



# Reasons to Research in the Mediterranean Area



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International, peer-reviewed,  
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### **PAD**

via Festa del Perdono 1  
20122 Milano – Italy  
via Roma 171, 90133  
Palermo – Italy  
info@padjournal.net  
editors@padjournal.net

### **Publisher**

Aiap Edizioni  
via A. Ponchielli 3  
20129 Milano  
aiap@aiap.it  
www.aiap.it

Pad © ISSN 1972-7887  
#14, luglio 2018

[www.padjournal.net](http://www.padjournal.net)

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# A Human Centred Design integrated approach for the inclusive valorisation of Mediterranean UNESCO Cultural and Natural Heritage

Paola Barcarolo, Polytechnic Department of Engineering and Architecture,  
University of Udine, Italy

Emilio Rossi, Department of Architecture, University of Chieti-Pescara, Italy

## Keywords

UNESCO, Mediterranean Heritage, Human-Centred Design (HCD), Communicative Solutions, Visual Impairments and Deficits

## Abstract

The valorisation of Mediterranean UNESCO Heritage can be intended as a complex set of design strategies, even communicative, which allows to understand those values universally recognised as the highest form of human *genius loci*, or the everlasting moulding action of nature. While communication design is still considered as a minor aspect in such domain, it is believed that it can help all visitors to catch the Heritage's essence beyond its aesthetics. The new holistic idea of human, which evolves from the notion of *customer* to *active person* in the global market scenario, suggests a radical change in the design paradigms, allowing to develop an integrated HCD-based (Human-Centred Design) approach that considers the communication factors between end-users and artefacts as a fundamental element to the inclusive valorisation of Mediterranean UNESCO Cultural and Natural Heritage.

## 1. The value of UNESCO Cultural and Natural Heritage in the Mediterranean area

Within the design discipline, the valorisation of Mediterranean cultural and natural heritage has recently acquired a new strategic relevance and scientific interest (Barcarolo, 2017); both as regards the processes of conservation and sharing of artistic, historical, anthropological and cultural memories of sites and buildings, and, as regards the opportunities introduced to develop new technologies and advanced processes aimed to enable end-users to visit and the enjoy the heritage. Through the term *heritage*, we can include a large number of material and immaterial assets having a high collective value (Falser, 2015). Accordingly, it is possible include under this umbrella-term both cultural assets, namely those artefacts that mostly represent the magnificent expression of human legacy and its *genius loci*, and environmental assets, those extraordinary natural landscapes that are the result of the everlasting moulding action of natural phenomena. In terms of Heritage's intrinsic value, since 70's, the extension from the local dimension to the global one, characterizes a specific category so-called UNESCO Heritage. In 1972, the UNESCO *Convention Concerning the Protection of the World Cultural and Natural Heritage* (UNESCO, 1972) defined its heritage as the whole of all material and immaterial, natural and cultural assets, whose immense value is universally recognized as belonging to everyone and, therefore, of property of the present and future world populations. The will to include future generations in the enjoyment of existing heritage alludes to two specific meanings: the first one concerns the will to preserve and increase the historic memory, the environmental condi-

tion, and the social impacts of sites; the second one, which is close to the idea of Sustainable Development, concerns the protection policies and the future enjoyment of the assets, in their present-day conditions.



**Figure 1.** Mediterranean UNESCO Cultural and Natural Heritage (UNESCO WHC, 2017). Sites at risk or threatened are shown in red colour.

In the Mediterranean area, the existence of a large number of UNESCO sites (Figure 1) allows to understand the value that the organization assigns to this specific geographic area that, throughout centuries, shaped the economic and historical culture of the Western world. Moreover, there are new additional economic issues that the Heritage is able to generate, being able to stimulate the local economies in the development of a set of advanced services concerning the territorial branding, tourism, scientific visits like archaeological expeditions or eco-touristic champagnes. On this matter, some recent studies (Pedersen 2002; GHF, 2010; UNESCO WHC, 2013) demonstrated that in the Mediterranean area, to be more precise in

those areas economically disadvantages, a single UNESCO site can produce a profound evolution on the local economic conditions, evolving, as a consequence, the quality of life in the surrounding areas through sustainability-based matrix of development (Table 1).

