable mobility and walking as a preferred transport mode and supports it with a number of funded programmes and design guidance resources, making it easier to enable and encourage people to walk more and to improve the quality of life in cities.

Each year, the *European Mobility Week*, a campaign organised with the support of the European Commission, encourages European local authorities to introduce and promote sustainable transport measures and to invite their citizens to try out alternatives to car use. The Week culminates in the "*In Town Without My Car*!" event, where participating towns and cities set aside one or several areas solely for pedestrians, cyclists and public transport for a whole day.

Another important initiative is the "*Walk a Child to School day*" event, organized by the *Partnership for a Walkable America*, in 1997. The event was established as "International" in 2000, when Canada and the U.K. joined the U.S. to celebrate. Around the globe, International Walk to School Month brings together more than 40 countries in recognition of the common interest in walking to school.



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Better information for accessibility and inclusivity

The *Urban Design Compendium* (2007) includes "five C" principles (*Connections, Convenience, Convivial, Comfortable, and Conspicuousness*) to evaluate the design of *pedestrian and cycle-friendly streets*. Among them, *Conspicuousness* is particularly interesting since it answers the questions:
"How easy is it to find and follow a route? Are there surface treatments and signs to guide pedestrians?"
It is clear that information is considered as a significant design parameter to take into account so that *"well-designed streets encourage people to use them, and make going outside a safe and pleasant experience" (DETR and CABE 2000)*.
The improvement and easy availability of the information needed to access places, services and activities favour the knowledge of the urban space and increases the user's capacity of action. Actually, the possession of knowledge positively influences pedestrian mobility, containing the feeling of uncertainty normally associated with unknown places and activities.
It often happens that, though disoriented or stressed because they cannot find the signs they are looking for, people are embarrassed to ask passers-by for help and prefer instead to give up their goal. Yet, unlike the other road users, who are absorbed in driving, pedestrians have a little bit of extra time and would appreciate some additional information about their current environment, which is usually not included in navigation systems. Therefore, the presence of an effective information system plays a crucial role, since it guides pedestrians by providing simple and clear answers to possible doubts and questions, in an environment which is strange but communicative at last![34].
However, the process of transmission of the information needed to move on foot is anything but simple, as well as the process of acquisition, which depends on the users' personal skills. In fact, as *Passini* and *Proulx* (1988) underline: "*wayfinding refers to a person's abilities, both cognitive and behavioural, to reach destinations in the everyday environment. The mastery of these abilities is a prerequisite to mobility. To move freely in* […] *urban environment can be a difficult task for any person* […]".
At this point, the question to answer is how to build this process, "[…] *what information should be presented, where and in what form". (Passini 1996)*
As Passini (1996) explains, though complex, the built environment can contain more

[34] Environmental communicativeness is defined as "the quality making a spatial element or typological unit perceptible to everyone and, in particular, to people with sensory or cognitive impairments". A. Lauria (2003)

information than needed. It is up to the pedestrians to select, among all the available indications, the one which can be useful to them in a precise moment and place, in relation to their needs and capacities. On the other hand, it is up to wayfinding to ensure the accessibility to information itself.
To understand the difficulties and needs of people moving in the urban space and the effects of a condition of limited mobility, meant as capacity of access and use of places and services, is useful to lay the ground for the elimination of radical social inequalities.
To promote accessibility and usability means to promote non-discrimination by removing those conditions which negatively influence the quality of life of all people and, in particular, of people with disabilities.

The *Disability Discrimination Act* (DDA) defines a disabled person as "*someone who has a physical or mental impairment that has a substantial and long-term adverse effect on his or her ability to carry out normal day-to-day activities*."

Nevertheless, it might be said that disability should be considered as a condition of distress caused exactly by the "*existing social context*", rather than by a personal capacity to move, speak, hear, etc. with different skills. In other words, there exists a cultural incapacity of society to ensure equal opportunities of action and lifestyle to individuals using different capacities, different speeds, different intellectual qualities. Furthermore, there exists a disabling environment which has physical and perceptive barriers, since it has been built without considering the needs of all the possible users.

In order "*to enable persons with disabilities to live independently and participate fully in all aspects of life*", the *Convention on the Rights of Persons with Disabilities* establishes the adoption of measures that guarantee accessibility "*to the physical environment, to transportation, to information and communications, including information and communication technologies and systems, and to other facilities and services open or provided to the public* […]."[35]
Referring to independence and autonomy, the UN Convention shares the goal of social inclusion with Universal Design, whose objectives are "*to simplify life for everyone by making products, communications, and the built environment more usable by more people at little or no extra cost. The universal design concept targets all people of all ages, sizes and abilities.*"

[35] Art.9 Accessibility, Convention on the Rights of Persons with Disabilities, Dicember 2006. www.un.org/disabilities/

The principles and objectives of Universal Design have been developed by *The Center for Universal Design*[36], which defines it as follows: "*Universal design is the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaption or specialized design*".
This definition goes beyond the concept of "removal of barriers", which implies a modification following the creation of the built environment, or of the product, that makes it accessible and usable by people with specific needs. On the contrary, it implies the construction of universal solutions immediately usable by as many people as possible. Moreover, it no longer refers to so-called "standard users", meant as *adult-healthy-men*, but to "real" users, including children, young and elderly people, people with disabilities, pregnant women, etc., in order to avoid the implementation of discriminating solutions and to expand its field of use. *(Lauria, 2004)*
The *Centre of Universal Design* defines the seven principles of Universal Design, which specify its concept and are tools of design control:

1. Equitable use

The design is useful and marketable to any group of users.

2. Flexibility in Use

The design accommodates a wide range of individual preferences and abilities.

3. Simple and Intuitive Use

Use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level.

4. Perceptible Information

The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities.

[36] It is a research centre of the College of Design at North Carolina State University (NCSU) in Raleigh, NC The Centre conducts original research on usability and evaluates, develops, and promotes accessible and universal design. http://www.ncsu.edu/project/design-projects/udi/

5. Tolerance for Error

The design minimizes hazards and the adverse consequences of accidental or unintended actions.

6. Low Physical Effort

The design can be used efficiently and comfortably and with a minimum of fatigue.

7. Size and Space for Approach and Use

Appropriate size and space is provided for approach, reach, manipulation, and use regardless of the user's body size, posture, or mobility.

The seven principles are to be considered as a method or technique to guide and influence the design process, to increase the awareness of designers about the characteristics of more usable products and environments and to evaluate existing design. (*Aslaksen et al,. 1997*)

The objective is not to create a new "style" for design, but rather a new attitude or design approach, which may contribute to building *sustainable communities*. In fact, the development of cohesion and social inclusion, as fundamental principles to maximize the quality of life, are key aspects of both sustainability and Urban Design. In this regard, *Story* (1998) states that "*universal design reflects a belief that the range of human abilities is normal and results in inclusion of people with disabilities in everyday activities. The most significant benefit to the proliferation of universal design practice is that all consumers will have more products to choose from that are more usable, more readily available, and more affordable*."

To ensure equal opportunities of access and fruition of urban spaces contributes towards this objective: solutions and way of designing, which meet different needs and enable independence, restore the dignity of each disabled person and benefit all.

To improve the quality of information is the goal of wayfinding.

To reflect on the physical and sensory capacities of the real users in order to provide solutions that, by using an identifiable and comprehensible linguistic code, inform and orient pedestrians, is a prerequisite to improve the sense of safety, accessibility

and the knowledge and comprehension of a city.

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3. Wayfinding

Spaces & people. Human behaviours and legibility of urban spaces

According to sociologist *David Le Breton*[37] (2003), *walking* is a natural, routine action that entails the full participation of all the sensory capacities of individuals and the search for new emotions.

It is a practice that allows reaching that *perception* of reality cognitive psychology defines as the interpretation of any *elementary sensation* elaborated on subjective experiences or as an *emotional state* resulting from one's own aspirations and from all those values that change with age, ethnic group, religion and level of education (*Canestrari* et al.,2007).

Therefore, since perception enables the organism to get information about the state and changes of the environment, it contributes to building, in a certain place, an idea that arouses curiosity, pleasure, serenity and, in the long term, sense of security, nostalgia and sense of belonging or, on the contrary, sense of insecurity, refusal, anguish and, in the long term, detachment, indifference and alienation. In short, it participates in the *quality assessment* of the space around us.

The place we live in, established habits and the way of thinking can deeply and almost unconsciously influence the way space and its qualities are perceived. This means that certain environmental conditions, which help individuals feel at ease, do not often correspond to the idea other individuals have of the same environment they interact with. The degree of satisfaction and what individuals like or dislike of a place are elements that can be subjectively assessed. For instance, the presence of fog and the atmosphere it creates in a city may be pleasant to those who are accustomed to it, but it may be extremely unpleasant to the others. Even the noise in the cities during night hours, the clang of coffee bar shutters that are pulled up early in the morning may disturb sleep for some people or punctuate time and announce the beginning of a new day for others.

However, American anthropologist *Edward T. Hall*[38] has shown that, despite one's

[37] David Le Breton is Professor of Sociology and Anthropology at Marc Bloch University, Strasbourg. He is a member of the Institut Universitaire de France and of the Laboratoire Cultures et Sociétés en Europe and author of a number of essays on body anthropology, a topic on which he is one of the greatest European experts.

[38] In the book *La dimensione nascosta* (Bompiani), one of the greatest experts of proxemics studies what

culture, an individual's behaviour in a certain space can be influenced by the presence of other people to such an extent that it can change and adapt to the others' habits. *Gehl* (1971) has also observed this attitude, particularly in the urban context. He established a series of specific relationships between the pedestrians' behaviour and how space is used. For instance, when pedestrians walk along roads with open spaces, they tend to move fast along the perimeter. As a matter of fact, the "edge", as Gehl says, regulates the presence of the subject in the space and, as a sort of protection, sifts the personal from the public sphere. Yet, this behavioural rule is upset even as the same place is lived, lively, busy and, therefore, people choose to slacken their pace, to modify their way and to stop, intrigued and protected by the presence of other people. Then, according to *Gehl*, the "events" and activities that occur in a place strongly influence an individual's sensations of well-being in relation to an urban space.

Finally, *Montgomery* (1998) affirms that the image of a place is determined by a "*set of feelings and impressions about that place. These feelings come from a filtering of information received and collected about the place*." Each bit of information received is almost a "guide" to walk, to know and appreciate the place and create that condition of familiarity and sense of belonging that are decisive for the quality of urban space.

Considering the use of information and the rules according to which people move in the urban environment, *Golledge* (1999) states that "*it is possible to distinguish two types of guiding process. The first of these is called navigation [that] means to deliberately walk or make one's way through some space.* [...]. *The second process involves selecting paths from a network, and is called wayfinding*."

According to *Darken and Peterson* (2001), "*navigation is the aggregate task of wayfinding and motion. It inherently must have both the cognitive element (wayfinding), and the motoric element (motion)*". In particular, *Baker* (1981) describes navigation as the "*method of determining the direction of a familiar goal across unfamiliar terrain.* For successful travel, continues *Golledge(1999)*, it is necessary "*to be able to identify origin and destination, to identify direction of movement, to recognize on route and distant landmarks*".

Nevertheless, visitors and tourists can use the same space in a different manner. Considering the two extreme stereotypes of "traveller" can be an effective way to

personal and social spaces are and how men perceive them. According to E.T. Hall, when people from different countries and cultures meet, they judge the other peoples' behaviour if this behaviour contrasts with theirs.

understand that concept.
Travellers are usually meticulous: they pack their suitcase thinking of the weight they will have to carry and of the exact need for its content; they plan their journey and stay; they get information, study the place and the things to do and to see already before leaving. They do not leave anything to chance.
However, sometimes, replying to *Baudelaire's* invitation "Let's go", travellers wish to discover the hidden stories of a city by inventing, each time, their own personal itinerary, without an established destination or limit, except for the one suggested by the attraction the urban space exerts on their senses. It is the stereotype of the "disorderly" traveller, of *Le Breton's* (2003) "loiterer", who walks with a map in his hands but does not use it. It is the sharpest user of the city, the one who is the most open to discoveries, who moves slowly, taking and wasting time, who is ready to bet on an itinerary rather than on another, to come back if it does not prove to be interesting or match his expectations and to start again, led by the sensation of the moment and by the desire of unexpected meetings and surprises. The traveller is willing to unexpected events but, at the same time, is aware of the possibility to miss something unique of the place he is visiting.
"Where am I?" "How do I get to the place where I want to go?" "How far is it?" and "What else can I see?": these are the questions visitors ask themselves when they are in an unknown place, thus exploring the horizon to look for landmarks that may allow them to understand where they are and where they should go.
It is exactly the place, its aspect, the presence of certain "signs" that must provide a first interpretation. It is that feature of the city, *Lynch* calls "legibility", that indicates "*the ease with which its parts* [cityscape] *can be recognized and can be organized into a coherent pattern* [as such as a mental image]" that exploits "*the visual sensation of color, shape, motion, or polarization of light, as well as other sense such as smell, sound, touch* […]." [39]
According to *Lynch*, five elements characterize cities: paths, edges, *districts*, *nodes and landmarks.* They are references, since they draw the visitors' attention and remain stamped in their memory. Yet, there can often be common icons, such as the commercial ones (e.g. *McDonald's*), that immediately reveal, in any country, what is possible to find inside.
They are "focal points" around which the whole urban structure is organized and a completely personal pattern or representation of the environment is created.

[39] K. Lynch, *The image of the city*, p. 2-3

This mental image, the product, the total of the environmental information each individual constructs through a mental structuring process, by ordering significant points or the itineraries he can follow, is called "*cognitive map*"(*Golledge*, 1987).
Passini (1992) defines it as "*a mental construct of an environment which cannot be seen from one single vantage point alone*."
According to *Mijkaaneser* (2009), to have full cognition of the space means to realize what space is and what the space where we are is like. In other words, it means to have a clear representation, an image of space in our mind.
The cognitive map can be defined as the representation of spatial information in one's mind, where, as *Golledge* writes, some of this information concerns processes, such as finding a road or other spatial components.
People's request for help to understand the urban space arises when there are no "references" and raises as the complexity of the place increases.
Usually, in order to explain the organizing principles of the territory, cities use the sign system, which is made up of maps and other elements grouped into the term wayfinding.
The difficulty in using wayfinding arises when the information system has not been studied trying to find simple principles to give directions. Moreover, even the location of signs is often wrong. In fact, as *Passini* himself states (1996), information "*is not seen because it is there but because it is needed*".
Besides, a few studies on the topic have shown that further information is needed to help people orient themselves in the urban space. An example is the use of road names and of data on the path length expressed in time and distance, which are required particularly by pedestrians since they rationalize their itinerary and reduce the conditions of confusion and chaos. Nevertheless, as *May et al*. (2003) underline, there exists a substantial difficulty in the use of information on distances, since there is a general inability to assess them.
Therefore, the first and foremost reference is personal experience. According to *Mijksenaar* (2009), it is exactly the personal experience that guides us in an unknown space, before any other indication.
Even when we are in an alien space, we exploit the knowledge we acquired in past experiences. If we are in an unknown place, such as a station, we will try to reconstruct in our mind the organization of other stations, or similar places, we have already visited. We proceed by similarities and evaluate where the ticket office and platforms are most likely to be. Then, we look for other data that allow logically connecting

spaces and paths that guide us in the environment and enable us to move. Once again, in this phase, experience, conventions and acquired rules help understand and organize the information coming from the environment so as to construct in our mind all the relations and paths needed to move in an unknown environment.

Therefore, the need for a wayfinding system to guide the tourists or visitors of a city is not a new topic in the field of design. Yet, a recent *New York City Department of Transportation* (DOT) initiative, which announced the intention to promote a *Search for Innovative Pedestrian Information System to Improve Walkability, Economic Vitality of City Streets* [40], demonstrates it is still of great interest.

The search for new forms of communication, different from the official ones and deriving from the guides that are specially created for tourists, is still relevant. Its purpose is to come back from a journey and feel we have really "experienced" the place we have visited and we have not ignored those particulars that reveal its essence.

Even the "*Yellow arrows*"[41] global public art project shows that and suggests a new way of exploring the city. By using the web and mobile telephony systems, travellers or simple citizens can put a sticky yellow arrow where they wish, which means "*there's more here: a hidden detail, a funny story, a memory, and a crazy experience.*"

In fact, the sticker has a code that, connecting to the dedicated website, allows sending an SMS and writing or reading a text about a personal impression, a sensation related to a place, a simple object or a view that cannot be missed.

Moreover, on the wake of the latest technological innovation, projects on the theme of the removal of sensory barriers have emerged: "*much empirical work has focussed on the design of navigation aids for users who have a visual or cognitive impairment. Other research has focussed explicitly on the provision of* […] *instructions for pedestrians*

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[40] The initiative is a critical first step in making New York City's world-class streets easier to navigate and even more accessible for New Yorkers and visitors alike. It is the first in a series of steps to improve mobility on foot, on a bike, in a car or taking mass transit. A coordinated pedestrian information network as "wayfinding," will help pedestrians crack the code for traveling to, from and around the city's neighborhoods, business districts, transit stops and landmarks on foot. By providing clear, readable signs, pedestrians will be able to better orient themselves to determine how long it takes to walk to key locations.
http://www.nyc.gov/html/dot/html/pr2011/pr11_54.shtml

[41] Yellow Arrow began in 2004 as a street art project on the Lower East Side of Manhattan. Since then, Yellow Arrow has grown to over 35 countries and 380 cities globally and become a way to experience and publish ideas and stories via text messaging on your mobile phone and interactive maps online. Since first appearing at the Psy-Geo-Conflux in New York in May 2004, Yellow Arrow has been featured in The New York Times, Wired, Newsweek, The Washington Post, The Boston Globe, CNN and NBC, the London Times, Politiken, Liberation, Diari de Barcelona, and de Volkskrant. Yellow Arrow was also featured in Lonely Planet's Guide to Experimental Travel. In October, 2008, this groundbreaking experiment was wrapped-up and all the content generated internationally by hundreds of contributors has been archived in the public domain at Flickr. http://yellowarrow.net

over mobile phones, the multimodal nature of journeys or the incorporation of route guidance information with points of interest for tourists or business users" (*May et al., 2003*).

Finally, the undeniable benefits of an effective wayfinding system have led many municipal administrations[42] to undertake studies and promote innovative projects that can involve different aspects, from architecture and town planning to communication, from psychological, perceptive and social themes to ecological and sustainable issues.

[42] Recently, cities like Parramata or Melbourne, Australia, have developed interesting wayfinding strategies and systems for pedestrians. http://www.visualvoice.com.au

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The term wayfinding, introduced for the first time by *Kevin Lynch*[43] in the '70s, draws attention to urban signs, to all the traces and tracks that help us understand where we are and where we are going. Lynch defines it as "*the original function of the environmental image, and the basis on which its emotional associations may have been founded. But the image is valuable not only in its immediate sense in which it acts as a map for direction or movement; in a broader sense it can serve as a general frame of reference, within which the individual can act, or to which he can attach his knowledge*."

Since the '90s, many authors have given different definitions: Peponis et al. (1990) highlight "the ability to find a way [from a starting point] to a particular location in an expedient manner and to recognize the destination when reached" and also Arthur and Passini (1992) define it as a "process of reaching a destination, whether in a familiar or unfamiliar environment". Referring to Lynch's definition, the capacity of the environment to provide the right information is considered also in Hunt's definition (1994), according to which "[…] wayfinding is the science of organizing and defining a sequence of posted messages and communication elements designed to promote self navigation."

Finally, focussing on individual capacities rather than on the mental process, Elvins (1997) concludes that "without wayfinding a navigator won't know in which direction to steer and without navigating, a wayfinder will not have the means to move toward his destination".

These definitions derive from the results of studies carried out by Passini and Arthur in the '70s and dealing with the understanding of how people find their way in an unknown environment, knowing "where they actually are in the complex, the layout of the complex, and the location of their destination in order to formulate their action plans." This final aspect has been tackled particularly by Passini (1984), who defines wayfinding as "a cognitive process of users to find their destinations" and identifies three specific moments of information processing and decision-making:

1. ***Decision making***, when the user develops an action plan for his journey (where to go, when to leave, how to reach his destination…) through a set of orderly

[43] Lynch used the term in his book *The image of the city*. He had previously used the term "way-finding devices" to indicate maps, street numbers, road signs, etc.

decisions that are connected with each other, based on available information and meeting the traveller's needs. This process expresses a logical path that links different levels of decisions organized in a hierarchical manner according to a specific problem. The availability of information is crucial in this phase: only when all necessary information is collected, the next phase can start.

2. ***Decision execution***, when the action plan turns into real decisions taken on the way, in the right time and place, and referring to the mind map constructed with the information acquired in the previous phase.

3. ***Information processing***. In this phase, information processing is aimed at understanding the environment and depends on the capacity of perception and cognition.

Moreover, in order to describe the possible movements of people from a starting point A to an arrival point B in a succession of "actions-instructions", *Corona and Winter* (2001) found five categories of codified actions, depending on the grain of the territory: *movement, start, destination, orientation, operation.* (fig.2)

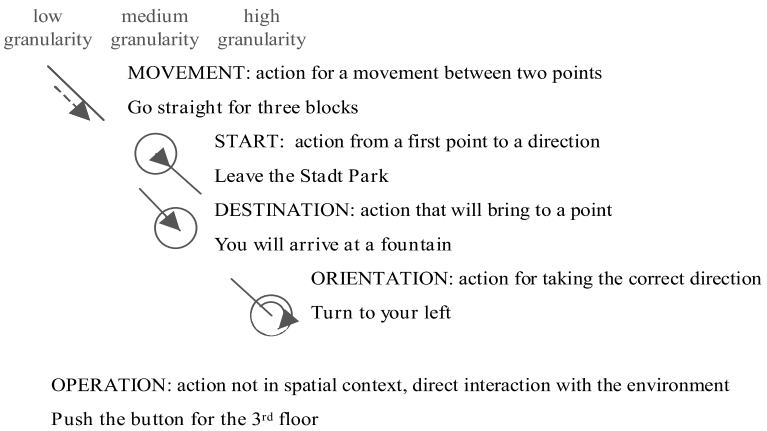


fig.2 Five categories of codifiified actions. Source: Corona and Winter (2001)

The last action, "operation", is separated from the group because it does not cause

a change in the position or orientation of pedestrians.
In pedestrian instructions, the position of the user, i.e. his location, appears to be useful because it is a necessary condition to perform an action. It can be displayed in the form of an address or a name (fig.3):

Location: referred to a specific position (address, landmark)
IF location **THEN**
When you arrive at the monument → turn to the right

fig.3 *Relation between position of user and action. Source: Corona and Winter (2001)*

However, according to *Golledge* (1999), the process of definition of any path is influenced by the "intentions" (single or multiple) of the journey, by slowdowns and possible stops.
Therefore, the built space has a strong influence on pedestrians' movements and choices and wayfinding is a means to organize the territory and make it legible, as well as to guide, help to orient and recognize one's destination.
In particular, according to *Tinnish* (2007), wayfinding should:

- Allow people to know where they are, find the best route, recognize their destination and find their way back;
- Create clues that are appropriate and legible;
- Develop a unique system that functions well;
- Integrate the system into the overall architecture and aesthetics;
- Communicate to a multilingual audience.

