ARCHITECTURE HERITAGE and DESIGN

Carmine Gambardella

XVI INTERNATIONAL FORUM
Le Vie dei
Mercanti

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WORLD HERITAGE
and KNOWLEDGE

WORLD HERITAGE and KNOWLEDGE
Representation | Restoration | Redesign | Resilience

CARMINE GAMBARDELLA

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WORLD HERITAGE and KNOWLEDGE
Representation, Restoration, Redesign, Resilience

Le Vie dei Mercanti – XVI International Forum

Topics:

Heritage

Tangible and intangible dimensions

History

Culture

Collective Identity

Memory

Documentation

Management

Communication for Cultural Heritage

Architecture

Surveying

Representation

Modeling

Data Integration

Technology Platforms

Analysis

Diagnosis and Monitoring Techniques

Conservation

Restoration

Protection

Safety

Resilience

Transformation Projects

Technologies

Materials

Cultural landscapes

Territorial Surveying

Landscape Projects

Environmental Monitoring

Government of the Territory

Sustainable Development

WORLD HERITAGE and KNOWLEDGE
Representation, Restoration, Redesign, Resilience

Le Vie dei Mercanti
XVI International Forum

Napoli | Capri
14 - 15 - 16 June 2018

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Peer review
Scholars has been invited to submit researches on theoretical and methodological aspects related to Smart Design, Planning and Technologies, and show real applications and experiences carried out on this themes. Based on blind peer review, abstracts has been accepted,conditionally accepted, or rejected. Authors of accepted and conditionally accepted papers has been invited to submit full papers. These has been again peer-reviewed and selected for the oral session and publication, or only for the publication in the conference proceedings.

Conference report
300 abstracts and 650 authors from 35 countries:

Albania, Australia, Benin, Belgium, Bosnia and Herzegovina, Brasil, California, Chile, China, Cipro, Cuba, Egypt, France, Germany, Italy, Japan, Jordan, Kosovo, Malta, Massachusetts, Michigan, Montserrat, New Jersey, New York, New Zealand, Poland, Portugal, Russia, Slovakia, Spain, Switzerland, Texas, Tunisia, Turkey, United Kingdom.

Preface

In the present era, technologies are becoming increasingly import-ant in helping and supporting man in research, knowledge and pro-duction activities, almost as if they were smart prostheses. With the theme of the XVI Forum "World Heritage and Knowledge", I propose to the International Scientific Community to debate and establish a comparison of knowledge carriers to communicate methodologies of good practices adopted and experiences in the use in the protection, conservation and safeguarding of cultural heritage and landscape as well as in the design of the "new, "that, adopting in the building processes and building construction Innovative Building Modelling, can realise a non-contemporaneity of what has the same date (Giulio Carlo Argan) respectful of the values of the pre-existing, legitimate because it participated ex ante and monitored becoming all its ethi-cal, aesthetic and performance connotations.

With the Internet of things, for example, sensors that are used to produce data autonomously that widen the processes of knowledge on all levels, from the territory with its infrastructures, to the environ-ment, to the artefacts entering into the body itself of their physicality, or, in the case of the new, building the project as a prediction through-out physical consistency.

Nevertheless, the use of new technologies allows for economies of scale, both temporal and economical, not only for the surveying and representation of the built and the territory in the analysis phase but above all for the management of the resulting data that makes the design activity of the restoration of the historical heritage and landscape or of the newly constructed in a single process no longer divided into steps but also unitary in concrete constructions and the realisation of the works, in the intermediate checks, in the testing, in the monitoring and in the programmed maintenance.

In conclusion, it is indispensable for the scientific community to high-light how technologies, without a responsible attitude that commit man's choices and knowledge in dealing with and planning appropri-ate responses to the issues and needs of the collective, can create a deception that unfortunately materialises with the subtle persuasion of uncontrolled astonishment that overwhelms the imagination.

Carmine Gambardella
President and Founder of the Forum

ID 001

A Digital Tool for Data Collection and Representation of Heritage: Using Google Earth for Mapping Industrial Landscape Areas of Istanbul

Elif MIHCIOGLU BILGI

Visiting Scholar, Columbia University New York USA

Started as an educational project for the students, then continued as a research project, the inventory of industrial landscape areas of Istanbul is studied on Google Earth program, which is a computer program superimposing satellite images, aerial photography and GIS data onto a 3D globe. Always giving the advantage of a recently up-to-date situation and can be shared through Google Drive to add survey data for multiple users, it allows one to see cities and landscapes from various angles, as well as the addition of visual and verbal new data on it. Google Earth approached by some authorities as a threat for national security due to mostly the privacy of military facilities, it supplies a resourceful base with a series of other tools for the documentation of cultural heritage primarily at urban scale, as well as architectural scale. This paper focuses on the use of Google Earth for the mapping of industrial landscape areas of Istanbul as a case study, which also serves as a way of representation.

