

Plans for the Removal of Architectural Barriers (PEBAs) from a UD Perspective. An Interdisciplinary Process in the Italian Region Friuli Venezia Giulia

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Abstract. It is more than thirty years since the Italian Law introduced the Plans for the Removal of Architectural Barriers (PEBAs). However, their implementation by municipalities is still limited, and accessibility is often understood as the result of the elimination of single physical obstacles, rather than the development of interconnected systems of urban spaces and collective equipment that are usable and inclusive according to Universal Design (UD) criteria. Since 2018, the Italian Friuli Venezia Giulia Autonomous Region has started a collaboration with the Universities of Trieste and Udine, in order to bring UD at the core of the implementation of the Regional Law no. 10/2018. This Law introduced significant innovations: the disposal of regional funds to support local administrations when drafting PEBAs; the delivery of a software application to facilitate the drawing of these plans; the establishment of a reference center in charge of training, information and consultancy activities on accessibility at a regional level (CRIBA); the delivery of a regional observatory for mapping and continuous monitoring of accessibility conditions and the implementation of PEBAs. The paper presents: i) an overview of the interdisciplinary work carried out by the Universities with the Region and CRIBA; ii) a focus on Universities' research activities and the current state of the collaboration process; iii) reflections on further research and its operational outcomes.

Keywords. Plans for the Removal of Architectural Barriers; Universal Design; Public Policies; Urban Planning and Design; ICT Decision Support Tools

1. Introduction. Accessibility as a Driver for Integrated Approaches

Moving across urban spaces autonomously is becoming an increasingly hard task for everyone, especially for the most fragile citizens. Many physical obstacles prevent an extensive use of streets and squares, parks, schools, social and health care services, public transport hubs, and cultural equipment. These barriers can be of different types: motor impairment, sensory, cognitive, to orientation [1]. However, accessibility should be addressed not only with the purpose of eliminating single spatial criticalities, but with the broader goal of creating urban environments that are “usable by all people, to the greatest extent possible, without the need for adaptation or specialized design”,

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according to Universal Design (UD) philosophy [2], and with the aim to foster social practices and inclusion [3].

Although accessibility is currently recognized as a requirement of building and planning regulations across Europe, its enforceability is often limited. In Italy, efforts are mainly focused on solving problems on a punctual scale rather than in an intersectoral way and at an overall city level. One of the biggest challenges for the redesign of urban spaces as “accessible for all” thus concerns a deep cultural change.

Many Italian local administrations still adopt an approach to urban planning and design that follows the so-called “silo model”. This situation makes it difficult not only to integrate different policies, plans, regulations and spatial interventions [4], but also to improve the communication between the information systems and data management tools that are used by different administrative sectors (e.g., for education, health, public transport, housing), and levels (from the municipal to the regional one) [5]. As a result, the joint work and synergies among a variety of public action’s fields that a holistic approach to accessibility to collective spaces and equipment calls for are rarely pursued. Another critical issue refers to the lack of systematization and dissemination of good practices: when single experiences remain isolated, they do not have the potential to upscale and prompt other ones to follow. In spite of the attempts to fill in this knowledge gap on a national scale [6], further work needs to be done towards keeping information updated and effectively shared on the territorial and local scales.

Since the end of the '80s, the instrument that in Italy allows municipalities to intervene with respect to accessibility is the Plan for the Removal of Architectural Barriers (PEBA) (national Laws no. 41/1986, 104/1992) [7]. PEBA is a sectoral tool, specifically conceived to detect and eliminate physical obstacles in a specific area, with reference to public buildings and open spaces (e.g., streets, squares, parks, gardens, urban furniture, collective equipment). PEBA is addressed to coordinate major spatial interventions for enhancing accessibility conditions, according to a process structured in different steps: from the survey of obstacles, to the definition of solutions for each detected barrier, of their costs and priorities, up to the monitoring of their implementation. PEBA's are compulsory by law, but many Italian local administrations still have not adopted this tool [8]. The absence of an up-to-date census of PEBA's does not help identify the precise reasons for this situation. However, the lack of application of sanctions (even though established by the national regulations) and funding concur to make accessibility issues largely underestimated by urban policies.