Then, the objective of signs is to create a well-structured network of pedestrian paths by defining a strategy based on few rules (*Grant and Herbes*, 2007) concerning, first of all, the choice to locate them in "decision points" and, more precisely, in the following places:

- Trip origins, that is, where people join the pedestrian network, i.e. transport interchanges, stops and car parks;

- Pedestrian trip destinations - once the visit is made to that location, it will become a trip origin either to another destination or back to the initial origin (e.g. the public transport stop). Examples include tourist attractions, community facilities, sporting venues and retail areas;

- Locations where there is possible ambiguity in the route, including major junctions and open areas;

- On long routes where pedestrians may doubt they have chosen the correct direction and need confirmation.

Following such rules, it is possible to start an intuitive process that guides visitors to their destination through continuous messages and limited interventions and, therefore, without any stress, frustrations and waste of time, which is spent, instead, to look for the necessary information.
This will improve:

I. Functional efficiency
II. Accessibility
III. Safety
IV. Feelings of comfort

Therefore, the concept of orientation is crucial to wayfinding, but, as *Muhlhausen* (2006) underlines, "*the wayfinding is not a signage: signage plays an important part of wayfinding – but there's more*". This thought, which hints at a wider interpretation, is more explicit in architect *Kathy Frazier*[44]'s definition, according to which "*It should provide a seamless experience for the visitor and say something about the community*."
This statement recognizes wayfinding has a strong added value: it becomes an instrument of orientation that, by means of explicitly communicative artefacts, "[…] *can show[s] the way, show[s] the rules, show[s] what's happening, and what's happened*"[45], establishes strong relationships between visitors and the territory, highlighting its specific identity, which is different from any other.

[44] Cit. in Rona J. Vrooman, *Regional wayfinding system provides seamless signage for Historic Triangle visitors*, Virginia Town and City,Feb. 2007
Kathy Frazier is an architect, co-founder of *Frazier Associates*. Her projects have won numerous design awards, including a national Palladio Award, and she has been featured in a broad range of magazines including Virginia Living, Traditional Building, Urban Land and Southern Living.

[45] *Street as a place*, (2008) PPS (Project for Public Space) www.pps.org

LA VILLA SAVOYE

People look around the place where they are for the information they need, that is why, according to the principle "*as few as possible, as many as necessary*"(*Grant and Herbes, 2007*), tourist signs must be easy to perceive, read, understand and follow. They must aim at connecting destinations and intermediate points, thus creating a continuous tourist path and minimizing distances or even offering attractive alternative itineraries. There exist four general types of signs, besides a fifth type that is temporary (fig.4):

1. *identification signs;*
2. *information;*
3. *directional signs;*
4. *safety or regulatory, prohibition and advisory (ADAS, 1999);*
5. *temporary signs.*

Types of signs

Information type	description	example	location
Identification	Information provided at the destination (i.e. opening and closing hours, etc.)	Signs with street, building, place and space names and pictographs. Use of a colour to identify the signs.	Destination points Footpaths
Information	Where you are and where the destination lies. Additional information about the place and footpaths (i.e. public amenities and facilities, travelling time, etc.)	Map-based signage with important details. 3D maps "you are here". Monoliths "where you are is what you see". Educational signs with descriptions related to natural or historic site.	Arrival city points Nodes or decision points. "in front of viewer" Points of interest
Directional	Information to guide people, along a path to a destination. Sometimes it can tell the road, building or place name, the distance and the travelling time, etc.	Fingerpost signs with symbols and arrows. Use of public art.	Nodes or decision points. intersections Posted intermittently
Safety or regulatory	Information about local code and safety precaution.	Signs and notices with rules and symbols. Use of colours to identify the signs.	Entry points Warning sites
Temporary signs	Information about an event has limited time, signals an obstacle or a temporary secondary path.	Information panels, arrows, symbols, safety signs	Everywhere

Fig 4 Types of signs with descriptions, exaples and lacations.

In addition, *Tinnish* (2004) and *Muhlhausen* (2006) identify certain general rules about signs which are related to:

Typefaces

- Select Sans Serif font;
- Use a bold Sans Serif typeface with a large x-height and thick stems;
- Use upper case for the first letter and lower case for the rest of the word.

Type sizes

- Size messages and signs appropriately for viewing distances.
- Furnish generous spacing between letters, words and message lines.

Design

- Use of hierachy from the largest to the smallest of something, etc.
- Establish code areas by using colour and memorable graphics.
- Establish consistency in sign placements and graphics layouts.
- Select important details to build a map

Names

- List road names, locations and destinations in alphabetical order by function, by direction on directional signs;
- Standardize names for all buildings, services and destinations, and display them consistently on all graphics applications;
- Include landmarks or features people will recognize
- Be short and simple enough to remember

Colours and symbols

- Use colour-coding as a colour-coding system, not just as decoration;
- Use different colours from safety sign colours
- Use symbols easy to understand
- Use established pictographs with words to facilitate comprehension of written messages.
- Check the legibility of the symbols from the distances they are to be viewed
- Determine if the symbol signifies something different for people from other cultures.
- Link arrows to relevant text, show the appropriate direction, do not separate them from text by too much white space;

Positioning/Locations

- Locate signs where people need to make a decision.

- Place maps at all parking exits, building entrances and major decision points.
- Provide standardized "you are here" maps of the project that include an overall map of the complex and more detailed maps of specific areas.
- Locate signs close to eye level wherever possible so people with visual impairments can read them from a close distance
- Give arrows a consistent style, size and position on all signs.

Of course, the development of the graphic project strongly influences the effectiveness of communication. In fact, when people encounter a symbol or colour on their way, they tend to look for similar signs to continue. As a consequence, the best strategy for the project is to use few symbols not to confuse the user and also to identify a consistent family of types of signs, symbols and colours, depending on the kind of information to provide: once colours or symbols are assigned a specific use or meaning, no other colour should be used for the same purpose.

The *American Institute of Graphic Arts* has developed and promulgated a collection of standardized symbols that could be used on signs in transportation hubs to assist travellers, regardless of their native languages (fig. 5). Fifty symbols were adopted in 1974, including many of the icons we are familiar with today in airports and other public spaces, like the symbols for men's and women's toilets, arrows pointing the direction we need to go, a martini glass leading us to the bar, and plenty of others that you would instantly recognize. [46]

fig.5 AIGA symbols

[46] See http://www.aiga.org

fig.6 Pictograms for Olympic Games of Tokyo 1964

The *Olympic Games*[47] (fig.6) are the classic application of symbol signs, using a distinct set of icons to represent each competition, as well as individual venues. The symbols not only depicted the Games' sporting events, but also helped direct visitors to where they needed to go. The icon sets also serve another purpose in allowing the host city to develop a unique identity for itself and the games of that year.

Today, most international symbols are maintained by the *International Organization for Standardization* (ISO). Every year, new symbols are submitted to ISO by one of its own committees or ISO member organizations, such as the Institute for *Electrical and Electronics Engineers* (IEEE). Once a new design has been turned in, it is up to one of ISO's *Technical Committees* to determine if a symbol is truly international by using a battery of tests and garnering external opinions from representatives of different countries around the world. Once a symbol passes the ISO test, it becomes available to a worldwide population of industries and product makers and, symbol-wise anyway, can be said to be ISO-compliant.

However, there is some controversy when it comes to ISO because, unlike the AIGA symbols that came before, ISO symbols are not free. In order for an organization or manufacturer to use these symbols, they must pay a licensing fee, which can add hundreds to development costs. Of course, this extra expense means that some companies will simply forgo these international symbols and develop their own

[47] Pictograms have been a part of the Olympics since the 1964 Tokyo Games, when designer *Masasa Katzumie* created 59 symbols that could be understood regardless of the viewer's native language.
Lammie Rob, *Everywhere a Sign: A Brief History of International Symbols, April 2012*
http://mentalfloss.com/article/30552/everywhere-sign-brief-history-international-symbols

pictograms, which may lead back to the confusion they are supposed to eliminate.[48] Therefore, the graphic project, the organization and the choice of the codes to use play a key role in the development of a usable wayfinding system. According to *Whitbread* (2001), the graphic project should:

I. attract attention and arouse interest;

II. separate the particular message from the many other messages people receive every day;

III. make the message stronger, more effective and perhaps even memorable;

IV. save money by achieving maximum communication value from whatever resources are available.

To attract attention and arouse the visitor's interest are the most important objectives of wayfinding and, for them to be achieved, it is necessary to use the right language: the choice of words, symbols and colours has a strong impact on the understanding of the message, which depends on the individual capacities of processing and is, on its turn, the decisive element for a successful phase of transmission. Regarding this, *Hall* (2007) describes a sort of "path" a message covers to arrive from the sender to the receiver. It is composed of seven keywords that should be taken into account in the definition of the project:

1. SENDER (who)
2. INTENTION (with what aim)
3. MESSAGE (says what)
4. TRASMISSION (by what means)
5. NOISE (with what interference)
6. RECEIVER (to whom)
7. DESTINATION (with what results)

Therefore, the contents of each keyword must be well defined so that the message is

[48] Lammie Rob, *Everywhere a Sign: A Brief History of International Symbols, April 2012*
http://mentalfloss.com/article/30552/everywhere-sign-brief-history-international-symbols

clearly interpreted by the receiver.
Transmission depends on different factors, among which the easy reading of the message.
For instance, mounting signs level with the pedestrian's field of vision is crucial. For signs which are intended to be viewed at a close distance, mounting them between 0.9 and 1.5m above the ground provides the most appropriate compromise for those seated and standing. This may be done through mounting them on walls or other structures.
Similarly, lighting is fundamental for the continuous legibility of the message, above all at night. Special artificial lighting or, alternatively, a light source from the street-lighting system should be available for each sign or map.
Moreover, considering all the available means for the transmission of messages, all those sensory systems, which can enrich information and help people with disabilities orient themselves, should be used. Among them, worth mentioning are:

Tactile communication

Audible Clues

Tactile communication includes relief elements that can be read through touching. Among the relief systems adopted in signs, the *Braille* language can be used on its own, to provide short information, or in combination with a relief map.
In spite of their undeniable effectiveness, bas-relief maps, which show simplified views of buildings or panoramas, and tridimensional models, which are scale copies of real monuments and allow appreciating through touch those particulars that would be missed otherwise, are still underused.
In general, all maps should contain:

I. The most significant details of the place and of the monument;
II. Landmarks
III. Braille symbols and the corresponding texts written with fonts that can be read also by people with low vision.

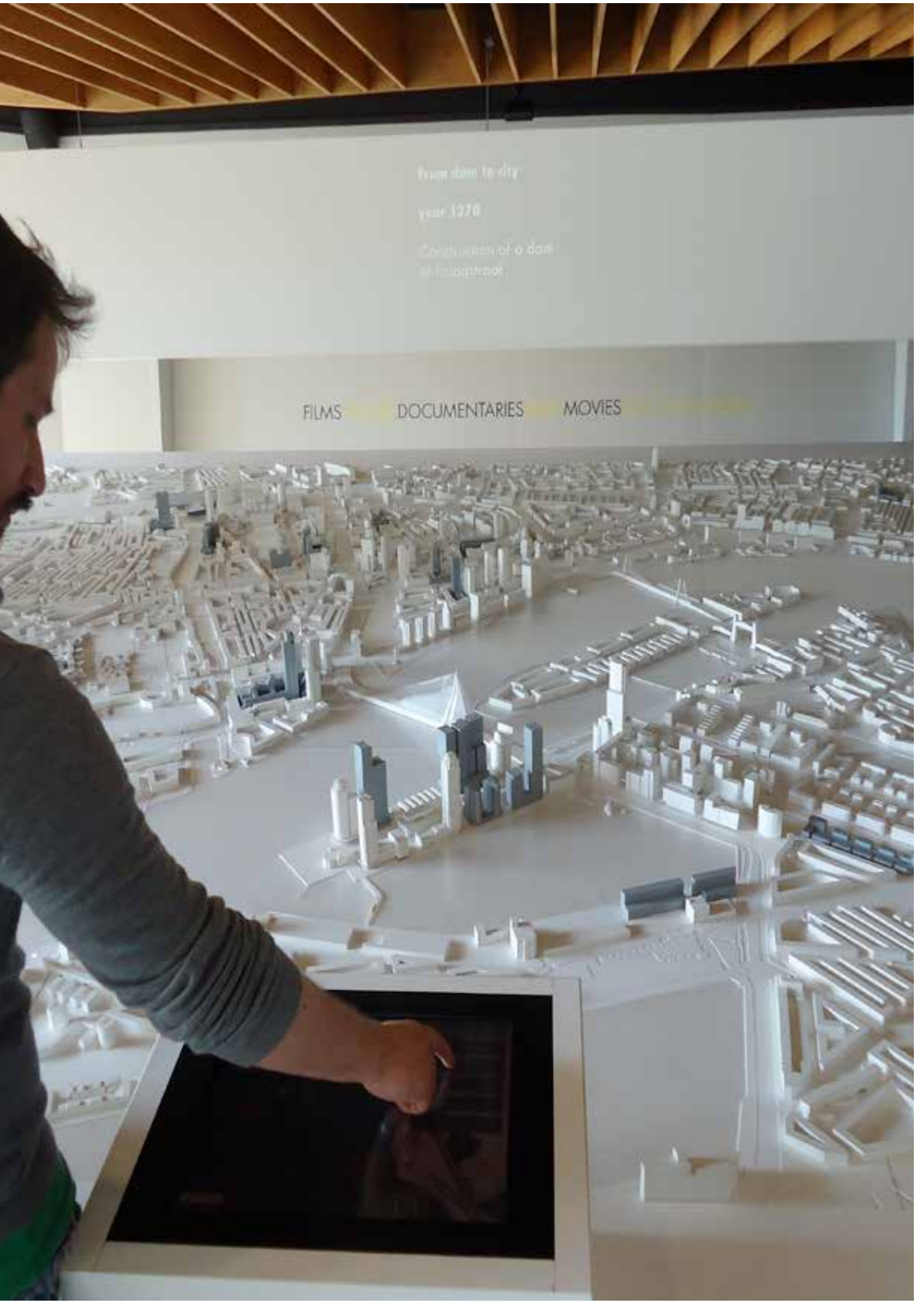
Audible clues also play a crucial role in enhancing the diffusion of information to visually impaired people.
Audible wayfinding clues provide verbal instructions through electronic devices and can be used in wayfinding to guide the user along a certain path, which is made recognizable by the indications given by sensory perceptions, such as the sound of a fountain or of a stream, the change in the material of the floor or a particular smell. As

a matter of fact, such indications become guiding elements for orientation.
For reasons of clarity, the whole path is usually divided into sectors, where the main instructions may concern:

- the number of changes in direction and floor level along the route;
- the location of landmarks;
- the history of a place, of a building, etc.

Technology and communication research has made great progress in the development of devices able to improve the quality of the life of disabled and, in particular, visually impaired people, thus assuring them wider access to information and the possibility to fully enjoy any professional, recreational or cultural activity.
In the tourism sector, these systems are widely adopted to increase the supply and offer visitors an unforgettable experience[49].

[49] Archeological sites, which are the destination of numerous tourist visits, increasingly use virtual reconstructions for the presentation of their original aspect to visitors. In Italy, for example, the city of Rome has been using the virtual reconstruction of the area of Imperial Fora, based on strictly scientific criteria, for long time.


from dam to city
year 1270
FILMS
DOCUMENTARIES
MOVIES

New technologies for tourist information system

At the end of last century, the development of territorial information systems allowed the diffusion of innovative devices for navigation that can be also applied in tourist areas.

Later on, and, in particular, in the last few years, the availability of cutting-edge ICTs (*Information Communication Technologies*), used to process and spread information, together with the rapid diffusion of last generation smartphones and tablets connecting to wireless networks, has been an important factor for the development of tourist services and has triggered a radical change in the way of "giving and receiving information".

In fact, ICTs allow reducing the time necessary to access information, booking and/ or buying a good or a service, socializing through social networking and, finally, improving one's cultural level.

Therefore, the Internet is not simply a new means of communication, but an appropriate strategic system that has revolutionized the methods to enhance and promote the artistic, natural, historical and cultural heritage of tourist destinations and the competitiveness of the services supplied.

Any information necessary to plan a journey is now to be found on the Internet in any phase: at home, before, during and after the journey. As a matter of fact, particularly young people, who are more used to new technologies and to a new way of communicating and sharing information, wish "[…] *to have real time support when [they are] visiting the place, and also want easily to share [their] experiences with other users with the assurance that the information available after the visit will be useful to those who plan to go to the same place*"(*Carvalho et al., 2010*)

Thus, the Internet offers tourists a series of multimedia products (texts, sounds, images integrated with virtual reality) that simplify the complex information necessary to make one's choices, especially in the phase of exploration of tourist destinations.

An example of simplification of information, which has been particularly successful over the last few years, is the *QrCode* (Quickly Response), a new bidimensional bar code whose content can be easily read by the camera of any modern mobile phone. This code is immediately converted into a link to a website to provide useful information, like a multimedia tourist guide.

Its use allows sharing information anywhere and at any time and describing the territory through various contents on events promoted by the city, art exhibitions,

restaurants, additional information on monuments and so on.
An example of how it can be used is the pilot project *TagMyLagoon*, which is a stage path, sponsored by the Municipality of Venice, marked by QRcode-labelled streetlamps, litterbins and signs intended to provide tourists with the most varied and use-friendly information on the territory, also thanks to the Wi-Fi network available in the whole area.
The use of QrCodes with *Augmented Reality* applications is really futuristic. Virtual and/or multimedia elements overlap the real physical space and give additional information through one's own mobile phone, thus allowing interaction with the built environment[50].
Thanks to Augmented Reality AR, it is possible to receive "augmented" information, in one's own language, just by pointing a smartphone at an object, e.g. the detailed description of the object being framed; news on local activities or events, on special offers in the shops, on coffee bars and restaurants in the surroundings; or the view of a public transport map.
An interesting project of AR has been implemented in the Japanese city of *Atami* that, in order to attract new tourists, has decided to develop a tourist path scattered with QR Codes which, when framed, virtually materialize the protagonists of a famous videogame, thus making the itinerary more enjoyable and captivating.
The highest expression of AR potentials is the possibility to combine the tourists' historical and cultural interest with their recreational and interactive experience.
Architecture, art and archaeology are disciplines which take particular care of this aspect, also to didactic and scientific purposes. AR is widely and successfully used above all in the field of cultural heritage, with particular reference to monuments and museums for which it is possible to reconstruct future and imaginary scenarios or past environments that do not exist anymore. Through such a technology, users can move freely in the reconstructed scenario and interact with it in real time, thus comparing past and present and fully perceiving the changes occurred in technology and society over time.
Other increasingly common devices are the *Personal Digital Assistants* (PDA), which provide real-time information, and GPS. They enable users to access an interactive map where their position is indicated on the planned route, while the instructions about the path are transmitted visually or by means of speech synthesis.

[50] For more details :
www.ghnet.it/2010/augmented-reality-l'ultima-frontiera-delle-ict-apre-spazi-nuovi-al-turismo/

The following are the positive aspects in the use of these technologies:

- The reduction in the reader's cognitive load
- The increase in the quantity and type of information available at the very moment of their use
- An increased involvement and perceived amusement (presence and engaging)
- An increased travellers' performance in the process of information acquisition.

Leidseplein

Users' needs and new tecnologies

Technology seems to make life easier by offering more accessible information, yet it is not so for everybody: certain population groups, e.g. elderly people, sometimes appear limited by progress rather than benefited.

According to *Newell et al.* (2002) "*there is little evidence that older people are particularly technophobic, but the range of functionalities, even of a fit and active older person, is such that current systems (particularly software) may be either difficult or impossible for them to use. In addition, the needs and wants of people who are in the autumn of their lives are not necessarily the same as those of younger people for whom software has traditionally been designed.*" Age-related difficulties, which make technology complex to use for older people, mainly concern visual, auditory, cognitive and motor problems. However, to associate the effects of old age to the difficulties of people with congenital disabilities is not always correct.

It is obvious that each disability entails different problems, but older people's sense of bewilderment, inability, difficulties of memory, movement and understanding of new information are different from those of disabled young people who are more used to the quick changes in new technologies.

In fact, the generational gap, related to the capacity, habit and great ease in using technologies, is a barrier which often limits the autonomy of older users and becomes a modern form of social exclusion.

However, over the last few years, more and more older people, above all young elderly, even for mere need, have developed an interest in new technologies showing strong curiosity and will to keep in tune with the times. Therefore, since to avoid the use of technology is impossible, the design of these systems and of their interfaces should take into account the perceptive difficulties of the elderly and the cognitive changes they must face, in order to reduce the effects of stressful situations. This would imply, for instance, the use of high-contrast screens and signs written with legible characters, audio indications, large keys and, above all, few and simple functions.

In the case of new technologies applied in tourism, where a wider users group is involved, the use of the web, particularly during the journey, becomes difficult, owing to the following reasons:

- Tourists have no active internet connection in another country;
- Tourists have the internet but they do not use it because it is too expensive;

- There is no free wireless network;
- Their holiday lasts few days and does not justify the activation of a temporary internet connection;
- They are not familiar with technological systems.

Moreover, recent research on the effect of the use of territorial information systems has shown that the old paper map has still indisputable advantages compared to the guiding instructions that distract the users who are accustomed to use orientation landmarks. (*Pielot et al., 2009*).

Maps let pedestrians move freely in an unknown space, find shortcuts and alternative paths, acquiring deeper knowledge of the place. Nevertheless, paper maps are often difficult to read for visually impaired people and they cannot be used by blind people.

This is the reason why information should be provided through different tools, which can be used by a wider sample of possible users, considering that the number of people with disabilities is destined to grow because of the ageing population. At present, for example, blind people in the world are 45 million, but this figure will double by 2020. [51]

"*Safe and independent travel for blind and visually impaired persons is made especially difficult by lack of access to the signs and landmarks that the rest of the population takes for granted. Braille signs, even where available, […] have to be sought and found before the information they contain can be used and a majority of people who are unable to read print signs (because of visual limitations) have not learned to read Braille*" (*Crandall et al., 2001*).

