# Experiences in management of information concerning the planning of architectural barriers' overtaking
## The case of Careggi general hospital in Florence

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**Abstract.** Since 1986, in Italy public administrations are obliged to provide special projects of action in order to plan the architectural barriers' overtaking. The 104 national law in 1996 confirms and renovates the necessity of giving a structure to a planned activity in order to guarantee proper resources to gradually eliminate obstacles and impediments detected in buildings. Thanks to this law, now the P.E.B.A. (plans of elimination of the architectural barriers) concerns not only singular buildings but also each links of ways and transports which creates a chain of functions and services in urban space; therefore these plans gain the main position in the architectural barriers' overtaking in a urban context.

**Keywords:** monitoring, accessibility, architectural barrier, usability, disability.

## 1. Introduction

The quality of life in a urban area has been defined in several ways; the capability to satisfy different requests in a wide range of users could be an indicator able to measure one of the factor which can concerning the amount of hospitability of the urban area. It is possible to state that more an area is able to offer an accessible net of elements, more it is able to assure a high quality of life.
From this point of view, every city needs to concretize the right of autonomy and independent life. Regardless of permanent or temporary individual conditions, the wide range of elements composing the urban area could be treated in order to receive the set of signs, meanings, functions and transformations which every city assumes.
This abstract aims at describing to administrations an operative methodology as a guide for the redaction of intervention acts concerning the improvement of accessibility and usability's levels in urban areas, according to "design for all" parameters.

## 2. Approach Methodology

We are going to show a methodology of redaction of plans of architectural barriers' overtaking which was born thanks to the experiences of Arezzo, Pisa and Viareggio

public administrations and to the studies on accessibility monitoring in Prato and Florence.
By an approach concerning numerous needs and services, these experiences have analysed processes and methods which are able to verify the level of environment's quality (in terms of usability improved by a wide range of needs), urban spaces considered as a sum of circuits (roads, squares and infrastructure of public transportation) and destinations (public or private building addressed to people). The main purpose is to apply the proper knowledge in order to promote the applications of planning which can attenuate the "conflict" between men and environment. It is important to define the intervention plans according to the laws in force and to the good procedures realized thanks to the comparison to real persons.
These studies refers to the "International Classification of Functioning, Disability and Health" (ICF), edited by the World Health Organization in (OMS) in May 2001. It guarantees a disciplinary approach based on the research of the relationship between members of "corporeal Functions and Structures" and "Activities" relating to "Environmental Factors", which can establish the causes of stress in the Men-Environment relationship.

## 3. Description of Realisation's Process

Thanks to the themes' development and the new definition of disability and architectural barriers, recently, several initiatives concerning the architectural barriers' overtaking, were born. In this context the P.E.B.A. becomes an instrument useful to control the complexity of the information used for the planning of interventions.

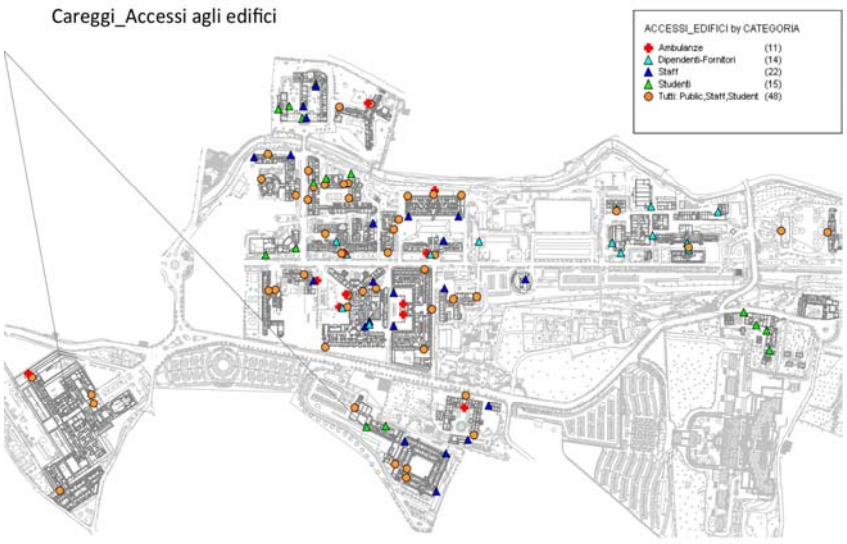


Fig1: Map of pavilions in Careggi general hospital.