In the recent years, some administrations have committed to inverting this trend, by adopting the principles of the *UN Convention on the Rights of Persons with Disabilities* (2006) and the *European Disability Strategy 2010/2020* (2010), and by promoting the use of a broader and inclusive interpretation of accessibility within urban planning and design. This article discusses an institutional initiative that is proceeding towards this direction. Since 2018, the Friuli Venezia Giulia Autonomous Region, located in Northeastern Italy, has started a set of actions aimed at encouraging a concrete application of “accessibility for all” issues. Main beneficiaries are municipalities, that now can count on the financial and methodological guidance and support of the Regional Government and Offices. The purpose is not only to change procedures, but also to foster an integrated design attitude. The focus is on providing PEBA's with a new form and role, by understanding this tool not only as a program for the removal of architectural barriers, but as a fundamental component of general planning instruments and spatial interventions for cities’ regeneration in a UD perspective.

2. Methodology and Objectives. Building a set of Decision Support and Dissemination Tools

Since 2009, the Universities of Trieste (UNITS) and Udine (UNIUD) have been engaged in joint initiatives addressed to investigate and disseminate the issues of environmental accessibility through research activities, training of future professionals, and support to institutions and the civil society. The Regional Council of Associations of People with Disabilities and their Families (CRAD), and the Regional Information Center on Environmental Wellbeing (CRIBA) are two other fundamental actors.

In 2018, with the promulgation of the Regional Law no. 10, *General principles and implementation provisions on accessibility*, CRIBA became the reference center for accessibility at the regional level. This Law not only enforced the implementation of PEBA's, but also (and for the first time) decisively introduced UD as a criterion for urban planning. In general terms, the assumption is that disability should not be interpreted as the condition of single individuals, but as the outcome of the daily interaction with a living environment that is more or less able to enhance their motor, sensory, and cognitive potentials. In a stable or permanent way, these capabilities change for everyone, in the different phases of their existence.

The Law no. 10 set the start of the project *FVG Accessibile* (Accessible Friuli Venezia Giulia), where the composite institutional partnership of the Regional Office for territorial policies, UNITS, UNIUD, and CRIBA found stable collaboration. Promoted by the Regional Government, this project understands accessibility to urban spaces as a driver for making cities more equitable and inclusive. Within a long-term vision, and under the umbrella of *FVG Accessibile*, the process underway addresses some key goals:

- to improve the quality of urban design and public works through solutions that are not conceived for a specific type of user (and disability) but are designed for everyone;
- to support place-based approaches and adaptation of planning methods and tools to different situations;
- to promote processes where the expert and every day knowledge of institutional actors, professionals and citizens intertwine in the different steps of a PEBA's definition, not only during presentations of already developed proposals;
- to systematize and to disseminate the good practices that will be developed in the region, in order to promote a continuous "learning by doing" process by all the actors involved.

The proposed methodology is: i) *participatory and interdisciplinary* (it engages different subjects in co-design, co-building and co-validation of PEBA's, also providing the organization of a series of activities for training and sharing of experiences among researchers, institutions and technicians); ii) *systemic* (it is based on the selection and prioritization of interventions with a view to integrated renewal of open spaces and collective equipment); iii) *intersectoral* (by conceiving accessibility as a cross-cutting issue, it calls for strong cooperation across different local government' sectors, scales and areas of intervention).

The activities of *FVG Accessibile* are currently focusing on the delivery of a structured set of Decision Support and Dissemination Tools. To date, these tools (either developed or underway) are: *Guidelines* to orient the elaboration and implementation of a PEBA; a *Software Application* to help administrations and professionals in the construction of the plan; a *Library of Solutions*, as a system of normative references, design criteria and examples from realized plans and urban interventions, to be further

implemented over time. Moreover, the testing of the Software Application with some municipalities and technicians is starting, with the aim to promote its improvement and future use. The final objective of the Regional Office is to achieve the construction of a *Web Portal* providing information and an observatory for the mapping of accessibility conditions in the region. The following paragraphs offer a critical analysis of the main contents and approaches at the basis of this rich set of instruments.