Particularly referring to visually impaired elderly people, many research works have developed technological systems supporting wayfinding, such as the *Ultrasonic Cane,* and others, which are complementary to the cane and are based on the use of GPS and PC (*MoBIC, Trekker, Drishti*), such as *Talking Sings*[52] or *Talking Braille* (*Rosset et al., 2005*).

- MoBIC and Trekker system (one of the most sophisticated in the market) makes use of various digital maps enriched with further information, which is

[51] Data released by the *World Health Organization* in 2007.

[52] Developed by the Smith-Kettlewell Eye Research Institute in 1982, was an attempt to respond to this need for information at a distance.

particularly important for blind and elderly travellers, such as the type of floor or the location of the entrances accessible to wheelchairs.

Though the system is successful on the whole, it shows a few limits since it provides directions only on a pre-planned path and, therefore, it does not allow for changes.

- Talking Signs and Talking Braille systems use talking environmental installations. They are based on infra-red signals and on the use of a receiver provided to the user. Travellers point the receiver at a sign to get specific information, such as their position or the direction they should follow to reach their destination, which are transmitted through speech synthesis.

These devices are quite expensive and sometimes difficult to use and the geographical data they provide are occasionally inadequate. Thus, they do not effectively meet the users' different economic capacities and expectations. On the contrary, wayfinding, of any type, should allow people "*to travel independently, to indentify locations, to undertake personalized guide-free route planning and execution, to increase their use of urban facilities, to positively impact their quality of life, and to reduce stress, anxiety, and uncertainty associated with urban travel*"(*Golledge et al., 1998*).
For these results to be achieved a *user-centred* design is necessary, which takes into account various abilities and follows the principles of Universal Design.
According to *Newell et al*. (2002), besides technologies, interface characteristics, etc., it is the way of giving a message that is important. For example, *Newell* states that using a story-telling approach means providing indications and data in a narrative form that constructs different scenarios to illustrate general principles through specific examples.
By acting on memory and on the sequence of data, the "narrative method" enhances the recollection of indications and favours the subsequent movements on the path, according to established legs and directions.
Finally, it is important to stress that there exists a direct relation between the increasingly massive use of technological devices and the state of obsolescence and neglect of the current tourist signs.
Of course, orientation systems should rely again on traditional signs, which are more able to "dialogue" with visitors, yet they should positively integrate effective new technologies.

Conclusion: benefits of a better wayfinding for urban quality

The search for an effective Wayfinding model has not provided successful results yet, since it involves various aspects: users have different characteristics, preferences and priorities depending on their individual conditions and situations; the contexts of application are also different and, because of their peculiarities, it is difficult to univocally define an application model.
However, the analyzed research works show that pedestrian wayfinding may be the most suitable tool to support those urban regeneration programmes that promote the vision of public space as a decisive element to improve the quality of urban contexts by turning them into pleasant places to visit and experience.
From this perspective, by focusing design priority on pedestrians and enriching the level of information, wayfinding brings about the following benefits:

- **It enhances local identity**_ *it helps maintain the local character*
- **It simplifies the navigation in an unknown territory**_ *it provides the right indication at the right moment*
- **It develops familiarity with the context and boosts the visitors' sense of security**_ *it increases legibility and improves the perception of the place*
- **It proposes alternative paths to local attractions**_ *it identifies new itineraries that allow discovering places of interests which are not indicated on tourist maps, thus enriching the tourists' experience.*
- **It encourages walking**_ *information boosts walking and the use of public transport even for locals.*
- **It improves urban quality**_ *more information for movements on foot or by public transport, more spaces for pedestrians, less cars, less smog, less accidents, more liveability*
- **It increases social inclusion and cohesion**_*information allows moving by making choices in relation to one's own capacities.*

Therefore, it is clear that signs, i.e. access to information, can modify citizens' habits, with significant impacts on the personal choices of mobility, and that they can

create the conditions to achieve urban liveability. Moreover, if information on the various opportunities of travel, on paths, on travel time and possible intermodalities are located in strategic places, such as multimodal points for urban and interurban public transport, travellers can make "informed choices" related to their capacities and needs and walking becomes a real choice.

In addition, the greatest knowledge of the territory enables to appreciate each characteristic of a city and to create the conditions to trigger new opportunities for local economic development.

In fact:

- To provide indications on pedestrian paths, which are alternatives to the main tourist paths connected with the town centre, promotes the development of new services and dedicated activities as well as the revitalization and economic growth of forgotten urban areas.

- To ensure access to information, even to people with disabilities, allows getting the requisites to be listed as ENAT accessible tourist destination and, thus, attracting the flows of "tourism for all".

- To improve social inclusion is a tool to develop the economic activities linked to the new culture of accessibility, thus fully achieving the goals of *Horizon 2020 Framework Programme*.

- To enhance the tourist experience allows return processes.

- To promote a policy of sustainable tourism development guarantees the conservation of historical and natural assets and of the local cultural integrity as well as the satisfaction of the locals' expectations.

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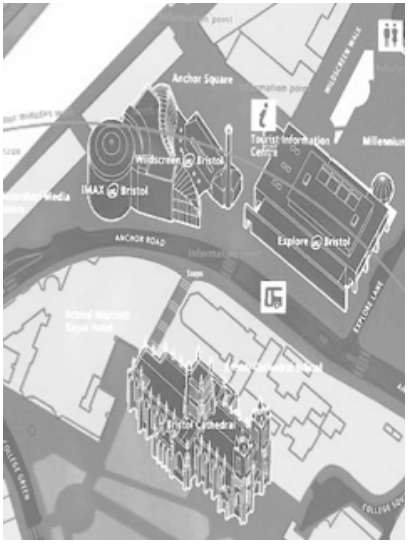

Anchor Square
Tourist Information Centre
Millennium
Wildscreen @ Bristol
IMAX @ Bristol
Explore @ Bristol
ANCHOR ROAD
Bristol Cathedral

4. Key findings from process and practices

Introduction

The case studies illustrated in this paragraph are instrumental to the construction of a reference "sample" and to the identification of the available practical and theoretical information on wayfinding. Therefore, references were selected taking into account the goal of this study, i.e. to search for contributions, examples of best practices and suitable information for the definition of guidelines for an innovative wayfinding system.
As shown in the table below, the selected case studies fall within three categories: guides, projects and criteria.

Guidance	Health sites	NHS *National Health Service,* England
	Built environments	CRC *Cooperative research Centre for Construction Innavation,* Australia
	Pedestrian urban spaces	DOT *Department of Transport*, Victoria, Australia
Projects	Pedestrian urban environment	*Bristol legible city,* Bristol U.K.
	Pedestrian urban enviernment	*Legible London,* London U.K.
Criteria	Mix-use	*Paul Mijksenaar*

As regards guides, the analysis of the state of the art revealed the lack of documents containing specific regulations, instruments or design codes on pedestrian wayfinding. In fact, publications, such as the World Tourism Organization's "*Tourism Sign & Symbols*" or the Department for Transport (DfT)'s "*Essex brown and white tourism signs policy and guidance notes*", merely report the symbols and the directional signs used in the tourism sector.
The only documents providing design indications on pedestrian wayfinding are non-mandatory publications for signs in complex environments, such as hospitals or airports, where users may be more likely to get lost or disoriented[53]. These guides are only a collection of "simple principles", of recommendations aimed at raising the qualitative standards of planning.

[53] See ACRP, REPORT 52. *Wayfinding and Signing Guidelines for Airport Terminals and Landside,* TRB, Washington, D.C. 2011

That is the reason why two publications on wayfinding design process, in hospitals and in indoor built areas respectively, were included among the documents chosen as reference case studies. Various reasons led to that choice: one publication is a guide published in the '90s which is still a valuable tool in pedestrian sign design, to such an extent that it has been updated and reprinted; the other document is a publication that was awarded in 2007 for its particular focus on the themes of social inclusion and accessibility. Though such scenarios of application are different from the urban setting, it is possible, however, to draw useful ideas and indications.

Only a few recent publications, which are the result of research activities and design experimentations, show a specific interest towards urban areas. For example, among the selected guides, the DOT (*Department of Transport, Victoria, Australia*)'s publication is the only one which is fully focussed on the theme of research, since it is addressed to tourists and residents moving in urban environments.

On the other hand, the two selected projects of the cities of *Bristol* and *London* are considered among the most important in the field of wayfinding, to such an extent that they are a reference model for the design process. These projects, which started in the late '90s thanks to a programme of in-depth research and studies on the subject, provide valuable hints for the development of the design process and for the feedback improvement system based on the final evaluation of the obtained results. In particular, one project is the improvement of the other, as they have originated from the same purpose of simplifying pedestrian wayfinding by providing an effective information system in order to encourage transfers on foot and to reduce vehicular traffic.

Obviously, though these projects are focussed on a single aspect, such as pedestrian information and wayfinding, they have entailed deep changes in the traditional strategic and cultural approaches to the identified issues, thus pursuing unexpected results in relation to other aspects of urban life.

Finally, the following considerations led to the decision to include *Paul Mijksenaar's* design theories among the case studies analysed.

Paul Mijksenaar is a worldwide leading figure in the field of visual information and wayfinding system design in various environments, from airports to parks, from hospitals to parking areas.

Furthermore, his 30-year experience has enabled him to establish certain general rules which are not linked to the field of intervention, but rather to the users' habits, capacity of attention and comprehension of signs. Therefore, a research on his rules

and indications was deemed necessary to analyse all the various reference sources on the topic from any possible point of view.
Each case study was analysed through a *reading sheet* which was arranged to define the various stages of the investigative process and based on a few key words:

background of the specific historical, cultural and economic characteristics of the city concerned and presentation of its problems;
objectives to achieve through the actions taken to remedy or put an end to an identified problem;
strategies and methods used to effectively contrast and tackle such problems; cultural, social, technological and economic
results obtained from the application of the intervention strategy put forward;
transferability and success factor, which show the effectiveness of the strategy and are part of the exportable elements;
lesson learnt on the strengths and weaknesses of the proposal and its resulting rules.
The last two passages are the most interesting phases of the research, since they evaluate each solution finding those general characteristics that are the basis for the identification of strategic "lessons" and design indications, which are elements that can be successfully exported and applied also to contexts different from the analysed ones.

NHS ESTATE

CRC Cooperative Research Centre

DOT Victoria

Guidance on sign design

Document: Guidance
Title: Wayfinding. Effective wayfinding and signing systems Guidance for healthcare facilities
Produced by: NHS ESTATE National Health Service
Nation: England
Publisher: The Stationery Office
Date: 1999
Tipology: healthcare sites

BACKGROUND

The UK's *National Health Service* (NHS) commissioned a research project in 1998 to find out why people get lost in hospitals. In 1999 they published an illustrated book, with good practice guidelines on each page, called *Wayfinding: Guidance for Healthcare Facilities.*

The initial trigger for the research was the realisation by *NHS Estates* that their *Health Technical Memorandum* (HTM) 65 Signs document needed updating. HTM 65 was very prescriptive and the lack of flexibility in the guidance, along with the increasing complexity of hospital sites over the fifteen years, meant the guidance needed reviewing. Furthermore, the 1995 *Disability Discrimination Act* required major implications for wayfinding systems at all healthcare facilities.

The observations and recommendations in this book are in part based on research commissioned by NHS Estates and carried out by *Information Design Unit Ltd* between August 1997 and June 1998.

The book includes recommendations and describes good and bad practices, highlighting approaches to avoid and others to adopt for wayfinding. Other topics include: factors that influence how people find their way; inclusive design; the impact of a poor wayfinding system; developing the business case; and tools to help evaluate the adequacy of current systems and identify areas for improvement. There are five sections:

Section 1_ explains how people find their way, the factors that affect wayfinding,

Section 2 _ discusses the need for a wayfinding strategy, incorporating policies and decisions that will improve wayfinding systems.

Section 3 _ covers the many factors that affect the clarity and legibility of signs in general, such as typeface, colour combinations, and positioning.

Section 4 _ covers the factors to be considered when producing specific types of

signs – including directional and locational signs, directories and site maps.
Section 5 _ provides tools that can be used to test various aspects of a particular wayfinding system.

OBJECTIVES

The focus of this book is assessing and improving wayfinding systems at existing or new sites. The book is primarily written for people working with wayfinding systems at healthcare facilities on a day to day basis, such as estates and facilities managers, and patient services managers, but will also be of interest to architects, sign manufacturers and other people who are involved or interested in the design and implementation of effective wayfinding systems.

STRATEGY

It was researched and written by Information Design Unit (IDU) whose auditors carried out nineteen hospital audits at large, small, rural and urban sites. They also audited eight non-healthcare sites, looking for examples of best practice, including Schipol Airport in Amsterdam, Metro shopping centre in Gateshead, NEC events centre in Birmingham, The Barbican and Royal Festival Hall on London's Southbank and Victoria and Waterloo transport terminals. This new guide takes a different approach, explaining the main factors that affect how people successfully find their way around healthcare facilities. Rather than setting out a series of rules that must be followed by everyone, the book acknowledges that each site has its own problems and priorities. So the book develops solutions that will suit every particular situation.

RESULTS

IDU wrote a paper, published in the Information Design Journal, describing the research process and the findings on which the good practice guidelines were based. Examples of wayfinding solutions that follow the good practice guidelines, along with examples of confusing signs, maps and site layouts from other audited sites are illustrated in the paper. The authors describe some initial thinking about the future of hospital wayfinding and how digital technology and new media may make it easier for patients and visitors to find their way.

TRASFERIBILITY AND SUCESS FACTOR

- **Good practices guidelines for sensory impairments**

  Audible signs, braille and tactile maps should be considered for wayfinding Information

- **Good practices guidelines - Colour coding**

  Sites should not rely entirely on colour-coding as a wayfinding aid. It should be used to support other information.

  Only colours that can easily be differentiated visually, and easily described verbally, should be used for colour-coding.

  High contrast colour combinations between backgrounds and text should be used to ensure optimum legibility.

- **Information factors - Written direction**

  Written directions should be especially useful for those people who have difficulty using maps. The directions include:

  - road names
  - cardinal directions
  - time and distance
  - landmarks along the route.

  They should use:

  - bullet points and white space to group and separate information into short stages
  - lines to divide information
  - bold type to show different levels of information.

- **Getting to the site by foot**

  Signs should be designed for pedestrians, located at eye level, and legible from a shorter distance than road signs.

- **Getting to the site using public transport**

  Stops and stations at or near your site should be clearly identifiable

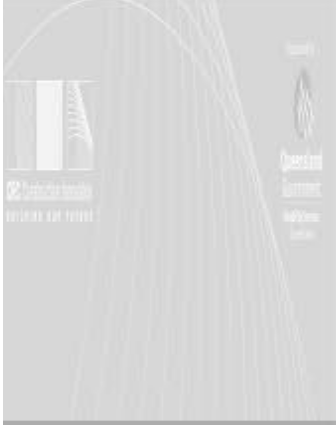
- **Identifying and recognising your site**

  Images of prominent architectural features should be considered to make the site easier to describe, or create landmarks which people can refer to.

LESSONS LEARNT

Experience has shown that it is only by paying attention to the many factors that affect wayfinding, rather than just focusing on signs, that it is possible to understand what happens when people move around a site and to influence, or even better control, their behaviour.

Document: Guideline
Title: Wayfinding design guidelines
Produced by: Cooperative research Centre for Construction Innavation
Queensland Department of Public Works
Nation: Australia
Date: 2007
Tipology: built environment



Wayfinding design guidelines

BACKGROUND

This non-mandatory guideline represents a final document that collects the results of Way-finding in the Built Environment project, a worldwide review identifying those wayfinding systems and technologies that could be used to make it easier and safer for people with a sensory impairment to find their way around buildings and large public spaces. This document is also completed by Way-finding system audit that includes a 'design audit and checklist' to assist designers and developers in identifying ways to improve access to, into and through new or existing buildings and particularly for people who are blind or vision impaired.
A team, comprising representatives from the CRC for Construction Innovation, a national research centre established in 2001 and headquartered at Queensland University of Technology, the Australian Government's Department of Public Works, the Building Commission, the Australian Building Codes Board, and the CSIRO, has developed a number of wayfinding solutions, creating a more accessible and more inclusive built environment.
The material sources include expert knowledge from architects, landscape architects, lawyers, engineers, building surveyors, building regulators, access consultants, local expertise and persons with a disability.
The guideline is divided into five sections:
Section 1 _ *Wayfinding* (introduction + Universal Design principles)
Section 2 _ *Wayfinding design principles*
Section 3 _ *Wayfinding devices, system and technologies*
Section 4 _ *Design solution and strategies*
Section 5 _ *Signage hierarchical structure*

OBJECTIVES

The aim of these design guidelines is to help developers, designers, property owners

STRATEGY and managers identify viable, practical and cost-effective solutions to assist blind or vision impaired people and those who require mobility assistance. This can be achieved by understanding the barriers that restrict safe travel paths and the techniques employed by users to find their destination.
The project makes recommendations on how technologies and systems may be incorporated, by law or otherwise, into Australia's building and construction practice and complements a range of strategies introduced by the Queensland Government which aim to enhance people's ability to fully participate in their communities.

These guidelines are based on current understanding in cognitive psychology, linguistics and best practices in orientation and accessibility, as found in literature and practice worldwide. According to the Australian Disability Act (2006), this document refers to Universal Design principles for wayfinding.

RESULTS The team's work won the 2007 Disability Action Week Award.

TRASFERIBILITY AND SUCESS FACTOR See sections 3, 4, 5:

- **Selection of assistive devices for blind or vision-impaired people to be used for orientation**: Braille, sonic guide, tactile ground surface indicators, etc.
- **Recommendation on graphic communication**: maximum distance between information or directional signs, viewing distance to signage, font style and spacing between letters, position of Braille signage above ground
- **Recommendation on signage hierarchical structure**: background colour, marketing image or overall presentation, text colours, luminance and colour contrast and design elements (symbols, text and directional arrows, tactile information, Braille signage, information in multiple languages, etc.).

LESSONS LEARNT
The establishment of a multi-sectoral working group has allowed approaching the theme of orientation for blind or vision-impaired people in a complete and exhaustive way and has represented, at the same time, a strong starting point for the definition of guidelines and the dissemination of the concepts of equality and social inclusion.

Document: Guide
Title: You are here: a guide to developing pedestrian wayfinding
Produced by: Department of Transport, Victorian Government
Nation: Australia
Date: 2007
Tipology: urban environment

BACKGROUND

In 2006, the Victorian Department of Transport (DOT) ran a four-year grant programme called the Local Area Access Program (LAAP). The programme's aim was to support local council improvements to walking and cycling infrastructure through small-scale infrastructure projects. Under this programme, DOT helped set up 10 wayfinding projects with 12 local councils. These projects were designed to help locals and tourists to orient themselves in those environments, to find their desired location and the best walking route to take to get there. As a result, each of the wayfinding systems is slightly different.
In 2010, Sweeney Research carried out qualitative evaluations on seven of the wayfinding systems that DOT supported. These evaluations showed how effective each system was and highlighted the most important issues and considerations for designing effective signage. This information was used to develop You are here: a guide to developing pedestrian wayfinding.
This non-prescriptive guide has been developed to offer information, suggestions and key considerations to assist local and state government in delivering better pedestrian signage.
The guide is divided into two sections that support the planning, implementation and evaluation of wayfinding projects: the first is an introduction to pedestrian wayfinding and to pedestrian approaches to travel; the second is a support tool to identify the process needed to develop a wayfinding system and to design a signage system.
The guide ends with the analysis of case studies.

OBJECTIVES

The objective is to provide a guide to help municipalities plan, implement and evaluate their wayfinding project. By supporting people to walk easily between locations, communities can become safer, healthier and more vibrant.

STRATEGY

The evaluation of the wayfinding system involved a series of (researcher) accompanied walks and follow-on walks (walks finished by respondents in their own time). Each accompanied walk included at least one local/resident and one visitor/ tourist in each area. This first-hand experience from users provided insight into how people interacted with the environment and highlighted possible improvements. Information from these evaluations is one of the most important aspects corroborating the validity of the guide.

RESULTS

The publication provides updating about pedestrian wayfinding related to the use of the most innovative technological systems and clear guidance to clarify the project purpose, scope and delivery.

TRANSFERABILITY AND SUCCESS FACTORS

The guide recommends documenting the geographic scope of the wayfinding area. This scope should include:

- areas of interest, location of key community and commercial services
- public transport method and walking distance
- major walking, cycling and accessible routes and potential journeys
- existing signage

Other design recommendations are provided about:

- **Information panel signs/totem signs**: large, detailed and comprehensive maps, highly visual maps, clear text and symbols
- **Directional** (finger-pointer) signs
- **Other sign types:** street signs, identification signs, information on major landmarks.
- **Placement**: location based on ease of use, lighting, visibility, etc.
- **Materials:** material availability, durability, installation and maintenance issues

LESSONS LEARNT

Ongoing evaluation is the best way of gauging the effectiveness of a new signage system. Post-implementation evaluation process shows whether it needs to update a system design and installation specifications for current and future projects. The following are three of the many approaches to evaluation:

_ intercept surveys
_ observational surveys
_ focus groups

1999_ Bristol

Good practices

Document: Bristol Legible City Project
Location: Bristol
Client: Bristol City Council (U.K.)
Value: Programme – £500K
Duration: June 2000 – May 2001

BACKGROUND During the mid-90s, Bristol saw one of the most dramatic periods of development and regeneration in the city's history: the city was difficult to navigate and had poor public information; there was little guidance for the visitor and so the wealth of attractions and commercial opportunities the city had to offer were easily missed. As a result, the lasting impression of much of the city is of a fragmented, undefined and unmemorable collection of places.

OBJECTIVES The aim is to ensure that the centre of Bristol is more welcoming, vibrant and easier to navigate for visitors; more successful for its businesses and more enjoyable for all. The projects, developed as part of Bristol Legible City, are not aimed at creating a sign system, but rather at:

- linking the diverse parts of the city with consistently designed information;
- making attractions better known and easier to find;
- providing the city with a clear and positive identity and reinforcing the character of its individual neighbourhoods;
- encouraging a shift towards public transport, in line with Bristol's Local Transport Plan and the Government's Integrated Transport Strategy.