According to a holistic approach, this complexity is due both to the number of elements which constitute the problem and the eventual links between them. National legislation has found further developments and deepening in regional contexts; it advices different strategies and applications for each case, but the general strategy of intervention is always the planning instrument.

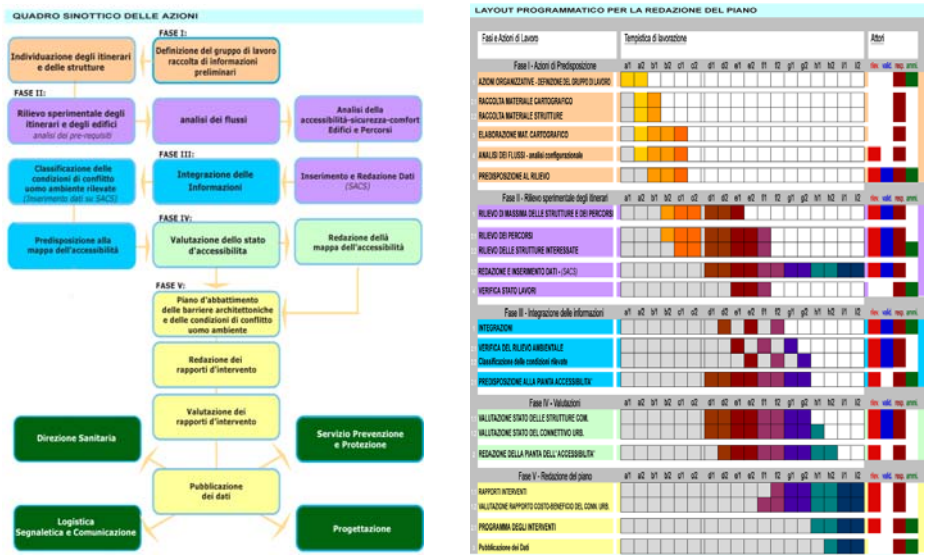


Fig2 Diagram of the realisation's process

According to the Health department of Tuscany, we have used this knowledge in municipal context in order to create a P.E.B.A. for the Health Service A.O.U.C. (university health service of Careggi) in Florence. It happened in the context of convention for the monitoring (called "LAB.Mon"), the program of building property's restructuring by Health Service and University of Florence, in particular by T.A.e.D. department (Architecture and Design Technologies of College of Architecture) and D.E.T. department (Electronic and Telecommunication of College of Engineering).

The realisation's process is articulated into 5 main stages, from the relief to the results' publication.
The first stage focus on the organisation of the preliminary step required for the plan redaction. Thanks to theese analysis about architectural barriers, have been discovered; the areas and streets, where crossing, adaptability, accessibility, visibility, usability and safety in urban area are minimum. We have identified the connective ways which link the most important poles and junction and we have searched general information about housing and urban areas and their functional and servicing context.
The second stage focus on the environmental relief by a observation's methodology. It is based on the analysis of space's continuity and it is made with a series of support which are organized in 3 groups of main information (typologies, facilitations and man-environment conflicts). This analysis owns the connotation of Environment Relief

defined as *"the relief of users' needs and expectations associated with the relief of places where they carry on their activities"*. The environment relief is a knowledge instrument which refers to post-occupational procedure (POE) used for the evaluation of performance's responses of a atrophic area in use to the users' needs.