3. Results. The Issues of a Research in Action

In 2020, the signature of a two-year agreement among UNITS, UNIUD and the Region officially initiated what can be acknowledged as an experience of research in action [9]. Namely, a process where the production of knowledge has deeply intertwined with the assessment of its concrete applicability and uptake in the definition of planning and design processes and tools. Following a non-linear path, continuous adjustments were developed thanks to a constant dialogue among the Universities, the officials of the Region (Central Directorate for Infrastructure and Territory), the services in charge of the elaboration of ICT tools (INSIEL and INFOFACTORY, respectively as the manager of the regional databases and the subject selected for the realization of the Software Application), CRIBA, as well as through meetings with local administrations and professionals who are working on PEBA's in the region and beyond.

3.1. Guidelines

Drawing up the Guidelines for the elaboration of PEBA's [10] has implied the construction of an operational definition of accessibility helping reframe the approaches, contents and steps that are useful to provide address to municipalities and professionals when drafting these plans.

The sections of the Guidelines outline a general sequence of operations, from the conception to the implementation of PEBA's: "Overview", "Preliminary analysis", "Survey of the current state" of urban spaces, "Definition of design solutions" and "Estimation of the related costs", "Programming", "Approval", "Monitoring implementation", "PEBA as a driver for innovating plans and projects". However, the Guidelines are not conceived as a manual to be rigidly applied, but as a methodological support. They highlight some precise standpoints, with the aim both to encourage the assumption of a cross-sectoral and multi-scalar approach to accessibility, and to show the strategic role PEBA's can play in urban renewal.

Since a PEBA may limit its extension to individual parts of the municipal territory –albeit according to an incremental vision towards the progressive coverage of the entire urbanized area– a pivotal issue concerns the selection of the places where to focus on its drafting. Therefore, the Guidelines assign a strategic importance to the preliminary analysis, whereas administrations are invited to identify as priorities the areas where the most relevant collective equipment and services are located, as well as the public spaces and routes connecting them. The reference is to the public facilities that are regulated as planning standards (parks and sports fields, schools and libraries, civic and cultural resources, social and health care centers). To them public transport nodes, council housing estates, pharmacies and neighborhood shops, places of symbolic and tourist interest are also added.

As regards the approaches to the drawing of a PEBA and the definition of its technical solutions, the Guidelines focus on some process and design issues. On the one hand, the need to set the construction of the plan within a stronger coordination of municipal offices (town planning, traffic and mobility, public works, etc.), and to foresee continuous interaction with citizens in order to discuss and provide answers to their real needs. On the other hand, the call is for using the plan as a chance to define more complex urban upgrading processes, where interventions on the surfaces and furniture of pedestrian paths, pavements, squares and green areas combine with those on the outdoor and indoor accessibility to public buildings. In this sense, the Guidelines invite local administrations to take on a contextual and project-oriented attitude; the prompt is to go beyond the removal of single obstacles, and to understand accessibility as an opportunity for an overall redesign of public spaces and equipment.

3.2. Software Application

The Software Application translates the single tasks described in the Guidelines into an ICT tool to support the administration's technicians and/or the professionals when drawing up a PEBA. The analysis of some applications that are currently used to this purpose has highlighted a number of limitations: in particular, the risk of making correlations among important interpretative and design steps too automatic, and consequently of reducing PEBA's to a mere sum of punctual and standardized interventions. Moreover, the collaboration with the ICT developers has brought to light further issues, being both of a technical and conceptual nature. In order to overcome these criticalities, some choices have ruled the construction of the Software Application, which is now entering its testing and finalization phases.