STRATEGY A city's image and the quality of its urban environment are vital to its local economy and its national standing. In 1996, the Bristol Legible City initiative was conceived by Bristol City Council to deliver an information and wayfinding strategy that matched its ambition to be a leading cultural and commercial destination. Bristol Legible City is a unique concept to improve people's understanding and experience of the city through the implementation of identity, information and transportation projects. Bristol Legible City projects include direction signs, street information panels with city and area maps, printed walking maps, visitor information identity and arts projects. These

projects communicate the city consistently and effectively to visitors and residents alike. The following is a key part of Bristol Legible City:

1. Art programme to add interest to daily or routine journeys,
2. Lighting strategy to promote the night time economy for the continued regeneration of the city centre.
3. Use of more sustainable modes of transport to ease congestion.

RESULTS

At the heart of the project is an easy-to-understand system designed to provide a constant flow of information through the city centre, link diverse neighbourhoods, help people find most of Bristol's many attractions, welcome tourists and encourage a shift towards public transport.

There are real benefits to visitors and residents and a positive and forward-looking approach to development and regeneration. Bristol Legible City is a blueprint for making the city a better place to visit, live and work in. This gives the city a strong identity that is vital for its long-term prosperity.

The project:

- has won Local Town Planning Awards and the DBA Design Effectiveness Award for Environments.
- attracts business to the city and creates the right impression for visitors
- adds visual interest and residents have a sense of pride in the place
- reduces clutter on the streets.

TRANSFERABILITY AND SUCCESS FACTORS

The goals of good wayfinding design are:

Don't make me think! – to have one system to learn and remember how it works

What I need, when I need it – to use progressive disclosure: just enough information and not too much

Connect areas – to connect areas, regions and transport

Clean up – to get rid of unnecessary clutter, have as few signs as possible, as many as needed

Through:

- a common, recognisable language for the provision of wayfinding information where it is needed and in the most useful form;

- use of clear, distinctive, recognisable information available at the start of a journey;
- use of electronic, immediate, accurate information systems for wayfinding;
- direct access to the bus timetables and links with real time rail information;
- basic information system, signs, maps, icons and components need to be developed to a standard where they conform to the highest measure of visual clarity, simplicity and universal recognition;
- use of 3D maps and landmarks
- development of audio signs to fulfil the goals of openness and accessibility to all.

LESSONS LEARNT

A benefit of a legible and attractive city is that it encourages visitors, which adds to the economic well-being of the area. Not only specific tourist attractions, but also the city itself becomes a place to enjoy and explore.
The next phase of the project is to introduce signage to reduce car traffic and pollution. This phase will include signage to discourage traffic and improve access to attractions. It also proposes to implement signs to make it easier to access public transport.

Legible London

Good practices

Location: London (U.K.)
Client: Transport for London (TfL); Mayor of London
Duration: November 2007– February 2012

BACKGROUND

The city of London has been progressive in its aim to promote public transport and to reduce private car use with measures, such as the congestion charging system being introduced in 2003. London Underground and bus journeys have increased dramatically in recent years and, as a result, public transport is often crowded, particularly on the tube. Therefore, walking has been promoted as an alternative to public transport use, reducing crowding as well as improving pedestrian health, making streets safer (by providing passive surveillance) and boosting the economy by adding potential customers for retailers on the streets of London.

Walking is a popular way of getting about, but the available information has tended to discourage it. The signage (32 existing pedestrian wayfinding systems, all using different colours, shapes, typefaces, materials and branding) and confusion about distances between areas put many people off walking.

OBJECTIVES

The aim was to identify a common solution to wayfinding and to outline the principles of a pedestrian signage system that encouraged walking, took into account the viewpoints of all stakeholders, made London easier to understand for pedestrians and ultimately delivered the benefits that increased walking brings. The objectives of the prototype wayfinding system were as follows:

- To save journey time and improve connectivity in travel
- To change mode of transport and improve the environment quality
- To improve pedestrian confidence and satisfaction.

STRATEGY

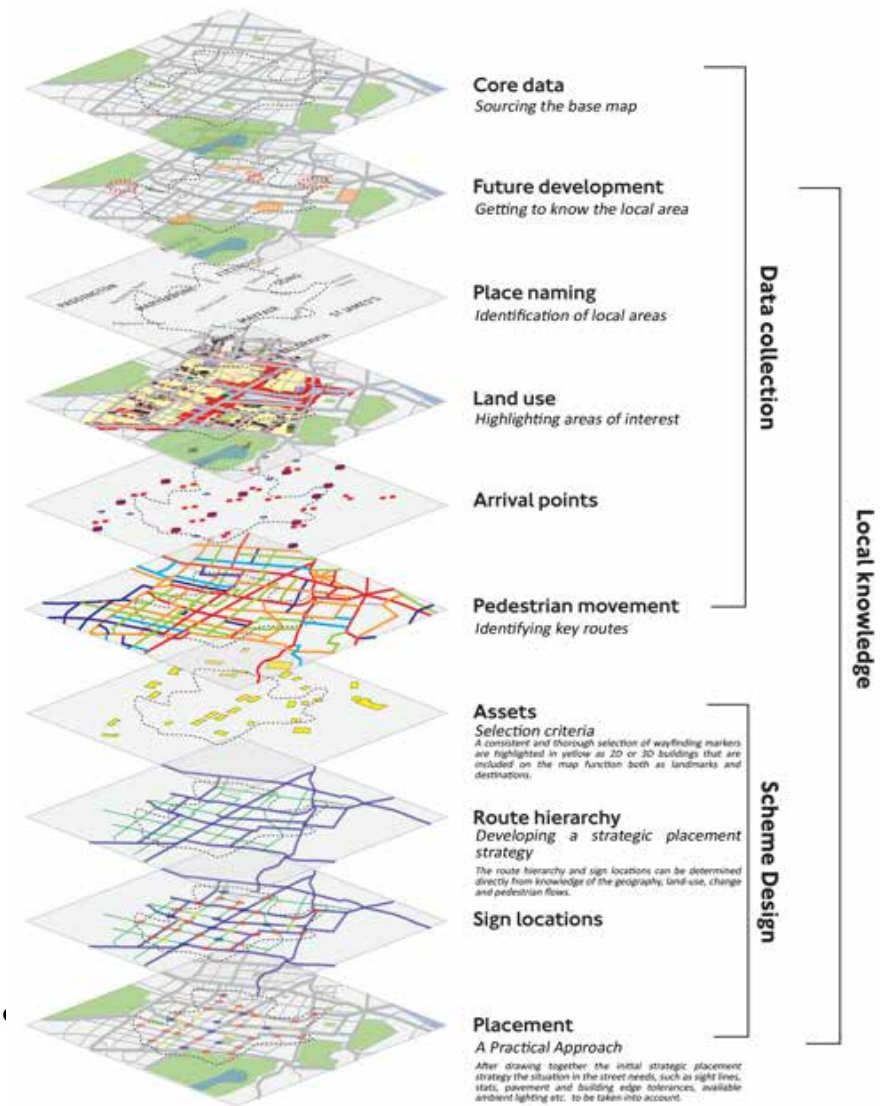
Legible London is an urban wayfinding system: presenting information in a range of ways, including on maps and signs, help people quickly identify the route to their destination. This objective can be achieved through:

Scheme design and sign placement strategy

- "Mental mapping" process connecting areas, regions and transport systems.
- Clarity and accuracy of the maps: effective information increases walking;
- GPRs system

• Detailed on-site audits and appreciation studies.

In order for wayfinding systems to be successful, three principles have been developed: Elements (map and local aea data); Rules (Wayfinding principles and design guidance documents); Applications (Street signs, modal integration maps, paper maps, hoardings etc.). For each of these items, a number of documents, which suggest lines of research, methodology, results and tools, were developed. In particular, it was deemed appropriate to highlight the contribution that Legible London has provided for the process of knowledge and analysis of the context, which is essential for defining the information content of the prototype (fig. 7).



RESULTS

Pedestrian satisfaction with wayfinding improved by 22 percent and more than two-thirds of the participants felt satisfied with finding the shortest route for their journeys. Most importantly, participants strongly agreed that this new system would encourage them to walk more often, to walk farther and to choose walking in place of other means of travelling. As for the travel time, pedestrian journeys were 16 percent quicker on average, due in large part to the maps. Other results were as follows:

- Significant environmental and economic benefits not only for central London but for all the 33 boroughs
- Reduction of congestion on the public transport network
- Creation of safer environments
- Use of healthier and more sustainable modes of transport

TRANSFERABILITY AND SUCCESS FACTORS

- A coherent process of information along all parts of the journey is the principal requirement for encouraging walking
- Removal of physical and mental barriers to walking and creation of incentives for people to walk.
- Prototype for feedback in design process
- Social participation: a website to leave your comments or suggestions for improvements.
- Publications for the knowledge and use of the system
- Design process repeatable and applicable in different contexts.

LESSONS LEARNT

In order to design any effective signage system, it is crucial to consider what matters to the different kinds of walkers in a city, be they residents, visitors or commuters.

Implementation of a design process for the knowledge of the local context that it is necessary to develop the wayfinding prototype.

Legible London proposes to create a 'Living Map' as a central, constantly updated database. This would be capable not only of servicing maps, signage, GPRS and other technologies for use by the public, but also of providing a master tool to enable London's bodies to implement a reliable and consistent wayfinding system in a coordinated manner.

Mijkesenaar's rules

Good criteria

Name: Paul Mijksenaar
Specializations: designer of visual orientation, information designer for large public spaces
Office location: operating design agency in Amsterdam since 1986 and New York since 2002
Projects: wayfinding signage for railway stations and airports including New York's JFK, La Guardia and Newark, and Amsterdam's Schiphol

BACKGROUND

Everything should start with well-designed architecture. Good wayfinding is determined by good architecture, interior design, routes, sightlines, signage and other sources of information. A pleasant ambience and good wayfinding often go hand in hand. Often, the buildings are built without thinking of end-users.

Instead, all projects share a common factor. Whether a wayfinding project is large or small, long-term or short-term, for a governmental body or a private organization, for (novice) visitors or employees, for an indoor or outdoor space, for pedestrians or motorists – it is always aimed at the people who will use it.

With this goal in mind, in all of his projects, Mijksenaar always considers the user's ergonomic requirements, psychology and frame of reference.

A project should be based on three user-oriented approaches. The first is that it should be seen through the eyes of the user. The second implies to behave as a user. The third is that it should be functional. These three approaches should be combined. Thus, the project is a combination of the three.

OBJECTIVES

The goal is to help people to reach their destination without getting lost, using orientation systems and stressing the role of architecture related to landmark localization. A second goal is to help people during navigation, highlighting destinations, routes and nodes, or other points in which they are called to make a decision. Finally, another goal is to use tools and signs for the transmission of information ensuring more quality for usability.

STRATEGY

The design process should proceed logically:

1. Create a flow chart that shows the whole process, where the system's points are and where to go from each point.

2. Determine what information to provide to the public and at what stage in the process.
3. Ask questions, such as: "How can it be made more comprehensive, yet simpler?" "How can the amount of information on each decision point be reduced?"
4. At the end of the process, categorize all elements into three areas to assist users.
5. Only then should colour coding, lighting and other design elements be considered.
6. Consider that the human perception and psychology are remarkably consistent.
7. Design for all - develop a wayfinding system that takes into consideration people of all ages, including those who are sight, hearing and mobility impaired.

By focusing on all users, from start to finish, Miijkesenaar avoids the need for special, custom-made information and navigation systems.
For this purpose, he readapted the Vitruvian triad to a practical three-point formula - Reliability, Utility and Satisfaction - trying to understand in which measure the combination of these qualities can produce a good product.

RESULTS

Paul Mijksenaar has been awarded the Life Time Achievement Award for design by Fonds BKVB (The Netherlands Foundation for Visual Arts, Design and Architecture). After the success of the signposting at Schiphol, his design agency was asked to design the information systems for airports, stations, hospitals, universities and museums around the globe.
He has also published countless articles on his field and daily practice.

TRANSFERABILITY AND SUCCESS FACTORS

There are 4 main criteria for a good wayfinding approach. Good wayfinding should be:
Conspicuous_therefore visible and legible
Clear_making complexity simple
Comprehensive_Usable by everyone, everywhere all the time
Consistent_ Reliable from beginning to end
Contextually harmonious
Catchy_Attracting and focusing attention
Centred on the end user
Mijksenaar stresses that font, colour coding and pictograms should be considered only after research has been completed and the system has been mapped out in

the most efficient, sensible way. He has made the following suggestions for effective use of design elements:

- **Colour coding**: *Colour should make sense and clearly communicate an information category*.

  Good contrast of bright yellow and green coloured signs should be used in a neutral environment;

  Circular black arrows in a white circle, which contrast with a coloured background should be adopted;

  Black and white is the perfect contrast, but if it is in a white environment, the whole sign is lost.
- **Terminology**: *it should be assumed that visitors know nothing about the facility and terminology that is easily understandable to everyone should be used.*
- **Fonts**: *only one font should be used, and, in particular, such sans-serif typefaces as Frutiger, Clearview, Gill or Meta.*
- **Pictograms**: *pictograms should be supplemented with text, especially with less familiar functions;*

  Pictograms for non-English foreign users should be used.
- **Legibility**: *highly visible suspended signs should be consistent and viewable from a great distance;*

  Signs should be located in the centre of the flow and not to the side;

  Signs should be perpendicular, rather than parallel, to the flow.
- **Light**:

  Illuminated lightboxes should be placed throughout the area;

LESSONS LEARNT

Each design must:

- be recognizable and distinctive;
- be comfortably legible;
- contain a clear hierarchy of information;
- be user-oriented;
- be unambiguous;
- be visually sustainable (timeless);
- be in harmony with its environment while remaining independent of its surroundings;
- express solutions based on processes;
- be free of visual clutter;
- be aesthetically pleasing

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Reference framework for exportable elements

Systematizing and "filing" data obtained from the critical analysis of the reference case studies is crucial to an effective management of the information acquired.
All exportable elements are first identified and selected and then collected and ordered in a file to ease their reading.
Each file has a matrix form: each row represents the case studies divided by category (guides, projects or criteria); the first and second column show the title and the application scenario of the case studies, respectively; the third and last column shows a selection of "key factors of success" and the "lessons learnt" corresponding to the various analyzed methods, which are the exportable elements.
In particular, the exportable data in the third column provide information concerning the project processes and tools that are typical of all the methods analyzed and represent useful data to draw up the guidelines.
Therefore, the table gathers the information obtained from the files in a single operational tool that allow starting the final project of pedestrian wayfinding guidelines.

Cases study

	Title	*Scenario*
Giudance	***Wayfinding. Effective wayfinding and signing systems*** Guidance for healthcare facilities NHS National Health Service, England	Health sites
	Wayfinding design guidelines CRC Cooperative research Centre for Construction Innavation, Australia	Built environments
	You are here: a guide to developing pedestrian wayfinding DOT Department of Transport, Victoria, Australia	Pedestrian urban spaces
Projects	***Bristol legible city*** Bristol U.K.	Pedestrian urban environment
	Legible London London U.K.	Pedestrian urban environment
Criteria	***Paul Mijksenaar***	Mix-use

Exportable elements

Processes	*Tools*
Attention to the many factors that affect way-finding to influence people's behaviour.	**Good practices guidelines for sensory impairments**: audible, Braille and tactile signs; tactile maps showing the site layout and main routes; **Good practices guidelines** - Colour coding: differentiated visually, and easily described verbally; high contrast colour combinations between backgrounds and text to ensure optimum legibility. **Written direction**: road names, cardinal directions, landmarks along the route, lines to divide information, bold type to show different levels of information. **Getting to the site by foot:** signs located at eye level and legible from a shorter distance. **Getting to the site using public transport**: stops and stations near site clearly identifiable. Identifying and recognising your site: images of prominent architectural features; ways to make the site easier to describe, or create landmarks which people can refer to instead.
Multi-sectoral working group approach as a strong start point for the definition of guidelines and the disseminatizon of the concepts of equality and social inclusion.	**Selecting of assistive devices for people who are blind or vision impaired** to be used for orientation: Braille, sonic guide, tactile ground surface, etc. **Recommendation on graphic communication**; maximum distance between information or directional signs, viewing distance to signage, font style and spacing between letters, position of Braille signage above ground. **Recommendation on signage hierarchical structure**: background colour, marketing image or overall presentation, text colours, luminance and colour contrast and design elements (symbols, text and directional arrows, tactile information, Braille signage, information in multiple languages, etc.)
Ongoing evaluation of the wayfinding system from locals/residents and tourists/visitors by: _ intercept surveys _ observational surveys _ focus groups	**Information panel signs/totem signs:** large, detailed and comprehensive maps; highly visual maps; clear text and symbols. Directional (finger-pointer) signs and other sign types: street signs, identification signs, information on major landmarks. Placement: location based on ease of use, lighting, visibility, etc. Materials: material availability, durability, maintenance issues.
Wayfinding Principles: **Don't make me think!** – have one system to learn and remember how it works **What I need, when I need it** – use progressive disclosure: just enough information and not too much **Connect areas** – connecting areas, regions and transport **Clean up** – get rid of unnecessary clutter, have as few signs as possible, as many as needed	**Common, recognisable language for the provision of information** **Clear, distinctive, recognisable information** available at the start of a journey; **Electronic, immediate, accurate information systems**; **Direct access** to the bus timetables and links with real time rail information; **3D maps and landmarks and audio signs** to fulfil its goal of openness and accessibility to all. **Street nameplates** that incorporate the postcode reference and the name of the neighbourhood. Land art as pedestrian sign system. Distinctive typeface, lower case letters, icons and colour code
Design process applicable in different contexts	**Local Knowledge Process to develop the project**: A) Data Collection B) Scheme Design **Social participation**: "Living Map"
"C" Rules for the wayfinding project: **Conspicuous**_therefore visible and legible **Clear**_making simple the complextity **Comprehensive**_Usable by everyone, everywhere all the time **Consistent**_ Reliable from beginning to end Contextually harmonious Catchy_Attracting and focusing attention Centered on the end user	**Design Principles:** flow-chart that show the process; what information; questions about use of information system; all elements into three areas; human perception and psychology; design for all.

EXPOSIÇÃO
EXPLORATORIUM

5. A guidance for improving journey experience

Building a wayfinding design process

The proposed final tool results from the elaboration of all the acquired knowledge and synthesizes all those factors that are considered of the utmost importance for a new approach to pedestrian wayfinding design intended for tourists and visitors in urban historic centres.

It consists in guidelines which provide a well-organized series of recommendations and concrete actions to manage and guide the design process from the phase of knowledge acquisition to the elaboration of the project.

Therefore, the Wayfinding Guidelines originate from careful reflections on the lessons learnt in relation to the specific characteristics of the application context and to the planned objectives. Such reflections contribute to structuring the "design process" needed for their application. (fig.8)

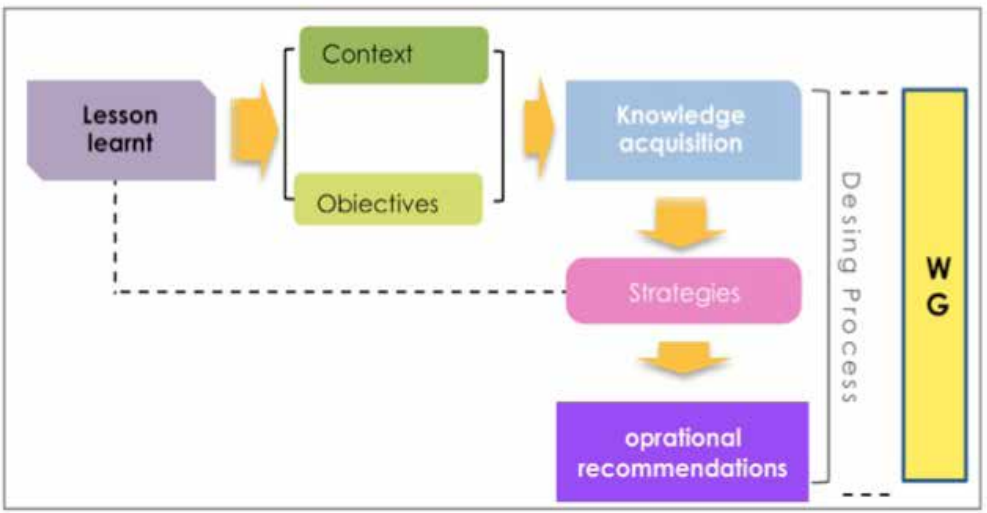

Fig.8 Phases to Design Process

The design process pursues the following targets:

1. To know the context;
2. To analyze the effectiveness of the existing wayfinding system;
3. To identify the strengths, weaknesses and unexpressed potentials of the context;
4. To identify strategies;
5. To start the wayfinding project applying the guidelines;
6. To implement the guidelines with appropriate integrations.

WG are constructed by successive steps that coincide with three main phases of the design process, each providing indications on the strategic modes of analysis and on their implementation, with reference to the case studies and the examined theories. (fig.9)

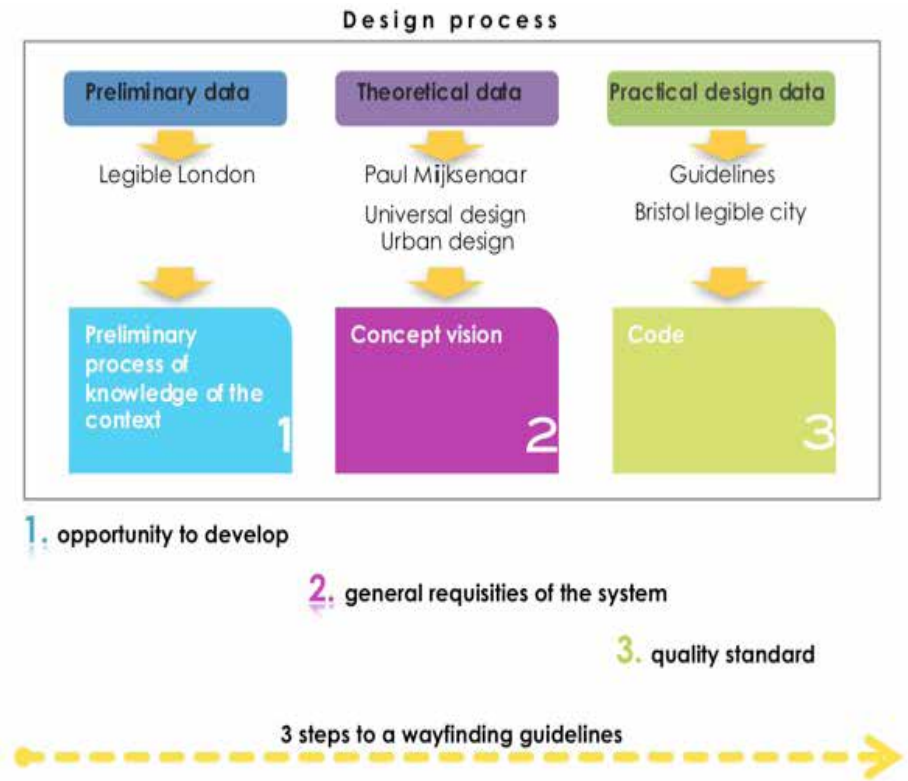

Fig.9 Results of Design Process

WGs provide indications on quality, best practices and design criteria for the implementation or improvement of the en-route pedestrian signage system for tourists, thus simplifying and facilitating autonomous navigation in an unknown territory. They are a guiding model for wayfinding design, able to enhance the potentials of the environment and of land use as well as to generate and promote social growth by offering cities high urban quality and liveability. In particular, they effectively influence the following aspects:

• **social inclusion**, as a way of assuring and boosting the market of accessible tourism	suggesting solutions able to exalt the sensory capacities of the "global" users, which include the use of innovative technologies to meet the varied needs of impaired users and make the information system accessible and fully enjoyable
• **recovery and reappraisal of the character of places**, considered as cultural wealth and source of local social and economic development	recommending solutions concerning the type and content of information in order to create an emotional wayfinding system based on story-telling

As regards the accessibility to information, WGs suggest solutions able to exalt the sensory capacities of the "global" public, which include the use of innovative technologies, georeferencing systems, voice devices, etc., to meet the varied needs of disabled users and make the system accessible and fully enjoyable. The wayfinding system becomes attractive and legible and offers a multi-sensory experience which establishes a strong relationship between individuals and environment and enables the transmission of information in a way that is accessible to all.