World Rank	Site	Country	Total Visitors	Domestic Visitors	Internat. Visitors	Annual Revenue (\$)
3°	Memphis and its Necropolis	Egypt	5.000.000	400.000	4.600.000	936.000.000
5°	Historic Cairo	Egypt	4.000.000	1.400.000	2.600.000	576.000.000
6°	Ephesus	Turkey	3.500.000	800.000	2.700.000	572.000.000
7°	Dahshur	Egypt	3.000.000	400.000	2.600.000	536.000.000
15°	Abu Simbel	Egypt	2,000,000	500,000	1,500,000	320,000,000

**Table 1.** List of five most visited UNESCO Sites in the Mediterranean area, with data on annual visitors and revenue, 2010 (GHF, 2010).

## 2. Intrinsic problems of the strategies for the communicative valorisation of Heritage

Since 2000s, the constant increasing attention that the United Nations have shown toward the new idea of human has emphasized the central role of people. Using a new holistic point of view, this new idea has been intended as positive. Despite the efforts made by the various working groups, only few years ago the design interventions for the valorisation of Mediterranean Heritage has been taken into account by those International Agencies and Committees working in the field of tourism, culture, health, human rights and, finally, from the design community. On this matter, the literature (Fed-erparchi & FISH, 2003; UNWTO & Fundación ACS, 2015;

UNWTO, 2016) proposed a number of different interventions mainly focused on the built environments, using three main trajectories:

- The *accessibility*: the possibility to access to sites and/or service spaces using fixed or flexible solutions placed in the gates and in the thresholds.
- The *visitability*: the opportunity to autonomously visit the sites using fixed or flexible solutions arranged along the crowded routes and/or in services spaces.
- The *adaptability*: the possibility to act in the environments to improve the level of visibility and/or accessibility.

While these notions have introduced an evolution of design paradigms toward a vision more adherent to the needs of real end-users, the design culture maintains a *classic* point of view that stereotypes the human psychophysical condition trivializing all design interventions, mainly those revolving around the spheres of disabilities, handicaps and, in general, the dimension of human diversity (Barcarolo, 2017).

However, it is interesting to note that the communicative elements of these projects are still marginally considered, or, they are still merely considered only for promotional, safety and marketing-related issues. All relevant communicative aspects directly linked with the branding strategies, the learning of information (cultural and/or natural), the experience of end-users and, finally, all solutions aimed to improve the quality of touristic offer, are not taken into account with attention.



Considering more in depth the issue of communicative valorisation of Cultural and Natural Heritage, there are two additional problems, which are relevant. The first one concerns the interpretation of conditions of end-users with sensorial-perceptive disabilities (i.e. blind), and their needs to access and pleasantly enjoy the Heritage; the second one concerns the traditional, erroneous, *visual-centric* meaning that a communicative solution demonstrates, in terms of design culture, compared to the visual disability issues. It follows that, in general, a large number of designers don't analyse needs, desires and psychophysical condition of people affected by sensorial-perceptive disabilities during the acquisition of information. Accordingly, the main problem introduced by these issues is the need to understand a complex human psychophysical condition, which affects the whole touristic visit experience. Moreover, an additional issue concerns the proper grade of analysis, in design phase, of end-users' needs. Many studies on this topic (Barcarolo & Rossi, 2013) and some authors (Bandini Buti, 2008) recommend to leave the classic *user-centred* approach toward a more holistic *inclusive-oriented* one, as a better way to understand latent end-users' needs and their real psychophysical characteristics. In communication, this implies an evolution of project's conventional elements to make flexible and resilient the design solutions for real stakeholders' needs and the environment where such solutions have to work. Finally, a last issue concerns the level and the quality of communication compared to the creation of a proper visit experience of sites (Ogleby & Kenderdine, 2001). This last element allows to point out two additional elements useful to understand all difficulties related to design enabling communica-