The first task of the Software is to help public administrations develop the "Preliminary analysis", and a proper selection of the spatial coverage of the PEBA. To this end, it has been necessary to critically evaluate the possibilities for effective harmonization of the data and technical cartographies that are available on a regional basis, and are subject to periodic updating by different administrative sectors and levels (e.g., referring to planning standards, public transport, council housing, etc.; their location, typologies, and users). The aim is to provide the Software with a direct link to a broad set of information, being now scattered in different databases.

In addition to this data and mapping aid, the preliminary analysis section of the Software is integrated with a weighting and prioritizing system, that is meant to foster the selection of urban areas where fundamental services are located: first, the equipment playing a pivotal social role (in order of importance: for health, education, public offices, and social life); then, other collective facilities (e.g., itineraries for users with special needs, neighborhood commerce, and tourist destinations). However, in order to better customize the coverage and contents of the plan to a specific urban context and the needs of its inhabitants and users, the Software will allow local authorities to partially modify these weights. Moreover, the ICT tool will permit municipalities to include in the preliminary analysis and assessment sheets other important contextual factors, such as citizens' claims, synergies with ongoing or planned interventions, and with already implemented accessible itineraries and networks of spaces.

A second group of software screens concerns the "Survey of the current state"; namely, the recording of all the obstacles detected by administration technicians or external professionals during the field investigations of the urban area included in the PEBA. In order to foster strong linkage of urban accessibility with overall and larger-

scale city regeneration, the Software structures the annotation of punctual criticalities into a tree cataloguing system, where open spaces and buildings are classified and related each other. In fact, this has been a non-trivial step. It originated from the need to overcome a significant weakness of the current legislation on accessibility, where the interventions on buildings are still recognized as a priority, while outer spaces are catalogued according to only three headings (paths, paving, and parking lots; cf. Italian Ministerial Decree no. 236/1986). The analysis of other normative references, guidelines and adopted PEBA's has brought UNITS and UNIUD researchers to define two distinct but integrated tables for public/collective open spaces and buildings. Further ontological and taxonomic work allowed to recognize their specific “domains”, “components” and “elements”, with the aim to prompt designers to take into consideration if and how the removal of a single barrier (element) can integrate into more comprehensive design solutions (referring either to a component or to a domain) (Figure 1).

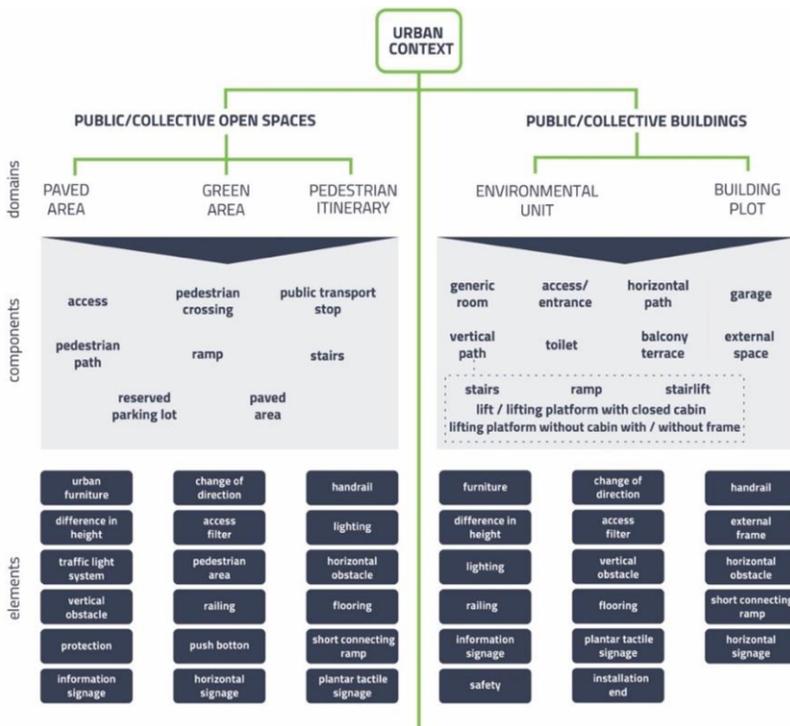


Figure 1. Tables for public/collective open spaces and buildings: domains, components and elements. Processed by V. Novak.