Furthermore, strengthening the information transmission system allows improving the standards of the tourism offer by providing new opportunities for all to move and reach one's destination in a simple and accessible way as well as to enrich the tourist experience.

As to the recovery and reappraisal of the character of places, WGs recommend solutions concerning the type and content of information in order to create an emotional wayfinding system based on story-telling (*Seemann*, 2012; *Fontana*, 2007; *Scholz* and *Brandberg Realini*, 2012).

Signage plays a crucial role in the knowledge and reappraisal of a place: the

protection and recovery of the historical, cultural and natural heritage, as well as the promotion and transmission of local traditions and identities generate a positive effect on the quality of the urban environment.
Moreover, to transform resources and values, which are not well known and enjoyable, into a sustainable tourist system, characterized by the diversity of its own resources, may lead to the following results:
to assure high levels of protection and conservation of habitats, landscapes and cultural heritage of acknowledged value;
to obtain a cultural attractor and a tourist landmark;
to transform tourism economy into sustainable, smart and inclusive economy, redefining the models that regulate scale economies and relying on the accessibility of the offer in the single territorial context.
Therefore, WGs are a valid support to direct the design choices of practitioners and local authorities. However, they should be interpreted as a mere tool that provides flexible recommendations and can be adjusted to the complexity of the place it is applied to, as well as to the specific objectives to achieve. In this sense, it offers a design approach that weighs the variables to take into account.

PHILOSOPY

Access to information is a basic condition to increase the capacity of action of a person, improve the quality of urban spaces and enhance the opportunities offered by the territory.
Hence, to strengthen the "sense of the place" is the heart of the programme and the goal around which the emotional wayfinding project revolves: signage becomes a tool to transfer knowledge, while maintaining it over time and rescuing it from the oblivion of modernization.
Indeed, the story-telling technique applied to wayfinding reproduces a tale of the territory: old stories lost in memory, about locals, their traditions and customs, re-surface strongly and overlap new stories that originate from the continuous change of the city, thus enabling its cultural, socio-symbolical and sensory recognition as a community. In this "narrative network", all senses (sight, hearing, touch, smell and taste) are involved in the evocation of emotions and thoughts through "memory". That is why the materials used for signage are intended to be touched, marked by the

smell of aromatic plants or equipped with Braille or voice systems.
This innovative navigation system is more than "just" a sign system. It is

- enjoyable
- easy to understand
- accessible
- inclusive

and "guides" to the right way integrating existing signs.
Through appropriate sign systems, which are strategically distributed along a typical tourist path connecting a point A of departure to a point B of arrival, the project creates alternative itineraries, dotted with unexpected points of interest (fig.10). By telling stories, each point invites visitors to "dive" into the place which is hosting them, to waste or take all the time they need to know and appreciate traditions they would have otherwise missed.

fig. 10 Typical path from point A to point B and alternative tourist itineraries with new point of interest

Thus, an accessible path is constructed, which improves the tourist experience and makes it more interesting thanks to a network of narrations that provide different interpretations of reality, of the historical meaning of a place and of the "important things happened" (White, 1999).
The design strategy aims at relaunching the opportunities the territory offers and at assuring the quality of the tourist experience through the promotion of new itineraries of knowledge that may enhance cultural and environmental resources and start up new productive chains. These may create employment and economic flows that can oppose the dynamics of depopulation and abandonment which usually concern minor urban historic places excluded from the main tourist flows.

PROJECT GOALS

To improve the tourist experience:

- To favour the legibility of the territory in order to develop the sense of belonging;
- To develop a simple and intuitive wayfinding system that provides the right information at the right moment and in an accessible way;
- To create pedestrian paths that connect places and main attractions and take into account the planning of local events, the location of public transport nodes or of parking areas.
- To encourage pedestrian mobility making the path more accessible and interesting;
- To offer a positive tourist experience by acting on one's first impression and perception of the place in order to trigger processes of return tourism.

To create a strong identity of local communities:

- To develop the locals' sense of belonging by rediscovering the historical, architectural, natural and cultural heritage;
- To support and promote a strong local identity and preserve traditions;
- To maintain and hand on local traditions and culture to future generations.

To create new economic impacts:

- To act on the quality of the tourism offer in order to favour the deseasonalization of flows;
- To develop new opportunities of local economic growth and employment through the creation of secondary tourist itineraries which may change the trends of shopping and tourist consumption;
- To create the accessibility conditions required to join the ENAT network of accessible tourism destinations.

To improve social conditions:

- To implement an accessible wayfinding system in order to assure social inclusion;
- To improve urban quality, liveability and pedestrians' health and safety conditions by promoting the creation of new pedestrian paths and areas;
- To achieve the goals of Horizon 2020 Framework Programme by triggering and supporting innovative social and economic processes.

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6. Guideline for wayfinding

Three steps to highly effective (e)motional wayfinding

Guidelines comprise three main steps concerning:

- **The process of knowledge of the local context**
- **The definition of the general requisites of the wayfinding system**
- **The description of project standards**

In particular:

Through those three steps, the new wayfinding system suggests actions to get to know the territory and the local history and provides all the information needed to make wayfinding accessible for global users.

Signs supply the following information:
Orientational signs ('you are here' map type signs indicating the locations of sites of interest related to a visitor's current position)
Directional signs (finger signs guiding visitors to and from sites of interest)
Interpretive signs (giving the visitors information relating to a particular attraction/site,

to a calendar of local event or specific information about what they can do in their free time according to the age and self-interest).

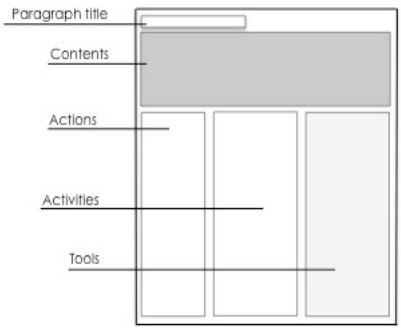
The main goal is to set general rules allowing to answer the questions visitors ask themselves when they are in an unknown place for the first time, in an effective manner and in the right order, i.e. considering their mental process.

Questions	Actions	Sign Typology
Where can I find help?	Identify the Wayfinding system sign	Orientational Directional Informational Interpretive
How is the city made?	Scan parts of sign for relevant information/Understand orientation from current location/	Orientational
Where am I?	Find current location	Orientational
What can I visit?	Find Destination	Orientational
Where is it?	Estimate time to walk/ Estimate distance and accessibility to walk	Orientational Directional
How can I get there?	Plan the route/Choose the main route/ Compare alternatives	Orientational
What can I visit on the way?	Identify the City tells signs/ Identify specific element	Orientational Informational Interpretive
Is it the right way?	Identify the sign/Find sign	Directional
What is it?What was it?	Find City tells signs/ use City tells system	Interpretive
Where am I now?	Find current location	Orientation
Is there anything else interesting to look nearby?	Find current location / Find destination/ Estimate time to walk/ Estimate distance and accessibility to walk	Orientational Directional
What's interesting for me?	Find specific information	Informational
What can I do?	Find specific information	Informational

Each step is divided into files, which are structured as follows:

Step 1 _ Preliminary knowledge of local context

It includes three investigation steps described in the following files: local context, local identity, pedestrian mobility and orientation.



Local context

It defines the objectives of the process and establishes contacts with relevant actors to acquire the tools needed to get to know the context. It defines the target area by presenting its organization, pedestrian circulation and hierarchy of paths as well as by identifying local attractions and possible pedestrian tourist paths.

Pedestrian mobility and orientation

It analyzes the legibility of the urban environment by studying pedestrians' behaviour and navigation in relation to the effectiveness of the existing tourist signs. It highlights the users' needs with a view to suitably improving the tourist information system.

Local identity

It evaluates the peculiar qualities of the historic and natural environment and identifies the elements driving the growth of a city's character.

Step 2 _ Concept vision

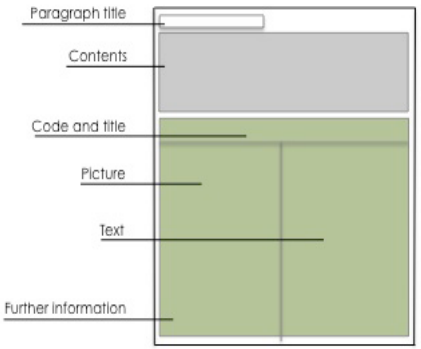
Principles for an effective wayfinding process

It defines the theoretical principles underlying the wayfinding system project and specifies its objectives and strategies.

Principles are grouped into five areas and selected depending on how they are influenced by wayfinding: urban character, walkability, sustainability, information.

Step 3 _ Code

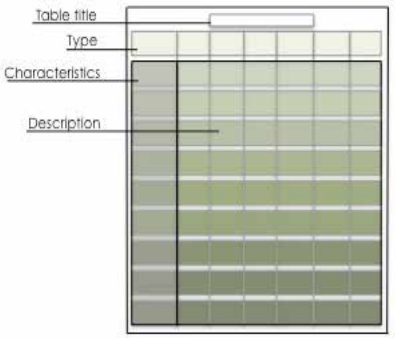
It is divided into two parts: the first is a file providing general directions to design the wayfinding system; the second is a table providing further details to carry out the project of City Tells emotional interpretive signs.



Emotional wayfinding system concept design

Design standard

In takes into account information from the previous steps and provides rules and operational instructions to develop the signage project.



Producing City Tells panel

It provides further directions to produce interpretive signs. All the selected information about local history and identity is grouped into 6 main types of message with different contents. In turn, the types of message correspond to as many types of interpretive signs, which can be distinguished by their different characteristics: motto, colour, symbol, image, communication systems and location.

The first step, which coincides with the knowledge-gathering phase, describes an original path where tools, methods and varied theories of analysis are used. In particular, it refers to the project that has led to the development of the Legible London system adopting its most effective elements.
Moreover, an effective action on the project area, which is based on studies and objective analyses of the territory, requires the application of methods of configurational analysis that may help understand the flows of people's movement and the visual perception of the spaces according to the territory morphology.
For example, *Space syntax* and *Isovist* may be effective methods to define the most suitable location of the different elements of a wayfinding system.
The study of the context includes a *SWOT analysis*, which is aimed at assessing the weaknesses, strengths and opportunities to develop in the decision-making process through strategic planning. These tools, as well as direct observation, the administration of questionnaires to locals and visitors or further investigation techniques, can be used not only to analyse critical issues, but also to obtain important proposals to improve wayfinding and accessibility in the urban territory and to get to know local stories.
As a matter of fact, the goal to implement emotional wayfinding can be achieved by collecting stories to tell that help answer the "questions" visitors may ask when visiting a city. Thus, the storytelling technique is used to emotionally involve visitors:
"What's this, what's that?", "What's its story?" and *"Why?"*
This phase of exploration develops through an investigation which is based on the following two types of approach:

- *top-down*: stories and information are provided by the administration, by the designer, etc., and are the result of subjective studies on texts, etc.
- *bottom-up*: stories are created from the bottom up, by citizens themselves, and are the result of interviews, questionnaires and explorative walks.

Particularly, explorative walks are a method to tell one's own city in a more "intimate" and personal manner that clashes with official stereotypes. Thus, unexpected stories come to light, which, properly selected and grouped into main typologies, are the final result of the emotional wayfinding project.

The rules defined by the guidelines aim at improving the quality of the tourist experience by acting on the signage project.

Vision

- **"don't make me think" - make signs intuitive using concise messages**
- **"what I need, when I need it "– use progressive disclosure:**
- **just enough information and not too much**
- **inclusive information – guarantee accessible information for all**
- **emotional signage – raise the visitor's interest and involvement**
- **contextually harmonious signage**

Guiding Principles

- **Universal design**
- **Urban design**
- **Story-telling**
- **Community participation**

Tools

- **Space syntax and Isovist**
- **Swot analysis**
- **Questionnaires**
- **Narrative interviews and exsplorative walks**
- **Design code**

Step 1 _ Preliminary knowledge of local context

1.1 *Local context*

This phase aims at defining the process goals and at establishing contacts with the relevant actors in order to get the tools needed to know the context.
It also defines the intervention area presenting the organization of the territory and the hierarchy of routes and identifying local attractions and possible tourist pedestrian itineraries.

Actions	Activities	Tools
1. **Preparing the study**	**Defining available tools and resources**	
	• Establishing contacts with local authorities • Establishing contacts with the community • Identifying the reference local regulations	- Initial meeting - Talks, meetings and scheduled interviews - Reference regulatory framework
	Defining goal and purposes	
	• Identifying reasons • Introducing key questions • Defining objectives • Considering expectations • Estimating costs • Identifying priorities	- SWOT analysis - Talks, interviews, focus group, etc. - Feasibility study: access to EU funds, etc. - Project proposal: definition of objectives and opportunities
	Defining the "signage area"	
	• Acquiring maps • Identifying local areas (neighbourhoods, etc.) • Selecting the study area	- Reference plans
	Implementing an action plan	
	• Devising knowledge tools • Organizing activities • Building alliances and partnerships • Knowing users	- Action plan - Time schedule - Check-list for the survey - interviews with stake-hoders (private/public) - Statistical data on tourist flows - Classification of users

2. Analyzing the urban structure	**Starting preliminary surveys**	
	• Identifying specific areas: residential, commercial, bathing and other areas • Visiting the site	- Plan 1:1000 - Place names and list of the areas - Direct observation, photos
	Collecting core data	
	• Main destinations and tourist attractions (monuments, museums, etc.) • Historic buildings for culture, education, etc. • Recognized pedestrian public spaces (squares, green areas, etc.) • Car/bike/motorbike parks • Stations and stops	- List of tourist attractions, of public buildings and spaces - Plan 1:1000/500
3. Analyzing local mobility	**Identifying paths**	
	• Arrival and departure points to/ from the city • Main vehicular roads • Secondary vehicular roads • Tertiary vehicular roads • Cycle paths • Pedestrian paths	- Direct survey, photos, etc. - Analysis of the accessibility from neighbouring centres - Plan 1:500 - Detailed plan 1.200
	Pedestrian flows from/to attractions	
	• Key pedestrian routes • Secondary routes • Connectors • Decision points	- Space Syntax technique - Detailed plan 1.200
4. Defining future development	**Documenting the city's future development**	- Meetings with local authorities - Vlew of urban development plans approved or to be approved
	Understanding future changes	
	• Key sites of development • New pedestrian routes • New public spaces • New local transport system • New scheduled events and attractions • etc.	- Reconstruction of the basic planimetrics - Calendar of annual events and activities - Progress report, definition of objectives, strategies and results

	Considering the social, economic and environmental impacts of the project strategy	- Final report - Final evaluation
5. Verifying proposals	**Evaluating acquired knowledge**	- Vision and final project principles - Final economic feasibility - Final project
6. Disseminating the project	**Publicising the project to the community**	- Publications/exhibitions - Videos, renders, etc
7. Evaluating proposals	**Acquiring possible ideas and changes**	- Web portal

Objectives

Defining the human and economic resources to implement the strategy
Identify:
1. Arrival points_ pedestrian arrival/departure points
2. Pedestrian routes_key walking routes with high tourist activity in a given environment
3. key pedestrian routes_ primary routes that connect places, groups of tourist attractions and arrival points.
4. Secondary routes_alternative paths from origin to destination or from destination to destination, that are accessible or have particular quality aspects (secondary pedestrian routes, or greenways in parks or footpaths in gardens, way-leaves through buildings, passage-ways, pedestrian bridges or underpasses etc.). Secondary routes should also offer good accessibility, good visibility and good lighting, but will generally be quieter.
5. Connector routes_ routes that link single attractions or destinations to the key pedestrian route or secondary route network.
6. Decision-making point_ each point where pedestrians can make a decision for their travel direction, typically intersections of sidewalks along roads, partings of ways and also places, squares, or similar.
7. Destinations_ educational building, shopping area, tourist attractions etc.
8. Activity Areas_vibrant hubs where people can shop, work, meet, relax and often live.

Defining the strategy
Creating a master list_list of destinations within the scheme area and surrounding area

1.2 *Pedestrian mobility and orientation*

This phase is aimed at understanding the legibility of the urban environment through the study of behaviour and of the pedestrians' modes of navigation in relation to the effectiveness of the existing tourist signage.
It highlights the users' needs in order to consider how to properly improve the tourist information system.

Actions	Activities	Tools
1. Evaluating the legibility of the area	**Identifying the routes to analyze**	- Basic planimetrics
	Evaluating wayfinding references	
	• Prominent site features • Memorable routes • Monuments and other landmarks • Internationally recognized icons • Public and green spaces • Context layout	- "face-to-face" questionnaires for visitors - Direct observation - Videos, photos, etc. - Control checklist
	Reaching the destination	
	• Maps of access points • Icons to identify the destination on the map • Description of the route, place names and list of destinations • Distance and walking times • Map of the signage along the route • Tourist information points	- Site visit, photos, etc - Checklist for the survey - Reference maps
2. Evaluating the existing tourist signage	**Identifying the pattern of pedestrian signs adopted**	
	• Directional signs • Informative signs • Regulatory signs • Temporary signs • Routes without signs	- Visit to the site, direct observation, photos and videos - Checklist for the survey - Plan 1:500/200 with reference walking distances
	Mapping the information system	
	• Totems • Monoliths • Fingerposts • Maps • Pictograms	- Plan 1:500/200 with the list of the types of signage - Control checklist for the maintenance of the

	• Interactive systems • Street names and tables • Public art	- existing signage
4. Identifying wayfinding problems	**Considering users**	
	• Every day users • First time visitors • Elderly users • Blind and partially sighted persons • Residents	- Interviews, question-naires
	Identifying critical points	
	• At the departure point of the route • Along the route • In squares and open spaces • At decision points • At the destination	- Interviews, questionnaires, videos… - Direct observation of the users' behaviour - Map of critical points - List of explanations for each critical point
	Evaluating the pedestrians' needs in relation to the tourist information system	
	• System accessibility • Message clearness • Message legibility • Information completeness • Information continuity • Intuitive use of the system • System visibility	- Check-list for the survey - Principles of Universal Design - Isovist technique - Signage map - Datasets and analysis of recurring problems

Objectives

Evaluating the target users
Evaluating inefficiencies in the existing signage system
Identifying disadvantages for users
Taking an inclusive approach to understanding demand and need
Identifying required location and quantities of signage

1.3 *Local identity*

This phase aims at evaluating the peculiar qualities of the historic and natural environment as well as at identifying the elements which enhance the character of a city.

Actions	Activities	Tools
1. Defining local identity	**Knowing history**	
	• Research of folk tales	- Top-down analysis: research on historical texts - Bottom-up analysis: questionnaires, "narrative interview" and "explorative walks technique" addressed to locals and to representatives of local communities, etc. - Map of the places - List of the tales
	Identifying the cultural heritage	
	• Origins of the site • Local character, tales and traditions • Customs, traditions and popular curiosities • Attractions and events	- Historiographic research - Map of the places - Calendar of events
2. Considering the quality of places	**Enhancing the context**	
	• Architectural style • Building elements • Building tradition and materials • Texture	- Direct observation - Photos, videos, etc. - Historical and photographic research
	Enhancing natural environments	
	• High quality public places and spaces that are not part of the local tourist circuit • Natural resources • Views • Potential thematic routes	- List of the places to rediscover

3. Analyzing the attraction of places	**Use and activities of public spaces**	
	• Functional Mixes • Flexible use of spaces • Accessible routes • Connections through means of transport • connection with the city centre	- List of the existing or potential functions - Map of the routes connecting Points of Interest (POI) - Map of accessible routes - Map of the distance and difficulty of routes
4. Strengthening the local character	**Evaluating the cultural heritage**	- Critical report on the results and on the stories identified - List of the facts, memories and stories to enhance - Map of the possible tourist routes

Objectives

Identifying the elements to reinforce distinctiveness and identity
Selecting popular tales to tell through interpretive signs
Selecting tourist elements to promote
Provide a recreational and educational experience (learning, emotional, behavioural objectives)
Increase visitors' understanding of the local environment;
Identifying thematic pedestrian routes to strengthen
Identifying possible points of interest along the route towards the main attraction
Evaluating the signage location

Step 2 _ Concept Vision

2.1 *Principles for an effective wayfinding process*

This phase defines the theoretical principles underlying the project process for the wayfinding system and specifies its objectives and strategies.
Principles are grouped into five categories and selected according to the influence wayfinding has on them: urban character, walkability, sustainability, information.