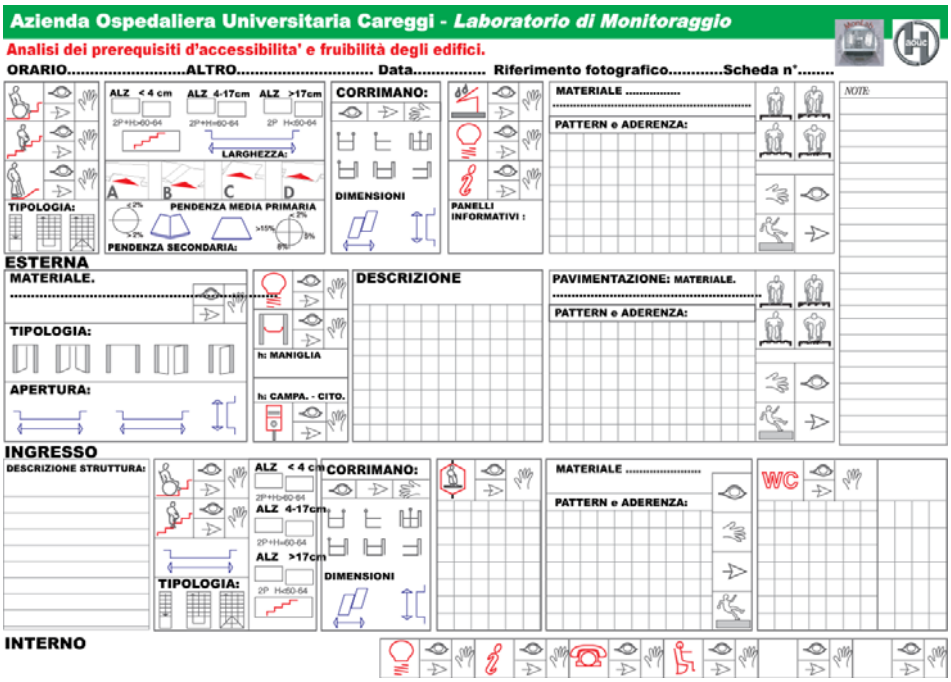


Fig 3. An example of analysis schedule.

During the third stage we have analysed relieved structures and ways; at the end we have drafted the accessibility map; it means the synoptic view of data obtained. They are valued according to the normative in use for housing and to accrediting profile for the social assistance structures relieved.
The data has been organized in informatics supports able to contain their heterogeneity (metric and photographic reliefs, films, textual notes). The aim is to put the relief into a context of *"pool management"* which manages the information about the functional departments of administrations engaged by increasing the "local databank" and laying the foundation to the monitoring actions.

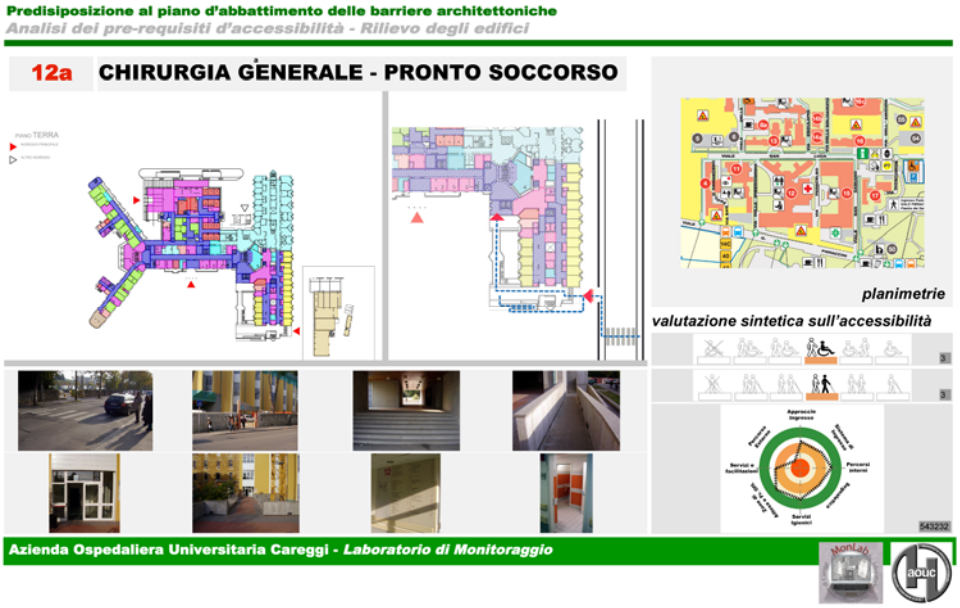


fig 4: An example of a synoptic schedule.

In particular we have relied on S.A.C.S. (System of Analysis of Structural Consistencies), realised by LabMON in order to manage the information useful to the planning of transformation and management actions having reference to the building management. The system is based on Autocad, a software custom which drives, manages and analyses, by an automatic procedure, the digital buildings' plan. They have been encoded properly on specific layer, using polilines encoded by particular chromatic codes and by entities linked to the nature of the draw. In addition to data of structural quantities (in square or cubic metre), these information are encoded in homogeneous systems, classified in environment or group of environments selected on the basis of affiliation, purpose and equipment. We have reunified the information about space's equipments in term of purpose, homogeneous functional areas, structures in use and number of units with reference to every single room composing the property of 25.000mq divided into 18000 rooms which compose Careggi's building.