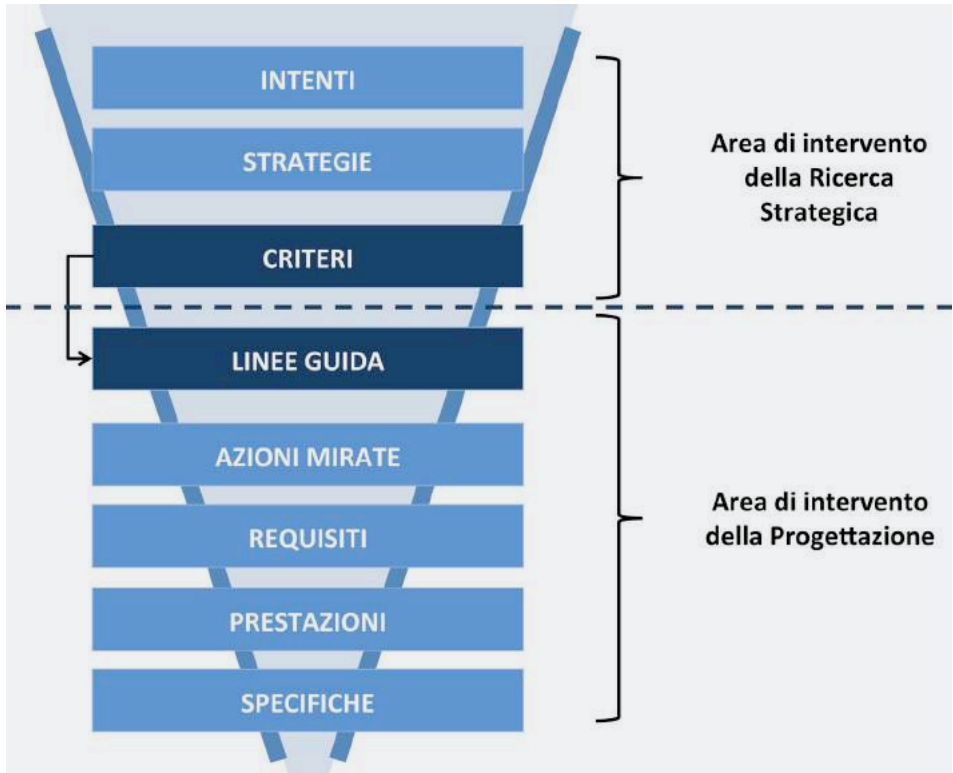
tive solutions aimed to make easier the use and the fruition of UNESCO Heritage, which are also valid for the Mediterranean area:

- *The active participation of end-users*, before, during and after the use of the communicative solution, developed for end-users with visual disabilities. The solution must be perceived as an element with intrinsic values, rather than a medical prosthesis imagined for disadvantaged people. Using simulation trials, interviews and co-design approaches with stakeholders, it is possible to add major qualitative results to the project, increasing the quality and the impact of all solutions.
- *The enabling autonomy*, which stimulates the active participation of end-users to learn information presented through the communicative solution. For people with disabilities, the existing gap between common solutions and ad-hoc ones, often, doesn't allow to get a pleasant visit experience, which empower the abilities of people; this because they are not designed considering the real needs of visitors.

The development of enabling communicative solutions for the inclusive valorisation of Mediterranean UNESCO Cultural and Natural Heritage needs a new analytical and design sensibility, which should not be addressed toward the mere consideration of standard end-users. A new holistic design approach is needed, which must be oriented toward the Social Inclusion, allowing researchers, designers and stakeholders to meet the real end-users' needs and desires, giving them a new deeper and rich visit experience.

### 3. Toward a Human-Centred Design approach for the inclusive valorisation of Heritage

Some important authors (Papanek, 1983; Margolin & Buchanan, 1995) affirm that one of the most important elements characterising the Design Research is its ability to interpret the existing phenomena to develop proactive solutions able to be flexible at the various scenarios and, at the same time, to be resilient on the evolutions of context where they are placed. Moreover, these authors affirm that the efficiency of such solutions is higher when they work at macro-levels, rather than on the micro-ones.



**Figure 2.** Design layers and level of intervention of the Research (Barcarolo, 2017).

To meet the evidences before described, this research has recognised the need to adopt an integrated Human-Centred Design (HCD) approach for the inclusive valorisation of UNESCO Cultural and Natural Heritage. In fact, for the specific purposes of this research, the HCD approach has been recognised as the one able to develop dialogic tools, usable by designers, to interact with stakeholders. Accordingly, the study here presented (Barcarolo, 2017) focused the attention on the development of Design Criteria and Design Guidelines intended as the best outcomes to meet and connect both strategic phases and design ones (Figure 2).

The study (Barcarolo, 2017) has identified four main Parameters that have been used to develop the HCD framework, listed as listed below:

- The haptic inclusive communication for the fruition of Heritage.
- The human diversity and the understanding of potential end-users.
- The digital survey of Heritage, including the analysis, the geometric optimization of shapes and the parametric digital modelling of mathematical surfaces.
- The production of communicative solutions through prototypes – even 1:1 – made with industrial production techniques (i.e. 3D printing).