Principles	Objectives	Strategies
P1 **Wayfinding & urban character**	P1.1 Expressing the unique local character	Keeping the sense and history of the place
		Emphasizing local characteristics
		Creating a collective identity that allows identifying with daily life and work
		Promoting the integration of wayfinding and local urban, architectural and landscape characteristics
	P1.2 Strengthening art, culture and local identity	Keeping and assuring continuous knowledge through the promotion of economic activities related to tourism
		Developing activities of recovery and enhancement of places, spaces, elements and arts of tradition
		Promoting the involvement of local artists in the wayfinding project
	P1.3 Celebrating history	Introducing captivating information on the place to awaken the users' interest
		Encouraging the use of public art to exalt local history
		Integrating filmed sequences and videos, which tell the history of past ages, into the wayfinding system
		Spreading tales and anecdotes through story-telling
	P1.4 Identifying the place as tourist destination	Contributing to the national and International promotion of the place as tourist destination, exalting its charm through marketing operations
		Thinking of ways and means to make the place memorable and easy to describe

		Proposing and implementing various attractions for users that are different in age, interests and abilities
	P1.5 Promoting the legibility of the place	Constructing a comfortable and safe environment that conveys a clear image of itself and is easy to understand
		Dividing the territory into areas and zones which can be easily distinguished
		Highlighting landmarks
	P1.6 Favouring contemporary identity	Using interactive technologies to illustrate the reasons and aspects of the future layout of the territory
		Using art to guide tourists in still anonymous spaces
P2 Wayfinding and walkability	P2.1 Enhancing pedestrian tourist routes	Achieving a safe and liveable urban environment
		Creating comfortable tourist routes that encourage people to walk
		Constructing car-free pedestrian routes connected to public transport
		Making the pedestrian route more interesting by means of creativity, land art techniques, etc.
	P2.2 Devising new ways of exploring the place	Defining new thematic routes (relaxing route, museum route, etc.), or strengthening the existing ones by connecting them to local events
		Proposing new attractions for tourists
		Diversifying the offer throughout the day and according to seasons
		Proposing new pedestrian spaces and sustainable ways to move in the cities
	P2.3 Improving connections to tourist attractions	Supporting sustainable system to move towards attractions
		Connecting various destinations and attractions through signs
		Indicating the fastest, safest and most spectacular alternative accessible pedestrian routes

		Indicating the single route to the destination with one colour or a distinctive sign recurring in signage.
	P2.4 Improving connections to public transport system	Enabling the planning of the visitors' movements.
		Defining the best location for signage at intermodal points connecting tourist destinations
	P2.5 Improving wayfinding	Developing a clear, recognizable, continuous and accessible signage system
		Considering that signage is read in the following order: • title • main image • subtitle • bulleted lists • secondary images • main text
		Defining and highlighting points of interest (POI)
		Integrating new information and existing signage, wherever it is possible
		Locating the most appropriate signage at access points
		Locating the most appropriate information system at the beginning of each route
		Constructing continuous tourist routes by means of signage
		Introducing and highlighting information spots along routes
		Highlighting landmarks
		Avoiding the use of commercial messages, logos or icons on the information system
		Using exclusively the official or distinctive logo of a city in signage.
	P2.6 Improving accessibility to information and social inclusion	Considering the needs and abilities of all users by designing an accessible wayfinding system that complies with the principles of Universal Design
		Designing captivating and user-friendly wayfinding elements for people of any age and abilities.

		Considering the use of the five senses in the wayfinding project: taste, touch, sight, smell and hearing.
		Defining an information programme that includes the use of tactile communication systems for visually impaired users
		Using universally recognized symbols with written directions, if necessary
		Guaranteeing the accessibility to signage along the route, in parking areas or in arrival/departure points
		Developing strategies to bridge the gap between traditional and digital wayfinding systems.
		Strengthening the use of interactive devices and new technologies to spread information
		Using technologies and interactive systems (internet, acoustic clues, etc.,) to simplify the access to information.
		Applying smart technologies that can provide translations in foreign languages
		Assuring the visibility of signage even during night hours through a suitable lighting system
	P2.7 Designing pedestrians' safety and security	Creating pedestrian tourist circuits that cannot be intercepted by vehicular traffic flows
		Placing signs in order to assure pedestrians' safety
		Using public art systems and installations that do not hamper pedestrian traffic
	P2.8 Guaranteeing the reliability and precision of the contents of the wayfinding system	Evaluating the location of the existing wayfinding system and the conditions for possible updates
		Planning a maintenance schedule to assure the effectiveness of the whole system
P3 Wayfinding & communication and branding	P3.1 Making complexity simple	Making the message strong, effective and memorable (don't make me think!)
		Developing a system simple to understand

		Developing a system whose functioning is simple to remember
		"Just enough information and not too much"
		Using a limited number of signs to meet the users' actual needs (what I need when I need)
	P3.2 Making information recognizable	Developing a brand identity for the pedestrian information system
	P3.3 Promoting community participation	Planning an information campaign addressed to residents and visitors to inform them on the project progress
		Using virtual technologies to promote the use of new social and physical spaces and activities
		Creating on-line message boards for comments and suggestions from the community.
	P3.4 Evaluating the project	Planning the mid-term evaluation of the wayfinding system
		Considering a period to test the wayfinding system through the creation of a prototype, before installing permanent signs
P4 Wayfinding & sustainable development	P4.1 Increasing tourist flows and number of visitors	Improving the tourist experience by proposing spaces with functional mixes which are specific for each type of users and planned throughout the day and in the different seasons
		Relying on the quality of the tourism offer to trigger return processes by strengthening tourism for all
		Creating a tourist destination which is part of the ENAT circuit
	P4.2 Improving the residents' quality of life and the sustainability of the economy of the city through the promotion of tourism	Considering tourism for all and social inclusion as sources of local cultural, social and economic wealth.

	P4.3 Creating a diversified, lively and sustainable economy	Supporting the development of new commercial activities addressed to tourists along the existing and new pedestrian routes leading to attractions
	P4.4 Encouraging environmental sustainability	Promoting the effective re-use of the existing natural, historical and cultural heritage as an economic resource and supporting the conservation of resources.
	P4.5 Achieving the sustainability of materials	Preferring the use of local materials
		Using environmentally-friendly materials
		Designing a wayfinding system that minimizes maintenance operations
		Using energy-saving systems

Step 3_ Code

3.1 *Emotional wayfinding system concept design*

Considering the information obtained from the previous steps, this final phase aims at providing the rules and the operational instructions to develop the signage project. It is divided into two parts: the first (3.2 Design Standards) provides general project information; the second (3.3 Producing City Tells panel) gives further directions to implement interpretive signage, which is more involved in the City Tells emotional project.

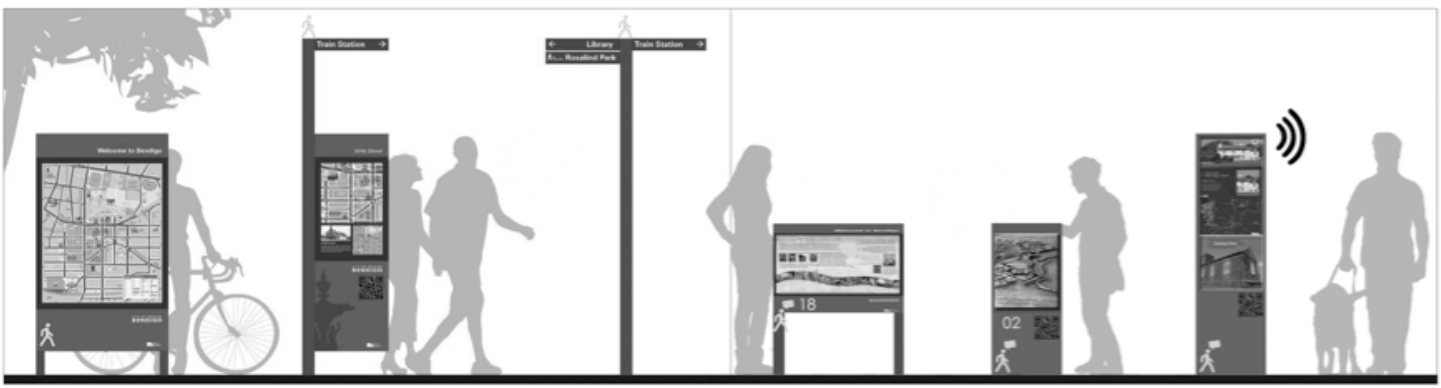
The emotional wayfinding system concept design envisages the use of three main sign families:

SIGN FAMILY

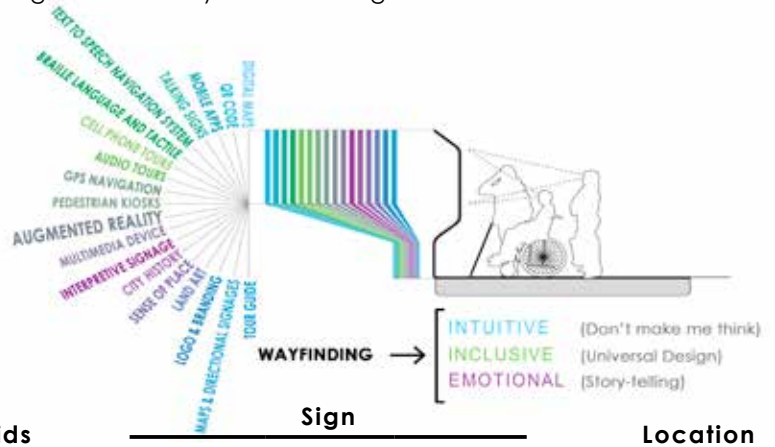
1 **Orientational signs**
characterized by Map-Based Signs (MBS) and classified into:
Information Panel Map with different map hierarchies
Information Panel Sign, usually with pedestrian maps with or without directions

2 **Directional signs**
characterized by Indipendent Directional Sign (IDS) mounted on posts, with arrows indicating the direction to follow in order to reach a destination

3 **Interpretive signs**
characterized by Panel Maps, Totems and Interactive Kiosks



The sign family adopted is characterized by systems and technologies that simplify the access to information for people with disabilities and, in particular, meet the needs of blind or visually impaired people. Certainly, the devices used facilitate the understanding of the territory and the navigation of all visitors.



Aids	Sign			Location
	orientational	directional	interpretive	
Braille	■		■	Geteway/Starting point/ Destination point
Relief map	■		■	Geteway/Starting point/ Destination point
Sensory clues		■		On-street
Audiodescription			■	Destination point
Internet	■	■	■	Gateway/Starting point/ On-Street
Audio tour	■	■	■	Starting point/On- street/ Destination point
Cell phone tours		■	■	Starting point/ On-Street/ Destination point
Text-to-speech		■	■	On- Street/ Destination point
Remote Infrared Audible Signage technology		■		Gateway/On- street/
Radio Frequency IDentification		■	■	On- Street /Destination point
QrCode	■	■	■	Gateway/Starting point/ On- Street/Destination point
Virtual and augmented reality			■	Destination point
(TGSIs) Tactile ground surface indicators	■	■	■	On-Street

Hugo de Groot Monument
municipality
opening hours:
9,00 - 17,00
italian
ice-cream
shop
very typical
shop
souvenir
shop
bestiaansplein
accessible information sign

3.2 *Design standards*

This phase aims at defining general information on the type of signs and on their characteristics.

C1 Maps

• Disability Rights Commission, UK, 2006

Maps have three main functions:

I. orientation and/or direction (connection between starting position and desired destination)
II. identification of sites
III. information for further decision-making

Moreover, they should:

- show the territory divided into sectors
- schematize the territory in a simplified or abstract way
- show all the organizational elements (paths, reference points, districts) and include only the most important and memorable ones.
- represent the most important buildings in 3D
- show the street nomenclature
- show the user's position (you are here)
- be oriented according to the user's direction, applying the "forward-up equivalence principle"

Information Panel Map

Reference map. City of Paris

Panels with two different map hierarchies: Reference Maps and Precinct maps

•***Reference maps*** show the whole territory and the location of neighbourhoods within it. This allows visitors to understand where they are in relation to the surrounding neighbourhoods. Reference maps have usually a small scale of representation; they may have a stylized representation and provide minimum information to enable quick and prompt understanding.

Reference maps include:

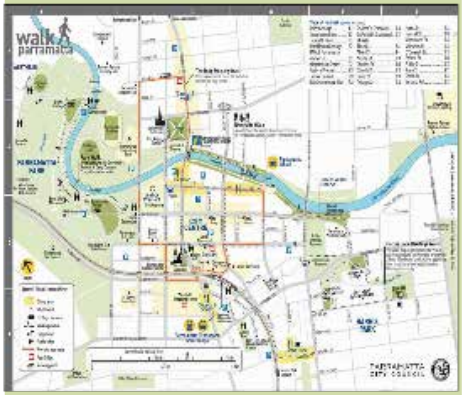
Neighbourhoods: name and postcode

Reference map.
Pontevedra's Metrominuto Map. Galicia, Spain

- Grant J, Herbes B, Improving Walkability and Wayfinding In Midland, A Report To The City Of Swan & The Midland Redevelopment Authority, September 2009

Primary and secondary routes: schematic representation
Walking routes: information about the distance and walking time
Symbols: Abstract representation of the main services
Icons: visual representation and 3D images of the main landmarks
Public transport: Railway stations, taxi and bus stops and major intermodal points
Car and bike parks

Location
- At intermodal points



•***Precinct maps s****how the boundaries of the city and provide information on how to move from/to surrounding neighbourhoods on foot, by bike and by public transport. They are usually represented on a larger scale that allows for greater detail, which is needed to better understand the territory and plan the different routes. Therefore, the level of information is more exhaustive and includes the elements characterizing the urban territory and the main destinations.*

Precinct maps include:
Primary and secondary roads: name and postcode for easy identification
Pedestrian routes: tourist itineraries with information about distance and walking time
Symbols: abstract representation of the main services
Icons: visual representation and 3D images of the main attractions or historic buildings as reference points
Public transport: Railway stations, taxi and bus stops and major intermodal points

- Grant J, Herbes B, Improving Walkability and Wayfinding In Midland, A Report To The City Of Swan & The Midland Redevelopment Authority, September 2009
- Grant J. (JA Grant + Associates) & Herbes B.(Visualvoice), BEST PRACTICE IN PEDESTRIAN WAYFINDING WITHIN URBAN AREAS, Dec 2007

Services: Toilets, accessible toilets, post offices and tourist information points
Index &grid: Index of destinations and grid references
Car and bike parks

Location:
- At arrival and intermodal points

Information Panel Sign

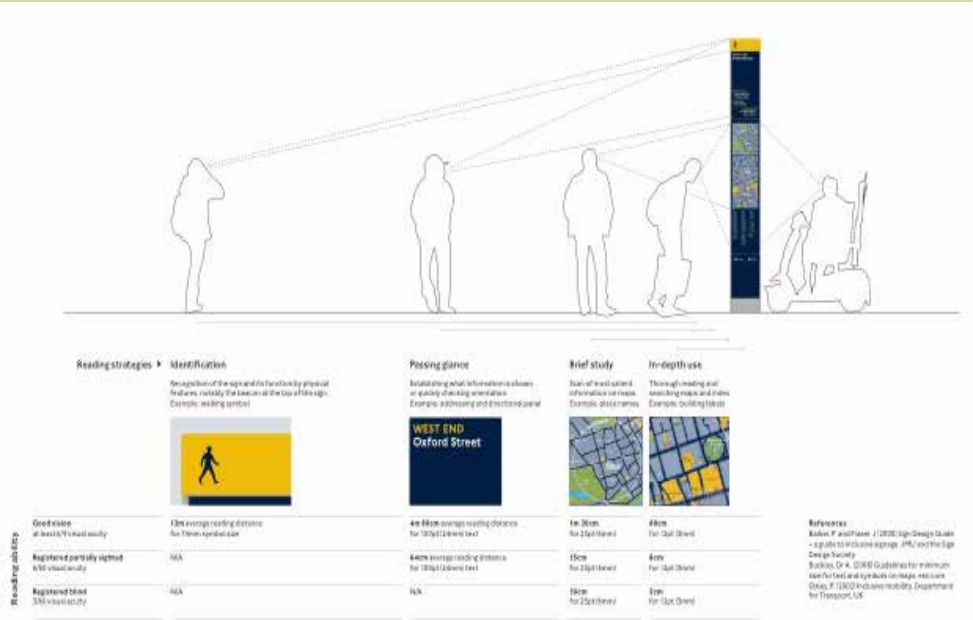
Monoliths include a detailed pedestrian map, usually on a 1:1000 scale, of a defined area of the urban territory as well as directional arrows. The scale of representation enables pedestrians to understand where they are and the elements surrounding them, such as the nearest destinations, routes, pedestrian crossings, etc.

The map includes:
Roads and alleys: road names and building numbers for easy identification
Walking routes: information on distance and walking time
Pedestrian crossings: places for safe pedestrian crossing
Symbols: abstract representation of the main services
Icons: visual representation and 3D images of the main attractions or historic buildings as reference points

Location:
- At nodal points and where the route becomes ambiguous, including at crossroads and open spaces

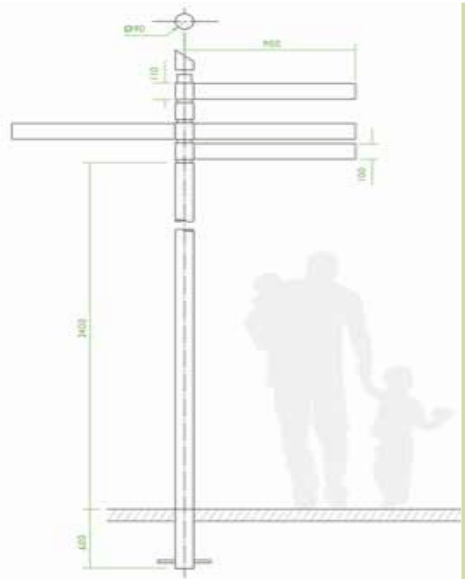
- Grant J, Herbes B, Improving Walkability and Wayfinding In Midland, A Report To The City Of Swan & The Midland Redevelopment Authority, September 2009
- Grant J. (JA Grant + Associates) & Herbes B.(Visualvoice), BEST PRACTICE IN PEDESTRIAN WAYFINDING WITHIN URBAN AREAS, Dec 2007

Additional Information and examples



http://www.tfl.gov.uk/microsites/legible-london/downloads/Legible_London_System_Architecture.pdf

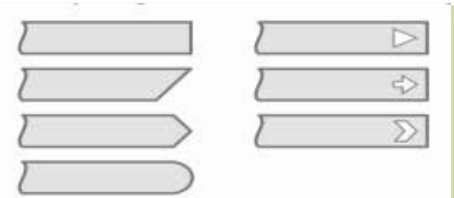
C2 Indipendent Directional Signs



Fingerpost signs are arrows mounted on a post that indicate the direction to the destination. They can be used intuitively, be seen from a distance and contain additional information. Fingerpost arms and finials can be different in size. Moreover, finials can include local logos or distinctive symbols. Whatever the material of the arms, their height has to be a multiple of the size of the letters used for inscriptions, whether they be on one or two lines.

In general, fingerpost should:

- provide positive directions
- indicate the destination and the direction to follow
- show the full name of the destination
- show the walking time expressed in minutes
- show distance in mt
- show the difficulty of the route by expressing the gradient as a percentage
- construct a route that is continuous from its



Examples of finger variations

Examples of final variations

- http://www.steelscape.co.uk/products/directional-fingerpost-signage/
- http://www.3gsegnaletica.it/immagini/segnaletica.pdf

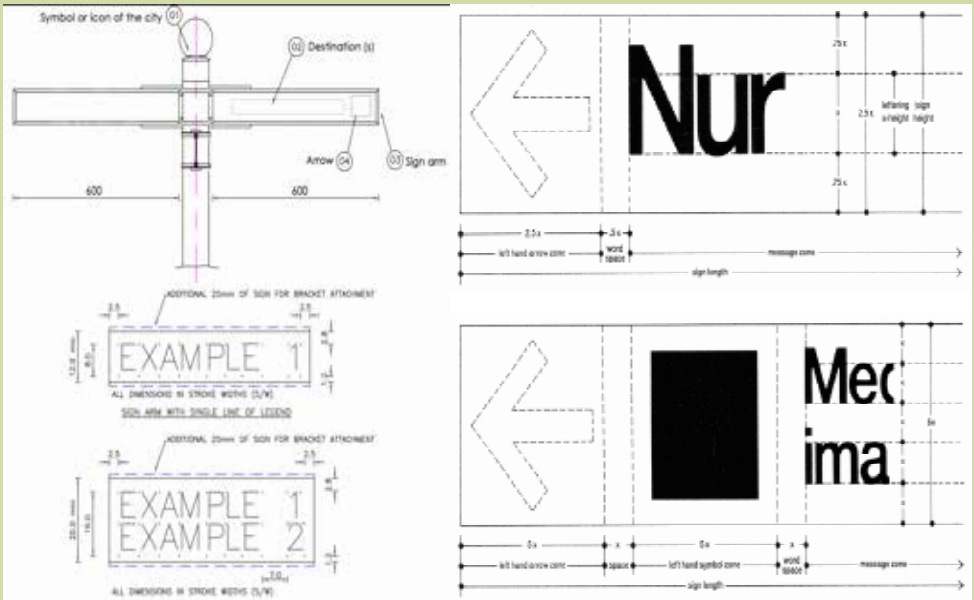
starting point to its destinations

The most common sizes are:
- minimum aboveground height: 240 cm
- arm length: up to 90 cm
- post diameter: 9 cm

Location:

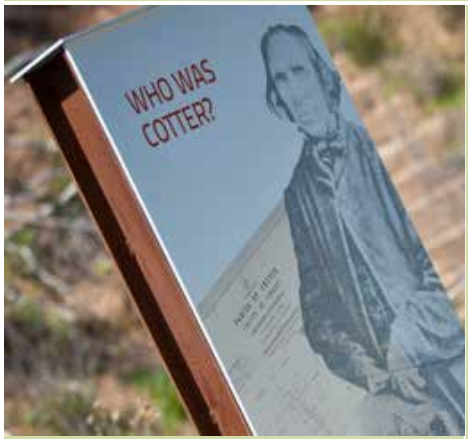
- At points where the route becomes ambiguous, including crossroads and open spaces.
- Along the route to reassure pedestrians on the direction they have chosen, through identical signs of confirmation.