Specifically, the Software provides geo-referenced sheets that technicians and professionals can use to register the criticalities detected for each element during the survey. Sheets allow to report pictures, quantitative and qualitative data that are useful to provide an overall description. To help identify and assess the single criticalities, the Software offers references to specific definitions, lists of attributes and requirements, regulatory provisions relating to the individual elements. At the end of the survey, the software makes it possible to reorganize and visualize this set of precise information on a map, and to appreciate the contiguity of punctual barriers and obstacles (e.g., all the critical aspects referring to the elements that make up the component “pedestrian

crossing”: from those related to ramps and differences in height, to horizontal and vertical obstacles, signage, etc.).

After the “Definition of design solutions”, the Software supports the “Estimation of the related costs” through the direct link to the regional price list for public works. Since the setting of priorities and related criteria has already been the subject of the “Preliminary analysis” phase of filing work, the final programming of interventions is deliberately left to the discretion of the public administration, as it is closely linked to the project idea, the policy of the municipality, and the actual availability of funding on the public budget.

3.3. Library of Solutions

The Library of Solutions is a tool that complements the Software. It is conceived both to support the design of interventions addressed to enhance accessibility, and to contribute to the dissemination of UD culture among regional professionals and administrations.

Various meetings have been organized to develop shared guidelines for defining the structure of the Library, and to ensure its adherence to the general objectives of *FVG Accessibile*. A crucial issue to be solved was the definition of the relationships between criticalities and solutions. If, on the one hand, a direct and linear correlation of a solution to each detected obstacle could help the economic evaluation of the works to be implemented, on the other hand, this approach could lead to a too punctual and mechanical conception of the planning and design phase. Therefore, in order to promote an organic vision and the realization of interrelated interventions, it was necessary to structure the Library as a system of information, criteria and design suggestions, not as a collection of prescriptive technical rules. This choice is consistent with recognizing the key role of designers in improving the quality of architectural and urban projects.

The structure of the Library is open and dynamic, conceived to be enriched over time with good practices from the PEBA's adopted by the municipalities in the region. In particular, the first section of this tool is composed of a series of performance requirements accompanied by graphic schemes of the components the Software refers to. The aim is to stimulate technicians to critically choose the solutions that better fit to a given context, and to consider them as an overall and interconnected spatial system. The graphic language is intentionally abstract and limited to essential aspects. The second section of the Library consists of an annotated bibliography: a collection and selection of references to good practices and solutions, organized into different categories. The two sections are complementary and connected to each other through tags helping the consultation. The finalization of the Library is currently underway, as well as its integration into the Software.

4. Conclusions. An Open and Learning by Doing Process

Developing new approaches and processes requires time, economic and human resources, before measurable results are achieved. In the Friuli Venezia Giulia Region, the constant work of mediation and dialogue between researchers, institutional actors, and ICT developers is now leading to the finalization of an innovative set of tools (Guidelines, Software, Library of Solutions) that, hopefully, will help overcome the limitations identified in other guidance and technological instruments that are today used for the drafting and management of PEBA's. This operation is nothing but simple. In fact,

the building in parallel of the Library of Solutions and the Software has led both to a repeated review of the modes of recording the criticalities and to the fine-tuning of the software layout. Moreover, to become fully operating, these instruments should be properly understood and accepted by effective users (policy-makers and technicians from public administrations, professionals, citizens), according to their different competences and roles within the planning process. In line with these objectives, the completion and development of further important steps are needed.