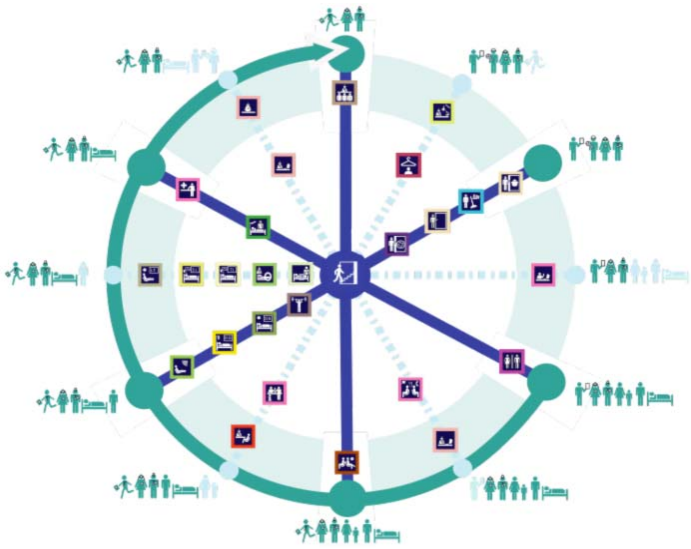

fig 5 Analysis of accessibility subdivided for room and users.

In the particular case of accessibility, the information about the structural indicators have been implemented; the evaluative parameter of performance were information classified according to adequacy of every single room divided on basis of users' class and usability.

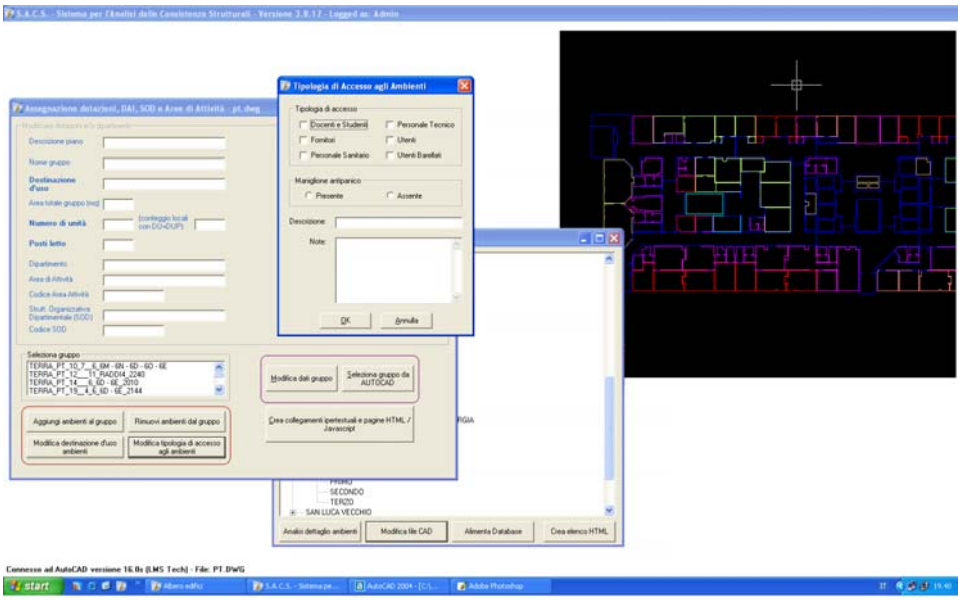


Fig 6 Insertion of Conformity Degree for Specific Requirement.

In the fourth stage of realisation of P.E.B.A., in the works, we are creating supports necessary to administration in order to plan the activities in terms of *continuity and functionality of an integrated system of accessible spaces' supply*. These operative plans, in an intermediate range, have a three-years elaboration and come with priority's list.

In addition to these interventions, "micro-problems" have been analysed; they often interrupt complete usable stretches. The first draft of localized interventions concerns some point works which can heal situations often really difficult, in terms of safety, and manage the possible solutions in order to give birth to a *pre action* able verify the planned solutions.
At the end of this work the data will be published, in order to create informatics instruments which can help to choose a priori the way in which access to the net of offered services.

## 4. Conclusions and Developments.

Starting from the experience with complex organism, as the municipal administration of the case proposed, the P.E.B.A. has been applied to a set of functions with specific typological characteristics as the social assistance activities ones.
In this case, the plan of architectural barriers' overtaking has taken a meta-planning value; it means a methodology which can activate coordinated procedures in order to carry out actions of lessening of man-environment conflicts relieved. The evaluation process becomes one of the components of qualitative aspects of environmental parameter for socio-sanitary offer. Therefore it will be necessary improving the range of data managed by joining the physical and sensorial ones to the quantitative ones. They concern the quality understood by the users and the management's costs, in order to create and achieve the difficult equilibrium between cost and benefit which concerns more and more public and private institutions.

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