Additional Information and examples



Sign design is based on the height of the lower case letter 'x'. Sign plank heights are multiples of 2.5 the lettring "x"- height as shown over.
Source: Strategic Procurement & Business Development, Wayfinding for Health Facilities Technical Series TS2, NSW Health Strategic Business and Development Branch, North Sydney, SEPTEMBER 2008, http://www.healthfacilityguidelines.com.au/

C3 Interpretive Signage



This kind of signs exploits the pedagogical and didactic potential of the place transforming it into a tool of communication, observation and interpretation of reality through narration. Narration can be carried out through texts with images, pictograms, relief maps, Braille, audio and video systems and is used to give pedestrians information on local history, anecdotes and curiosities.
Design and graphics should incorporate elements of identity and the local signage system branding. Furthermore, signs should:

I. Include photos, drawings or illustrations, videos, etc.
II. Illustrate something visitors cannot yet see by themselves
III. Relate text and photos

Interpretive signage can address various target users; therefore, the tones and themes of the narration should be adapted as appropriate. The following six elements are crucial to the structure of narration in interpretive signage:

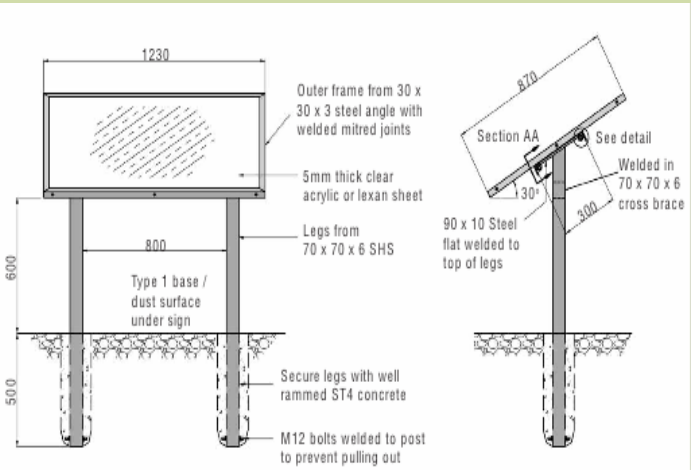
- To have a personal perspective
- To provide non-trivial answers to the visitors' possible questions
- To contain emotional and involving themes
- To assure an economical narration (much can be told with few words)
- To avoid jargons and technical terms
- To use a colloquial style and a rhythm which is adequate to the narrative modes.

Location:

- In front of the attraction concerned
- In a well visible position that does not hamper pedestrians' circulation or the view of a panorama

- Paths for All with support from Scottish Natural Heritage, Signage Guidance for Outdoor Access. A Guide to Good Practice, Edinburgh. http://www.pathsforall.org.uk/pfa/creating-paths/signs-signs-signs.html
- Lambert J., Digital Storytelling: Capturing Lives, Creating Community, Routledge, 2013
- Producing Interpretive Panels http://www.snh.gov.uk/policy-and-guidance/heritage-interpretation/producing-interpretive-panels/
- 2008, Tourim Development How-to Guide Outdoor interpretive signage by Her Majesty the Queen in right of the Province of Nova Scotia.

Additional Information and examples



Scottish Natural Heritage, Signage guidance for outdoor access A guide to good practice, Path for All, 1996 http://www.pathsforall.org.uk/component/option,com_docman/Itemid,69/gid,155/task,cat_view/

C4 Interactive kiosk _Digital Signage

An interactive kiosk is a digital terminal that provides various kinds of information to support the wayfinding system. It shows contents to users through electronic screens, multilingual touchscreens and audio systems that give instructions for use.
The dynamic and continuously updatable information can concern weather forecast, events and local transport.
Moreover, it can be connected to the internet.
It can also be used for interpretive signage since it shows video and audio multimedia contents that tell stories about a topic.

Location:

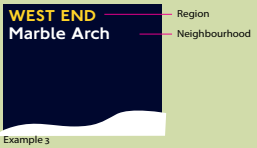
- In areas with heavy pedestrian traffic

- Boise State University, Department of Community and Regional Planning Department, Wayfinding in Boise, Boise, Idaho, 2012 http://sspa.boisestate.edu/planning/
- http://en.wikipedia.org/wiki/Interactive_kiosk

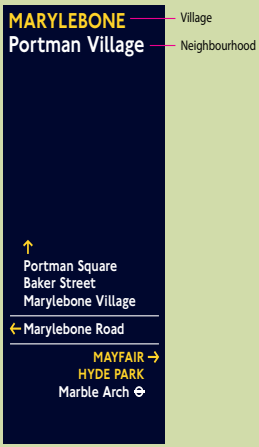
C5 Communication and Messages

Example 1

Example 2



Example 3



Addressing structure as used for West End Prototype and Extension

In order to establish a guiding stylistic strategy, which may help develop a consistent system, it is fundamental to:

- Evaluate the content of the message distinguishing primary, secondary and tertiary messages.

Primary messages: information concerning the nomenclature of places and car parks or public transport intermodal points for pedestrians.

Secondary messages: all the information aimed at guiding pedestrians towards the main attractions and other information helpful to visitors.

Tertiary messages: additional directions concerning specific attractions.

- Limit the message to 3 destinations/ communications per sign
- Use the same language and terminology for the whole signage system
- Consider if abbreviations are comprehensible
- Use an English translation of the message
- Differentiate the English message by:
  - typeface
  - contrast
  - line, space between lines and position.
- Replace, if possible, the English translation with universally recognized symbols
- Prefer short messages
- Avoid any commercial message

Location:

- At points where the route becomes ambiguous, perpendicular to the pedestrians' direction of travel or at a 30-degree angle.
- Where additional information is needed.

C6 Font

There exist two main font families: Serif and Sans Serif.
The choice of the font may affect significantly the legibility of signs, if viewing distance is also taken into account.

Example of some Sans Serif fonts

Example of some Serif fonts

X-height of a typeface affects overall type size and viewing distance

20pt type, 5mm cap-height and 3.5mm x-height

Same type size with the same cap-height, but the lower case letters are smaller

- Whitbread D, The Design Manual, UNSW PRESS, National Library of Australia, Sidney, Australia 2001
- Society for Environmental Graphic Design (SEGD), The Americans with Disabilities Act White Paper, SEGD's Clarification and Interpretation of the ADA Signage Requirements, Second Edition, April 1993 http://www.segd.org/images/content/4/3/43532/SEGDWhitepaper.pdf
- NHS Estates, Information Design Unit of Enterprise IG, Wayfinding Effective wayfinding and signing systems Guidance for healthcare facilities, TSO (The Stationery Office), London 1999
- www.hfs.scot.nhs.uk/publications/wayfinding-v4.pdf
- ACRP, AIRPORT COOPERATIVE RESEARCH PROGRAM, Wayfinding and Signing Guidelines for Airport Terminals and Landside, Report 52, Research sponsored by Federal Aviation Administration, TRANSPORTATION RESEARCH BOARD, WASHINGTON, D.C. 2011 www.TRB.org

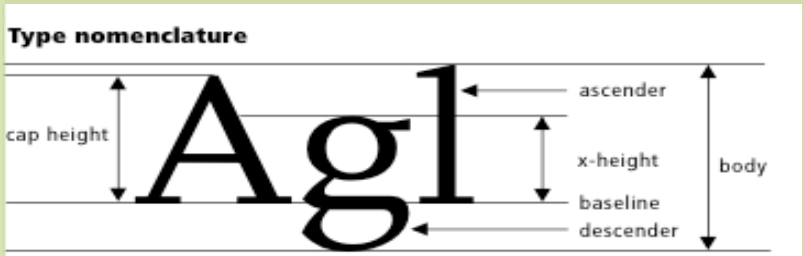
The choice and use of fonts entail:

- The use of bold style to highlight major destinations
- The use of the Regular style
- The choice of Sans Serif fonts
- The choice of fonts with constant and thicker ascenders and descenders
- The use of upper case letters only at the beginning of a sentence or to highlight a destination
- The choice of a cap-height which is proportional to the x-height
- The use of a 20-point minimum text size for warning and orientational signs.
- The use of a 5 mm cap-height and a 3.5 mm x-height
- Non-use of fonts including similar lower case letters, such as “a” and “o”.
- Non-use of underscored text
- The choice of Frutiger fonts, which have been specifically designed for signage and are particularly suitable for reading at a distance.

Other fonts that are appropriate for signage are:

- Health Aphabet
- Franklin Gothic
- Helvetica
- Univers

Additional Information and examples



C7 Type Size

Measuring type size

cap-height {Aabg} x-height

The height of the upper case letters is called the 'cap-height'.

The height of the lower case letters is called the 'x-height'.

The x-height compared to cap-height varies for different typefaces.

Type size is usually measured in millimetres for signs, and in points for paper documents.

Typical reading distances

(Based on a x-height:viewing distance ratio of 1:400)

Viewing Dist (m)	8	12	16	24	36	48
x-height (mm)	20	30	40	60	90	120

- 4.30 Signage. ADA Standards for Accessible Design
- http://www.ada.gov/adastd94.pdf
- 703 Signs, Chapter 7: Communication Elements and Features, ADA Standards
- http://www.access-board.gov/guidelines-and-standards

The legibility of a text varies depending on the type size and on letter and line spacing. Hence, it would be suitable to:

- Consider that if the type size decreases, letter spacing should increase
- Consider that letters and numbers on signs should have a width-to-height ratio between 3:5 and 1:1 and a stroke-width-to-height ratio between 1:5 and 1:10.
- Consider that line spacing should be 30% higher than the type size (if a 24-point type is used, line spacing should be at least 32 points).
- Check that the chosen font has an "o" width ranging from 55% to 110% of the "i" cap-height.
- Check that height, measured vertically, ranges from a minimum value of 5/8 inches (16 mm) to a maximum value of 2 inches (51 mm), in relation to the "I" cap-height
- Use bold style for key information
- Use standard style for secondary destinations or to reduce the importance of complementary information
- Use upper case letters for the first letter and lower case letters for the rest of the word
- Reduce the prominence of less important information

C8 Text layout

Left aligned

Car Park
Church
Library

Right aligned

University
Metro
Square

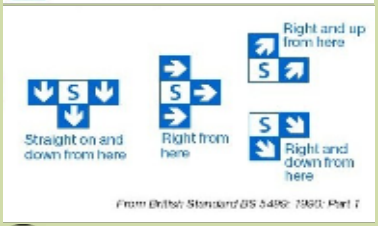
Text layout for Legible London

- NHS Estates, Information Design Unit of Enterprise IG, Wayfinding Effective wayfinding and signing systems Guidance for healthcare facilities, TSO (The Stationery Office), London 1999 www.hfs.scot.nhs.uk/publications/wayfinding-v4.pdf

Text alignment refers to the text layout in relation to a vertical axis.
Like the other symbols in a directional sign, text should always be:

- left aligned
- right aligned only if it includes an arrow indicating the right direction
- grouped into lists of no more than four or five destinations
- identified by a single directional arrow for clear groups of destinations
- divided by a white space in the case of lists of over four or five destinations

C9 Arrow



- ISO 7010: Graphical symbols — Safety colours and safety signs — Safety signs used in workplaces and public areas.
- NHS Estates, Information Design Unit of Enterprise IG, Wayfinding Effective wayfinding and signing systems Guidance for healthcare facilities, TSO

ISO (ISO 7001) arrow should have ends parallel with the stem. In particular, arrows:

- " → " and " ↑ " should be placed on the left side of the sign
- " → " should be placed on the right side of the sign
- should be aligned to the text they refer to
- should be aligned to each other
- should indicate clearly the appropriate direction
- should not show too much white space between them and the text
- should be directed according to the organization of the environment they are located in.

(The Stationery Office), London 1999
www.hfs.scot.nhs.uk/publications/wayfinding-v4.pd

C10 Pictograms

Recommended Minimum Symbol Sizes

Viewing Distance (feet)	Computer Screen (points)	Printed Maps (points)	Computer Screen (inches)	Printed Maps (inches)	Computer Screen (millimeters)	Printed Maps (millimeters)
1.5	6	4	0.08	0.06	2.0	1.5
2	8	6	0.10	0.08	2.7	2.0
3	11	8	0.16	0.12	4.0	2.9
4	15	11	0.21	0.15	5.3	3.9
5	19	14	0.26	0.19	6.6	4.9
10	38	28	0.52	0.38	13.3	9.8
20	75	55	1.05	0.77	26.6	19.5
30	113	83	1.57	1.15	39.9	29.3
50	188	138	2.62	1.92	66.5	48.8
100	377	276	5.24	3.84	133.0	97.5

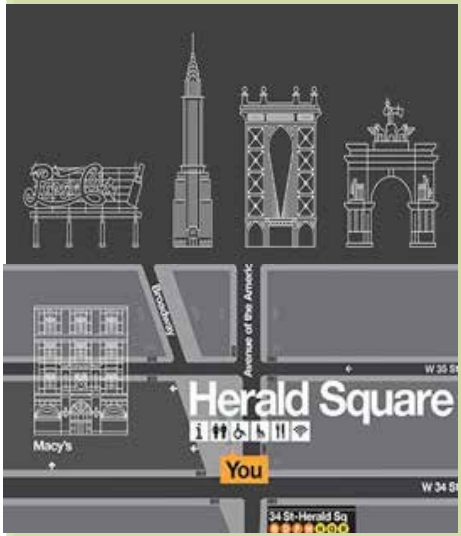
- Legislative Decree 30 April 1992, n. 285, New Highway Code http://www.mit.gov.it/mit/site.php?p=normativa&o=vd&id=1
- ADA Standards for Accessible Design
- http://www.ada.gov/adastd94.pdf

Pictograms are a graphic representation, a visual sign designed to communicate quickly and clearly the single word they refer to. Integrated in a rational signage system, pictograms draw the attention of observers and can help identify services and overcome language and visual difficulties. Actually, their standardization, through universally recognized images, allows increasing their level of recognition even within culturally different communities.
The symbols identified by the British Standard BS 6034: 1990 (International Standard ISO 7001:1990) BS 8501:2002 describe the standards used for public information. There exist several studies to modify and modernize the symbol representation, but the main rules for their creation are:

- Using symbols to identify messages of:
  I. Information
  II. Direction
  III. Prohibition
- Using universally recognized symbols
- Considering a simple, clear and immediate graphic representation
- Representing symbols with full colour areas
- Clearly connecting a symbol with the text it refers to
- Aligning a symbol to the text
- Limiting the white space between text and symbol
- Choosing a great chromatic contrast with the sign background
- Selecting a style, a colour, etc. for the whole wayfinding system
- Considering legibility from the planned viewing distance
- Positioning the symbol before or after the text it refers to
- Accompanying symbols with Braille, if they are accessible.

C11 Icons

3D Illustrations of landmarks created for the maps of Legible London



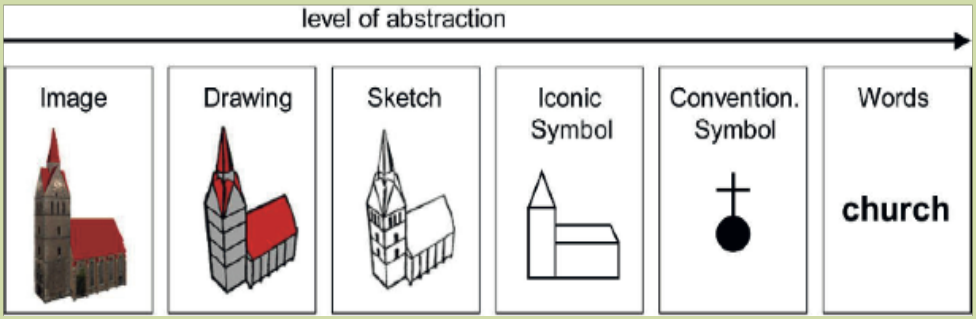
Illustrations of landmarks created for the maps of NYC Wayfinding

- http://new.pentagram.com/2013/06/new-work-nyc-wayfinding/
- Legible London, Yellow Book A prototype wayfinding system for London, Transport for London www.legiblelondon.info
- Elias B., Paelke V., User-Centered Design of Landmark Visualizations, Institute of Cartography and Geoinformatics, Leibniz University of Hannover
- www.ikg.unihannover.de/fileadmin/ikg/staff/publications/Begutachtete_Zeitschriftenartikel_und_Buchkapitel/EliasPaelke_mobile-maps2008.pdf

Icons provide a symbolic and simplified representation of an architectural element or of other landmarks. They are used to simplify and help understand maps and support directional signage to make a destination more recognizable.
Moreover, the 2D or 3D representation of landmarks helps people with reading difficulties and makes orientation more intuitive.
They do not follow recognized stylistic standards, thus, before using them, it is necessary to:

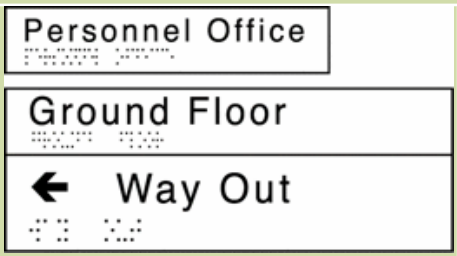
- Select the most important or strategic elements for orientation
- Select the most appropriate, simple and direct graphics, so as to enable a rapid and clear identification of the object represented
- Prefer a simplified 3D representation of the object
- Adopt a graphic style which is "memorable" for visitors
- Orient icons according to the map orientation
- Prefer colours contrasting with the sign background
- Choose a size proportional to the graphics adopted and to the reference signage
- Select a small representation for symbolic icons
- Select a medium- or small-sized image, drawing and sketch, according to the reference map,
- Place icons on maps, in their original geographical location
- Verify that icons are recognizable.

Additional Information and examples



Different levels of image abstraction: from the realistic to the most simplified representation, up to the use of symbols and words
Elias B., Paelke V., User-Centered Design of Landmark Visualizations, Institute of Cartography and Geoinformatics, Leibniz University of Hannover

C12 Braille



- R402 Clear Space. CHAPTER R3: TECHNICAL PROVISIONS, Draft Public Rights-of-Way Accessibility Guidelines (Draft PROWAG), http://www.apsguide.org/appendix_a_prowag.cfm

Braille language is an embossed writing and reading tool used by blind people and based on a system of standard codes made up of a maximum of six dots.
The Braille symbol that accompanies the written message should be:

- Placed on the lower left part below the short message
- Placed on the lower left part below the whole text message
- Separated by raised edges, decorative elements or other embossed characters, considering a minimum distance of 9.5 mm (0.375 in).

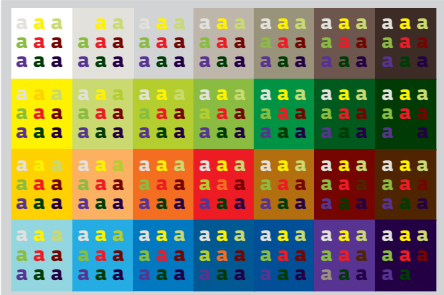
In general, the Braille system should be placed on pedestrian signs at a height of less than 140 cm. In particular:

- on maps and totems
- on all interpretive signs
- on information panels

Furthermore, it should be used together with:

- plantar tactile signals, in order to indicate their presence
- audio-tactile signals
- relief maps

C13 Colour code



The use of colour in signage plays a crucial role in the process of memorization of the route and of the urban space.
For example, it can be useful to identify the different sectors and neighbourhoods the territory is divided into, or the type of message.
In the case of pedestrian signage, there exist several rules to follow for colour coding. In particular:

- use no more than 3 or 4 colours
- choose colours that can be read also by visually impaired and colour-blind people
- use a combination of colours with a great chromatic contrast with the background
- use primary and saturated colours because they are more legible
- use the same colour for the same family of information
- choose colours consistent with the context

- NHS Estates, Information Design Unit of Enterprise IG, Wayfinding Effective wayfinding and signing systems Guidance for healthcare facilities, TSO (The Stationery Office), London 1999 www.hfs.scot.nhs.uk/publications/wayfinding-v4.pdf
- http://designworkplan.com/design/signage-and-color-contrast.htm

C14 Interactive maps for bilnd people_tactile maps

Tactile maps are a valid help for the blind when they move in an unknown territory. Yet, many variables influence their validity, such as the size and characteristics of the environment to reproduce and the coding system used to represent those characteristics. The coding system uses embossed symbols that should represent:

- The route/itinerary, by means of an embossed continuous line
- Major elements, such as landmarks, as bigger symbolic miniatures
- The other characteristics of the area surrounding the route, through smaller embossed elements in a colour different from that of the major elements
- Braille legend
- Legend with characters that can be read by visually impaired people

- Harder A. and Michel R., The Target-Route Map: Evaluating Its Usability for Visually Impaired Persons, Journal of Visual Impairment and Blindness,2002
- http://www.med.uni-magdeburg.de/~harder/target/target.html

C15 Sensory clues

Sense stimulation can provide the right information to move in the urban space described by maps accompanied by Braille tables or audio-guides. For example, smell is stimulated by the presence of fragrant plants; sight is stimulated by bright colours or particular lights; hearing is stimulated by the presence of sounds which can be distinguished from environmental noise; touch is stimulated by the possibility to know, through this sense, architectural, natural and other elements characterizing the route.
For instance, along the routes, it is possible to identify a predominant smell or a sound caused by the material used for the walking surface, or by a waterway. These elements can be linked to functions of directional or interpretive signs. Moreover, the route should be functional also in the various hours of the day.

Location:

- At the main nodes, to indicate the route to follow
- In areas protected from vehicular traffic

- La pedonalità urbana. Percezione extra-visiva, orientamento, mobilità, Maggioli Editore, 1994

C16 Audio tour

It is usually a portable electronic device that allows playing and listening to a recorded audio narrative with vocal information on a monument, a museum or a site of tourist or cultural interest.
By means of the spoken narration, audio tours give information and additional details on various topics, which can deal with history, history of art, architecture, history related to the place or the object concerned.
Contents are often in multilingual versions and can be enriched with sound effects, music, interviews to artists or museum directors, archaeological sites, exhibitions, etc.
Audio tours are generally rented on the spot at the beginning of the route and individually distributed to visitors, so that they can listen to the audio-narrative during their visit.

- http://en.wikipedia.org/wiki/Audio_tour

C17 Cell phone tours

A Cell phone tour is an audio tour in which a pre-recorded commentary on the visited site is provided for one's own cell phone.
Each spot, which coincides with a pedestrians sign, is assigned a telephone number that, once dialled on the mobile phone, will allow listening to the recorded content.
Messages are like an ordinary audio track that can be listened to again, fast-forwarded or paused.
Besides audio contents, certain systems allow watching videos via streaming and translate voice messages into text.

Location:

- Far from sources of noise pollution

- http://en.wikipedia.org/wiki/Audio_tour

Additional Information and examples

The phone system, operated by Walk London for West End Prototype within the wayfinding system Legible London, contains audio messages that can be listened to by dialing the 0870 number, which is printed on the side of pedestrian signs. Users' feedback has highlighted the need to simplify the system of access to information and to develop the contents of messages to make them more accessible to blind people.

Legible London, Inclusivity Report. Design Guidance, April 2010
http://www.tfl.gov.uk/microsites/legible-london/downloads/Inclusivity_Status_Report.pdf

C18 Speech synthesis

Speech synthesis is the artificial simulation of natural language. Vocal expressions are generated by a computer through text-to-speech software that "speaks" to the person transforming the written contents on the screen into sound.
It is used as an aid for blind people but also when eyes are engaged in other tasks or to simplify certain services and elderly, dyslexic and visually impaired people's interaction with technology.
The text can be read in various ways: by single character, word by word, or line by line. Moreover, reading can be continuous and fluent, with punctuation, with the indication of text attributes (capital letters, italics, underlining), with integral spelling and in various languages.
It can be installed in a smartphone to be used with information systems with access via phone numbers, or with the QRcode. It works with GPS.