Testing the usability of the Software Application. The technical test is constantly ongoing: both Universities and CRIBA, in cooperation with ICT developers, are checking the different parts of the Software to guarantee its consistency with the overall conceptual framework. At the same time, some reviews to the tree cataloguing system (namely, its organization into elements), and to the relations between elements, criticalities and the Library of Solutions are under discussion to better meet the Software functional features. In addition, an operational testing phase is starting with the involvement of local administrations. Through a call, some municipalities have been selected by the Regional Office to use the Software Beta version and obtain feedback. These administrations, identified on the basis of the diversity of their contexts –e.g., territorial characteristics and geographical position, urban dimensions, social and economic trends– will be supported by *FVG Accessibile* team to understand the optimal functioning of the Software. However, even after its finalization, the improvement process of this ICT tool will remain open: in fact, the Software is not considered as a static instrument, but as a device that will be enriched and improved through the monitoring of its use by professionals and local administrations.

A Web Portal as a dissemination and continuous monitoring tool. The Guidelines, Software and Library of Solutions will be soon integrated into *FVG Accessibile* Web Portal. The Portal is under construction. It will provide not only a showcase of overall information concerning the project, the different initiatives organized for the dissemination of its results, the funding opportunities provided by the Regional Government, and other Italian good practices concerning accessibility and the PEBAAs. It will be also and especially useful to monitor the progress of the various plans developed in the region. In line with the principle of transparency and the provision of reusable data, in the future it thus will be possible for anyone to consult the regional maps reporting an updated view of ongoing and implemented interventions addressed to increase the degree of urban and territorial accessibility.

Training and capacity building. In the next months, training activities will be promoted throughout the region to raise the awareness and knowledge of the new tools among their direct users. To better calibrate these activities, during the launching event addressed to professionals and administrations –*PEBA Conference. From Regional Guidelines to the experiences of the Municipalities in the region Friuli Venezia Giulia* (Udine, 03/12/2021)–, a questionnaire was distributed among the participants with the aim to collect information on both already adopted operational instruments, and specific training needs. The outcomes of this survey highlighted a great interest in the issues of accessibility and UD, the administrations' acknowledgment of the importance to adopt PEBAAs, and a general willingness to participate in training activities and fieldwork helping reach this result. In addition, the usefulness and effectiveness of the Guidelines were confirmed, as well as the need for a deeper understanding of the technical and procedural aspects related to the survey of criticalities and the solutions for the removal of spatial obstacles within a PEBA.

In the view of these fundamental operations, UNITS, UNIUD and the Regional Office are currently establishing a new agreement, in order to confirm a collaboration that has proved to be highly effective. The stabilization of an interdisciplinary team – ready to monitor the implementation of Decision Support Tools and PEBAs, and to provide future opportunities for training and dissemination– is one more significant result of the continuous sharing of knowledge and discussion among regional officers, researchers and professionals the project *FVG Accessibile* has brought to. In fact, when the challenge is to help real cultural change towards more accessible and inclusive cities, technical instruments are not enough. Keys to success are also a strong commitment by all the actors involved, a clear direction of public policies, and the establishment of advisory (both scientific and technical) boards in charge of taking care of the actual implementation of a variety of instruments, learning by doing and mutual exchange processes. What *FVG Accessibile* is showing is that when these boards are truly interdisciplinary and “intermediate” (namely, standing in between the routines, demands and interests of institutions, professionals and the civil society), they can better help regional and local administrations collaborate and face complex issues in an innovative way.

Acknowledgments

The scientific coordinators for the agreement with the Friuli Venezia Giulia Region are Ilaria Garofolo and Elena Marchigiani (UNITS), and Christina Conti (UNIUD). The research group includes Barbara Chiarelli, Silvia Cioci, Elena Frattolin, Mickeal Milocco, Valentina Novak, Andrea Peraz and Teresa Sambrotta. The coordinator for the Regional Office is Consuelo Simone; the reference persons for CRIBA are Michele Franz and Paola Pascoli.

Being the result of shared research, the final writing of the chapters of this article is to be attributed as follows: 1 to E. Marchigiani and B. Chiarelli; 2 and the premises of 3 to E. Marchigiani; 3.1 to B. Chiarelli; 3.2 to A. Peraz; 3.3. to V. Novak; 4 to all authors.

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