ID 002

Resilience of a Rural Religious Building: From Bulgarian Ekserhia Church to Segmen Mosque in Istanbul and Proposals for its Conservation

Elif MIHCIOGLU BILGI

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Ege ULUCA TUMER

East Mediterranean University, Famagusta Cyprus

The religious building constructed in 1858 and known as Bulgarian Orthodox Ekserhia Church in the Seymen Village (once known as Cüce Sekban) is located at a distance of 13 km to Silivri and 78 km to the city center of Istanbul. This rural masonry monument built as the primary meeting area of a settlement founded by Bulgarian immigrants, was used as a church until 1912. After that, it was transformed and used as a mosque until the mid 1970s. In 2010, the building was burnt down and left in ruins since then. The aim of this paper is to analyze and evaluate this interesting example of rural religious architecture in detail and put forward proposals for its preservation with an emphasis on resilience.

ID 003

Historic Bridges of Istanbul as a Part of Its Industrial Heritage and Urban Landscape

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Historic bridges are the transportation structures which are accepted to be a part of the industrial heritage and an important component of the urban landscape of Istanbul. Fewer than expected in number of these vital structures are still standing scattered within the the metropolitan city, some are still in use, but some are now useless, left aside at the most unexpected locations. As remnants from different periods and reflections of rich cultural history of the city, their existence is as important as any other historic heritage in the city. Studied as a part of a research project on the inventory and mapping of the industrial heritage of Istanbul, the aim of this paper is to put forward an updated list of these historic structures with the analysis of their architectural characteristics, parallel to the general development of the city and proposals for their resilience.
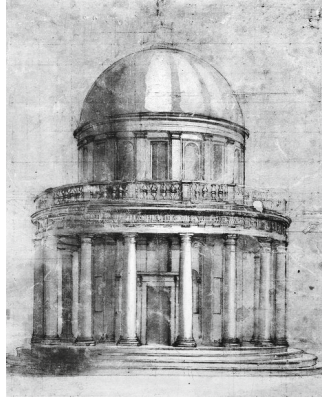
ID 004

*Drawings and Paradoxes: The Image and the Three
Fictional Dimensions of Architecture*

**Pedro António
JANEIRO**

Universidade de Lisboa,
Portugal

By turning man into the measure of all things, the Renaissance frees him, and breaks with those latter images of Truth, turning autonomous the image from the object that that image intend to represent; and, so, it was gradually understood that an image could survive the represented object. Modern humanism (renaissancist) freed man from image: and establishes him as a sort of spectator, when, admitting the distance between representation and represented, presented him images which, rather than Truth, invisible, showing him a closer world, more tangible, through the illusion (fallacy?) characterized and constructed by and through the maximum expression of the visible. It is, maybe, the advent of realism, as we know it today. Since the Renaissance, the observer is placed as a spectator on the outside of the image, on the outside of a simulation; a spectator with a symmetrical gaze over the way he places himself towards the things that inhabit his world. The effort made by the image constructors – in the broad sense of the word, the artists -, from this moment on, is that of an attempt in moving towards a continuous supply of images for a spectator who is more and more eager of being deceived by these images. The simulation is then made, in the attempt of shortening the distance between representation and represented, looking to seduce the eyes with the aim of setting them into a total atmosphere.

ID 005

Face of the façade. Stucco renderings in mid-war Cracovian architecture

Monika BOGDANOWSKA

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The Modernist architecture of the mid-war era speaks to us through the simple form, colour and texture of buildings' façades rather than through rich decoration. In this purity, each element had a specific meaning. Smooth walls of cuboids articulated with horizontal fenestration, occasionally enriched with a modest cornice introduced a sense of harmony, peace and organisation into the city skyline, no matter whether it was a streamlined building, or a residence in a garden. For these reasons, one of the most important features of Modernist architecture was the manner in which architectural surfaces were finished and as a result of their relative simplicity, stucco renderings gathered great popularity at the time. In the mid-war period, Cracow experienced exceptional growth: the area of the city expanded from 6 square km to almost square 47 km by the beginning of WWII, with most of this development occuring during the Modernist era. It constitutes a valuable architectural resource which should be preserved and restored for its exceptional functional and artistic values. This paper will discuss one of the many issues which have not been widely recognised so far: stucco renderings, which were widely introduced in the discussed period and which constitute an important aspect of the character of Modernist architecture in Cracow.
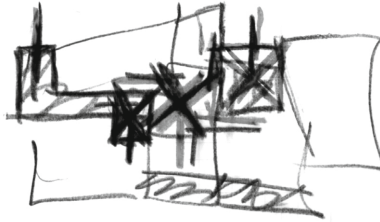
ID 006