- http://en.wikipedia.org/wiki/Speech_synthesis
- http://www.linguatec.net/products/tts/information/technology

C19 GPS

The Global Positioning System (GPS) is a satellite navigation system that uses signals sent by satellites orbiting the Earth and allows determining current position, speed and direction with good precision. GPS is used for transport systems since it provides useful information for air, sea and land travels. The GPS receiver should be exclusively used outdoors in order to allow receiving signals. If the user is motionless, the GPS system is not able to detect his/her direction, which is determined in relation to his/her movement.

- http://en.wikipedia.org/wiki/Global_Positioning_System

C20 Mobile applications

There exist several smartphone applications that, together with GPS capacities, allow downloading detailed tourist guides with photos and texts on the city to visit.
Once the application is downloaded, it is possible to use all contents offline, i.e. without being connected to the internet, even abroad.
Certain apps offer talking maps, i.e. accessible maps with oral information about street names, crossroads, addresses or destinations, that describe and use the landmarks along the route as a reference to guide users.
Maps can be downloaded from specific websites that supply the service upon request by local authorities.

- www.google.com/mobile/navigation/
- www.play.google.com/store/search?q=navigation+app&c=apps
- Beeharee A. K., Steed A., A Natural Wayfinding - Exploiting Photos in Pedestrian Navigation Systems, Department of Computer Science, University College London

C21 Assistive Technologies_(Remote Infrared Audible Signage technology)

RIAS is an infrared communication system designed to eliminate barriers for the blind and the visually impaired or for people with cognitive or mental disabilities, by assisting them in their orientation and mobility. This technology uses infrared transmissions to provide audio directional information and is made up of two main components:

1) a transmitter that emits audio signals through infrared light beams
2) a palm receiver that decodes signals into an audio message.

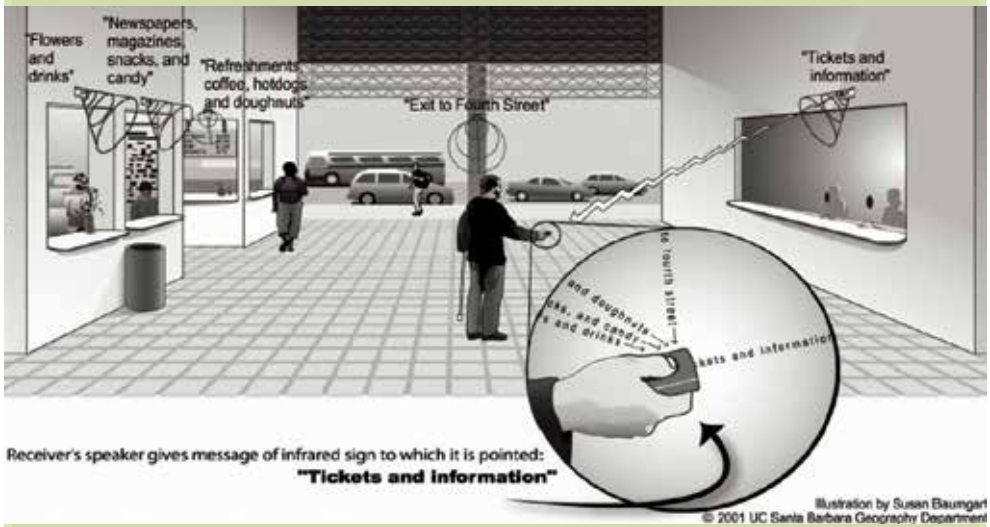
To use the system, the user scans the environment with a portable receiver which picks up the signal of the transmitter, decodes and then translates it into an audible message. The message can be listened to through a speaker in the receiver, or by means of a personal earphone.

- Beeharee A. K., Steed A., A Natural Wayfinding - Exploiting Photos in Pedestrian Navigation Systems, Department of Computer Science, University College London
- http://www.geog.ucsb.edu/~marstonj/DIS/CH2_4.html
- http://www.fta.dot.gov/documents/RIAS_EvaluationReport.pdf

Location:

- At intermodal points, at access points to places of public interest.

Additional Information and examples



Talking Sign is a wireless infrared communication system that provides voice messages from fixed transmitters to a portable receiver which decodes the signal and delivers the voice message through its speaker or earphone CalTrain installation schematic http://www.geog.ucsb.edu/~marstonj/DIS/DIS_MARSTON_files/image014.jpg

C22 Assistive Technologies_RFId (Radio Frequency IDentification)

RFID (Radio Frequency IDentification) systems allow producing guidance and navigation systems for the blind, in which the identification of places, or other information, are given through a radio frequency transmission.
The system is composed of:

- an RFID tag grid
- a special cane with RFID reader to read the tag ID number
- a palmtop connected to the cane via Bluetooth, which, by means of a special application, is able to recover the information about a specific tag from a database and to propose it to the user as sounds, through speech synthesis.

Location:

- At major destinations

- WiMove Servizio di infomobilità ai cittadini, Analisi e progettazione di un percorso turistico totalmente accessibile agli ipovedenti ed ai non vedenti mediante l'uso di tecnologie Rfid/ Wireless, CATTID Sapienza, Roma

C23 QRcode Technologies

A QR code is a bidimensional bar code used to store information generally destined to be read by mobile phones or smartphones equipped with a special reading programme.
To integrate QR technology and the wayfinding system is a way of spreading further information on the destination, on the place of interest or on the calendar of local events.

Location:

- Where interpretive and informative signs are situated

- www.en.wikipedia.org/wiki/QR_code
- www.tag.microsoft.com/home.aspx

Additional Information and examples

The city of Amsterdam promotes minor attractions through this system, which identifies 140 destinations. The distribution of QRcodes is shown by a special digital map and is marked by a red x.
It is possible to get information through a smartphone, while the corresponding interpretive signs are found at the destination. http://edenspiekermann.com/blog/explore-a-different-amsterdam

C24 Virtual and augmented reality

Virtual Reality allows reconstructing imaginary or no longer existing environments, such as monuments or cities belonging to past ages, and integrating them with real objects.
Tourism is the field where augmented reality is most commonly used. In fact, thanks to certain apps, a mobile device will allow:

- Choosing one's itinerary
- Having all the information useful to visit the chosen attraction
- Overlapping images and reconstructions of archaeological sites to give a "tangible" idea of what those places looked like in the past.

Location:

Where interpretive signs are located

- http://en.wikipedia.org/wiki/Virtual_reality
- http://www.vrs.org.uk/augmented-reality/index.html

Additional Information and examples

Rome MVR is a new application to visit Rome through time, by viewing its aspect in the various ages, thanks to the Time Window MVR (Mixed Virtual Reality) system. Such a system uses time windows to show the state of an archaeological site, an urban area or a monument in the different phases of its history, interactively overlapping background 3D reconstructions to current places.
http://www.altair4.com/2011/07/14/rome-mvr-time-window/

C25 Historical films/Videos/Renders

These interactive media can explain a place integrating traditional signs.
Historical films can illustrate the streetscape

- http://hosgor.wordpress.com/2010/04/09/visionary-design-for-urban-parks-underpass-park-in-toronto/
- http://www.youtube.com/watch?v=ZC6ounAQAMQ

character in the past ages and provide information to understand the process of territory transformation which has led to the new contemporary layout.
Films, enriched with renders and photomontages, can show a project still to be carried out in a certain urban space, thus favouring a participatory approach and the involvement of local communities.

Location:

- Where interpretive signs are located

C26 Public art

- The Central Area, Kings Hill Cultural Strategy, For Liberty Property Trust UK Limited by Futurecity November 2010 www.kings-hill.com

Public art is a specific way of using art in the urban structure, which actively involves the community. Wayfinding can also exploit art to implement a communication system which respects the peculiarities of the place and increases reference landmarks.
In particular, art can be useful in the creation of interpretive signs, since it may help generate new points of tourist interest that are linked to the local history and increase the quality of the urban space.

Additional Information and examples

The Hidden rivers project originates from a collaboration with poetess Julia Darling, which is aimed at making river Tyne tributaries, which flow beneath the city of Newcastle upon Tyne, resurface. Long metal strips on the paving present poetic passages following the course of the rivers with the purpose of strengthening the relationship between the city and its river. http://www.geograph.org.uk/snippet/591

C27 Sign frequency

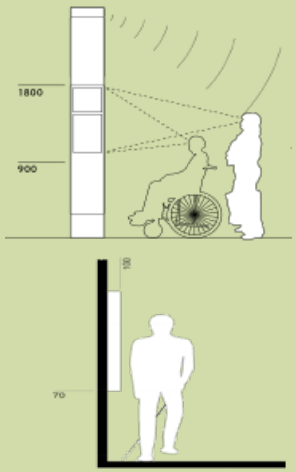
IMAP wayfinding strategy – planning process

The overall number of signs should be limited, yet a certain frequency is needed for the system to work.
In order to understand what the most suitable sign frequency is, it is important to study a basic map on which their precise location points and typology are marked.
The idea is to construct a system which is consistent with the users' needs, considering an average distance, for a rectilinear route, of about 30m between a directional sign and the other.
Sign frequency should also take into account:

- The direction of the pedestrian flow
- The size of the pedestrian flow
- The presence of rest areas
- The presence of bus stops, rail stations and car parks
- The possible elements (vegetation, store signs, etc.) that can hinder the view of the signs
- Factors that can be a danger for the users who are using the information and orientation system.

- Legible London, Foundation Best Practice Guidance, Transport for London http://www.tfl.gov.uk/microsites/legible-london/
- Apelt, R. and Crawford, J. and Hogan, David J. Wayfinding Design Guidelines, CRC for Construction Innovation, Brisbane 2007 QUT Digital Repository: http://eprints.qut.edu.au/27556

C28 Position



Signage, in the form of monoliths and fingerposts, should be perpendicular to the pedestrians' direction and fall within their field of vision. Moreover, it should:

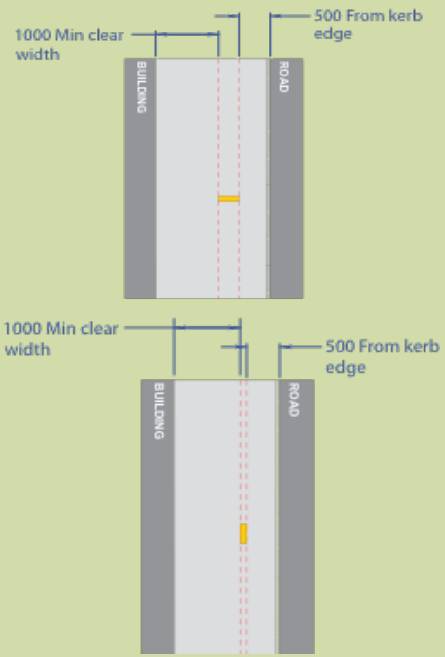
I. Be from 900mm to 1400mm high above the ground in order to make information and interactive systems accessible to people with disabilities.
II. Have a maximum height of 180 cm, if it has no interactive system
III. Be at a maximum distance of 10 cm from the wall it is set against, if it is located along a narrow pedestrian route .

Furthermore, directional information should be in the upper part of the sign, so that it can be easily seen even if there are people in front of it.

- Proposed Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way, CHAPTER R4:

SUPPLEMENTARY TECHNICAL REQUIREMENTS, United States of Access Board - A Federal Agency Committed To Accessible Design, July 26, 2011

C29 Sign locations



- Legible London, Inclusivity Report. Design Guidance, Transport for London, April 2010
- Legible London, Site-specific considerations for the placement of signs Transport for London, April 2010 http://www.tfl.gov.uk/microsites/legible-london/

The places to be considered for sign location are:

- Decision points
- Arrival/departure points
- Points within complex spaces, so as to assure continuous information along the routes
- Near civic or public buildings
- Well visible points

In general, considering the pedestrian route as divided into four zones:

- Kerb Zone
- Furniture Zone
- Footway Clear Zone
- Frontage Zone

signs are located in the furniture zone.
Thus, signs should be placed near the pedestrian flow, leaving the route free from impediments and, preferably, near existing light sources or, however, where an optimal lighting level can be assured.
In addition, signs should be detected by the visually impaired through embossed plantar tactile paving or through a change in the material or finish which can be perceived with their white cane.

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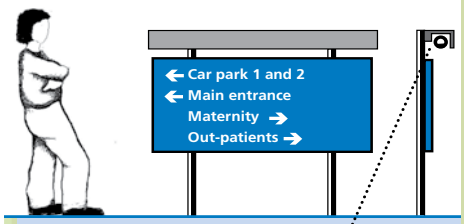
C30 Tactile ground surface indicators (TGSIs)

The embossed plantar tactile system, which is placed on the existing paving, provides information on the route and, if it is not part of a path, it indicates the exact presence and position of signage with audio systems and relief maps for the blind. They have a warning function for blind visitors and should be perpendicular to the pedestrians' direction so as to guide the visually impaired to the signs that, otherwise, they could not find.
They are generally made up of plastic material In a colour contrasting with the paving. Moreover, they should contain an attention/ service code consisting in close stripes perpendicular to the route and the service to indicate.

Location:
At relief maps and interpretive signs, with adequate systems for accessible information to the blind and the visually impaired.

- Apelt R. Crawford J. and Hogan D., CRC for Construction Innovation, Wayfinding design guidelines, Queensland Government Disability Services, 2007. www.construction-innovation.info
- www.logessystem.com/
- http://www.globalsafe.com.au/tactile_ground_surface_indicator.php
- http://www.cobbletac

C31 Lighting



Strip lights provide good constant levels of light

The level of artificial lighting of an urban environment affects the night readability of signs. Therefore, lighting is a key factor which should be taken into account during the wayfinding system design, since it encourages navigation by increasing safety in the afternoon and at night and highlighting the characteristics of the site.
The factors to consider when developing a lighting system are:

- The specific local weather, which affects the levels of natural lighting and, as a result, sign readability;
- The presence of polished surfaces used to make signs, which may limit legibility because of the reflections caused by direct natural and artificial light.
- Backlit lettering can be easily read at night, while they are less readable during the day
- The most suitable orientation of light sources on surfaces
- The choice of the architectural elements to be emphasized, which do not clash with

- NHS Estates, Information Design Unit of Enterprise IG, Wayfinding Effective wayfinding and signing systems Guidance for healthcare facilities, TSO (The Stationery Office), London 1999
- www.hfs.scot.nhs.uk/publications/wayfinding-v4.pdf

- directional and interpretive indications.

C32 Branding and marketing

Logo identifying a service and institutional logo of the city of Paris

Commercial and promotional brand of the city of New York

Symbol of the city of Den Hag for the recognition of pedestrian signs

- Symbol of the city of Den Hag for the recognition of pedestrian signs

Local identity is certainly a value.
The systems of local identity can be divided into three types:

- signs and logos, which make a place institutionally and municipally recognizable
- branding, which presents a service and/or a function of a territory in a visual and synthetic form and through widely recognized stereotypes
- brands, which are a form of communication of a product, of resources and values that can be used for the diversification, recognition and competitiveness of a territory that becomes the focus of a market strategy.

In particular, the choice of branding, of the most captivating logo, is crucial to the success of a specific service provided by the territory, such as in the case of the tourist signage system which has also to contain readable fonts and accessible information. In this case, the role of the logo is to give a positive interpretation of signs: visitors find their destination and easily recognize the reference system to move on foot.
In order to properly design a signage system, it is suitable to:

- integrate the logo in pedestrian signs
- create an identity with the specific place
- increase the recognition of tourist signs with a dedicated logo
- make the logo visible
- use a simple and immediate graphical language
- differentiate logos by colour, or by other elements, for different types of messages
- create a positive experience implementing a wayfinding system

Motto
Signage symbol
Message
Distinctive colour
Did you know that...
...the oldest wooden clogs of Holland dates from...
04
Tactile ground surface indicator
City's symbol
Braille language

3.3 *Producing City tells panel*

The second part of the last step provides further information for the production of the interpretive signs that are included in *City Tells emotional project*. All the information selected in relation to local history and identity is grouped according to 6 main types of messages, which are different in content.
The six types of messages correspond to as many types of interpretive signs, which can be distinguished for their general characteristics related to their motto, colour and symbol, as well as to the images, the communication systems adopted and location. Thus, the defined signs, placed in the strategic points identified during the phase of knowledge, and elements of street furniture are integrated to define different functions depending on the morphology of the place and on the type of information.

The City Tells emotional wayfinding project is characterized by different kinds of "tales", grouped into:

1 **LOST STORIES**	They describe something of the past of which there may still be some trace but that exists only in the memory of locals.
2 **STORIES OF CURIOSITIES**	They are anecdotes that make people laugh or be moved or show values and attitudes of the past which explain local everyday life.
3 **STORIES OF EVENTS**	Announcements of unmissable periodic events, such as typical markets, folkloristic events, etc.
4 **STORIES OF PLACES**	They are the stories behind the name of a square, a building or an element that characterize the city. They specify the reasons of their birth or the changes of look and use they have undergone over time.
5 **STORIES OF LANDSCAPES**	They tell the story of what the visitor is facing, of a view, of a natural and architectural panorama.
6 **FUTURE STORIES**	They describe what we are and what we will become. It is a vision of the future layout of the city and of the changes it will bring about.

The contents of the stories are the interpretive signs characterized by the specific features listed below:

CITY TELLS SIGNAGE

Typology	Lost - stories	Stories of curiosity	Stories of events	Stories of places	Stories of landscape	Future-stories
Motto	*"Once upon a time…"*	*"Strange but true…"*	*"Unmissable…"*	*"Did you know that…"*	*"Inside the story…"*	*"What we are like and what we'll be like…"*
Distinctive Symbol (Use symbols related to the message)						
Distinctive colour						
Message	Short stories on places, spaces or buildings that do not exist anymore	Short anecdotes on customs, traditions and local products, or typical expressions, on the flora and the fauna	Short information about periodical events or unreported characteristic places, etc.	Short stories related to the origin of the city, to historic buildings, statues, etc.	Short descriptions of naturalistic and architectural views	Short descriptions of projects for the future change of the city
Image (Use photographs that are clear, engaging, and interesting.)						
Communication system	Radio Frequency IDentification Embossed plate with legend and Braille Sensory clues Videos QRCode Audio tour Cell phone tour Virtual and augmented reality	Radio Frequency IDentification Sensory clues Audio tour Cell phone tour Braille	Radio Frequency IDentification Sensory clues QRCode Audio tour Cell phone tour	Radio Frequency IDentification Sensory clues Embossed plate with legend and Braille Audio tour Cell phone tour Virtual and augmented reality	Radio Frequency IDentification Sensory clues Relief maps Audio tour Cell phone tour	Radio Frequency IDentification Embossed plates Sensory clues Fotorendering 3D reconstructions Videoclip Audio tour Cell phone tour QRCode Braille systems Virtual and augmented reality
Tactile ground surface indicator (Use tactile paving surfaces)						
Location	at the place	at places connected with anecdotes	near the place where the periodical event takes place	in squares, near historic buildings, routes, etc.	near and in front of panoramic points and views	near the project locations
Furniture	Benches Litterbins Telescopes	Benches Litterbins	—	Benches Litterbins	Benches Litterbins Telescopes Public toilets Pic-nic areas	—

Furthermore, attention should be particularly focussed on the narrative speech, which is typical of "**City Tells**" interpretive signs. It should follow the following principles:

- ***narrative sequencing*** (the order of a story may not reflect either the chronological sequencing of real events, or the contingency of cause-effect relations);
- ***specificity*** (highlighting those details that may appear as little or non-significant in the reality);
- ***awareness;***
- ***verisimilitude*** (of narration in relation to the story);
- ***composability*** (interweaving of the various parts of the narration and its composition);
- ***referentiality*** (referred to how plausible the story is);
- ***belonging to a genre*** (story and plot must be clearly identifiable).

In order to catch the attention of and involve the audience, the narrative speech should:

- Address the reader in the first person
- Use active rather than passive verbs
- Use metaphors, analogies and comparisons
- Use humour, poetry and prose to make the narration more interesting and captivating

Finally, City Tells signs also use all the rules defined above for orientational, directional and informative signs, even though, considering the composition of the message to convey, it is suitable to adopt different text sizes depending on the importance of information.
In particular:

Headlines 12mm, 60-72 points
Sub headings 8mm, 48-60 points
Body text 5mm, 24 points
Captions 5mm, 24 points

What size should your font be?

Follow these guidelines and your panel should be easy to read at an approximate viewing distance of 3m (10 ft) or less:

For titles: 60-point minimum.

60 point example.

For subtitles: 48-point minimum.

48 point example. 48

For main text: 36-point minimum.

36 point example. 36 point

For captions: 24-point minimum.

24 point example. 24 point example. 24 point

General rule: Too many sizes of fonts on one panel can make your text look confusing. Use no more than four sizes of the same font on a panel.

Fig. Suggested minimum sizes
Source: TOURISM DEVELOPMENT How-to Guide, Outdoor Interpretive Signage. Guide to Connecting People & Places, Her Majesty the Queen in right of the Province of Nova Scotia, 2008 http://www.gov.ns.ca/tch/tourism/tourism_ devguides.asp

Signs have the purpose of "modifying" the route connecting a departure point with the main tourist destination, thus creating an alternative "thematic path" based on the visitors' needs and tastes. A few examples include the relaxation path for elderly tourists, or the recreational and educational paths for children, or the romantic path full of charm for couples. That is why it is important to develop an information programme to promote networks of existing tourist routes as well as the various opportunities offered by the territory.

WHAT
IS THE
CITY
BUT
THE PEOPLE?
E. WEBB
FICE BUILDING
X AVENUE

7. Conclusion

The importance of evaluation

Therefore,
"*What makes a good city?*"
"*Can the City Tells project make a city a good city?*"
To answer this last question, it is clear that an evaluation of the effectiveness of the whole design system, by a prototype to be installed in an urban area, plays a fundamental role.
Nevertheless, to acquire any "lesson learnt" useful for improving the performance of the project, considering both the specificities of the territory and the preset objectives, it is necessary to involve local authorities and community in this phase each time.
In fact, the City Tells project, providing, rearranging and renewing mechanisms of design process for wayfinding in minor historic cities, should be considered as a flexible and upgradeable tool which adapts to local specificities.
As a matter of fact, it can be asserted that the application of its own specific "emotional" approach, contributes to improve urban quality by triggering processes of preservation of all those assets, tangible and intangible, to use in a sustainable way for the tourism market and for the development of local economies.