A general workflow (Table 2) has been developed in the first research stage; it is composed by Phases and Design Criteria that show the various actions that must be take into account to

design and produce enabling communicative solutions usable for the valorisation of Heritage.

Workflow (Phases)	Design Criteria
Understand the existing condition.	1. Analyse the current communicative solutions (if existing).
	2. Understand the existing communicative-environmental conditions.
Design of the communicative solution.	3. Understand the limit end-users using a holistic approach.
	4. Surveying and modelling the elements to be communicated.
	5. Develop the inclusive project in (systems of) enabling communicative solutions.
Produce the communicative solutions.	6. Implement the system of enabling communicative solutions.

**Table 2.** Relation between Workflow’s ideal phases and Design Criteria (Barcarolo, 2017).

Later, the Design Criteria have been developed into a detailed framework containing fifteen Design Guidelines. If compared with Criteria, Guidelines are more focused on the design aspects (Table 3, next page), giving more completeness to the enabling communicative solution for the valorisation of Heritage, and considering, with more responsibility, the HCD approach.

Design Criteria	Design Guidelines
1. Analyse the current communicative solutions (if existing).	1.1. Analyse the quality and the characteristics of the existing communicative project (if existing), showing all critical elements and negative aspects compared to the themes of Social Inclusion.
	1.2. Analyse the effectiveness, the perceived satisfaction and the efficiency of the existing communicative project (if existing) compared to the characteristics of end-users.
	1.3. Analyse the layout and the environmental relations of the existing communicative project (if existing).
2. Understand the existing communicative-environmental conditions.	2.1. Understand the social, cultural, environmental and economic conditions within which the new inclusive communicative project will work.
	2.2. Understand the dimensional, spatial, proxemic and anthropometric relations for the new inclusive communicative solution.
3. Understand the limit end-users using a holistic approach.	3.1. Understand real end-users' needs (i.e. primary, secondary, explicit, implicit).
	3.2. Understand the real end-users' psychophysical and cognitive-behavioural characteristic.
	3.3. Understand the end-users' residual abilities to design enabling solutions.
4. Surveying and modelling the elements to be communicated.	4.1. Surveying the items chosen to implement the new inclusive communicative solution.
	4.2. Modelling the subject to implement the new inclusive communicative solution considering the real end-users' characteristics.
5. Develop the inclusive project in (systems of) enabling communicative solutions.	5.1. Conceive an integrated design strategy to develop a new integrated communication of subject(s) to be represented.
	5.2. Develop detailed enabling communicative solutions considering the collected data concerning the end-users and the environment on which they will operate.
	5.3. Verify the enabling communicative solutions using appropriate groups of stakeholders to test and add more value to the design decisions already taken into account.
6. Implement the system of enabling communicative solutions.	6.1. Produce the system of enabling communicative solutions using sustainable industrial production systems, which allow to accurately replicate data and shapes chosen in the design stages.
	6.2. Situate the system of enabling communicative solutions in the environment considering relevant parameters, such as: visibility, accessibility, autonomy, usability and pleasantness of use.

**Table 3.** Implementation of six Design Criteria and development of fifteen Design Guidelines (Barcarolo, 2017).

## 4. Conclusions

The aims of this study were addressed to the valorisation of UNESCO Heritage, even Mediterranean one, though the development of communicative solutions for a small group of potential end-users affected by sensorial-perceptive deficits. These people, today, are not well considered and included in the design processes and in the systems of territorial valorisation of Heritage that, in the Mediterranean area, express a great potential in terms of local and economic development. The study here presented introduces new relevant advances for the scientific-design knowledge - i.e. literature - in the field of the valorisation of UNESCO Cultural and Natural Heritage; it also demonstrated that it is possible to connect the need of visual enjoyment and visual fruition of Heritage with the design of communicative solutions conceived for this scope. Finally, the paper demonstrates that it is possible to approach the issue of the valorisation of Mediterranean UNESCO Heritage through the study and the development of innovative communicative solutions able to exceed the visual-centric design culture adopted till now, which can empower the touristic and economic offer of Mediterranean countries, where the number of Cultural and Natural sites demonstrated the importance of this topic.

## Credits

This paper is the result of the work of both authors; to be more precise, Abstract and the paragraph entitled *The value of UNESCO Cultural and Natural Heritage in the Mediterranean area* have been written by Emilio Rossi, the remaining paragraphs have been written by Paola Barcarolo.

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