Reconstruction, Addition, Grafting, Overlapping and Subtraction. Five Approaches to Intervention in Historic Contexts

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The theme of designing in historic contexts is as old as the history of human construction. It could be said that every construction is a redesign of something pre-existing, whether artificial or natural. Since antiquity, the act of rewriting atop an existing building is determined, beyond merely functional aspects, by the desire to mark a gap, an interruption in a pre-existing condition. This occurs through the strong, and in some cases even violent, introduction of something new; an act that also comports a re-semantization of the building to be modified. The present text proposes an analysis of this operation through five approaches to intervention. Each category features a comparison between an ancient and a modern project. The categories of reconstruction, addition, grafting, overlapping and subtraction refer to an equal number of relationships with pre-existing elements, in other words, five different ways of reading history in relation to new eras, new uses and new ideologies that leave indelible signs on a building. The text concludes with a unique case study, the object of a reconstruction, addition, grafting, overlap and subtraction, currently underway. While of lesser historic importance than the other buildings analysed, it nonetheless refers to the complexity and contradictions that are an inevitable part of any intervention in a historic context.

ID 007

MOLAB® non invasive in-situ investigations on Mexican pre-Columbian codices: a scientific and historical approach

Antonio SGAMELLOTTI

University of Perugia, Italy

MOLAB® is a collection of integrated instruments based on non-invasive reflection-spectroscopy techniques ranging from mid-IR to X-rays which work both in punctual and scanning/imaging mode to study cultural heritage materials. The MOLAB® facility allowed for molecular and elemental characterization of colored materials belonging to several Mesoamerican codices stored in European museums and libraries, offering to scholars a wide database of valuable analytical data to deepen the knowledge concerning the complexities of Mesoamerican manuscripts' painting tradition. We will present the analytical methodology adopted to analyze the colored materials employed within codices, highlighting advantages as well as limitations of the non-invasive approach considering the challenges posed by the wide use of organic dyes. The results obtained on five Mesoamerican pictorial manuscripts held in the collection of the Bodleian Libraries -Codex Laud, Codex Bodley, Codex Selden, Selden Roll, Codex Mendoza- will be discussed in details by typology of colour/compound by a jointly chemical- historical approach. A comparison between results obtained from other Mesoamerican pre-colonial and colonial manuscripts will be also presented in order to identify compositional and technical relationships that could provide evidences for different manufacturing traditions.

ID 008

The transfer of catastrophe risk and insurance coverage: the role of Risk Management

Antonio COVIELLO

Giovanni DI TRAPANI

Institute for Research on
Innovation and Services
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Naples, Italy

Recent research conducted result is evident the increase in recent decades, the costs and therefore the economic value of the damage caused by natural disasters; this phenomenology that can only be attributed also to the increased concentration of populations residing city, which become larger and larger and that have developed in areas characterized by a territory too often exposed to strong catastrophe risks. The management of catastrophic risks involves an assessment of the role, duties and responsibilities of public and private entities that are involved in the governance of the various activities to be carried out. Experience has shown that for the success of any initiative complex human need to limit the risk of governance. The insurer after the crisis is asked to consider the ongoing causes of different risks undertaken and their impact in terms of potential losses, assessing the relationship between exposure to risk and the adequacy of its assets to the risk profile of the. The paper aims the study of the insurer that's required to identify the strengths and weaknesses of its business, its governance, control functions and should develop and use appropriate policies and risk management techniques by changing its organizational structure to make improvements where necessary.

ID 009

Knowledge for recover and valorization of Sicilian rural architecture. The Pintorna S. Barbara farm in the Madonie mountain area

Andrea D'AMORE

University of Palermo,
Italy

The Pintorna S. Barbara farm located in the territory of Geraci Siculo (PA), a small rural village in the Madonie area, represents a relevant example of rural architecture for his constructive and typological aspects, but also for the potential that it offers in a project of compatible recover. In the same way of other farms that marks the sicilian territory, this one at the moment is in an abandonment state because of the absence of mainteinance during the last year so that it risks to be ruined. The study wants to evidence the principal materic constructive, functional and typological aspects which are important characteristics to give the right direction to the recover project aimed to the conservation, valorization of the farms and of his productive and architectural history. With the help of software useful to the analysis of the actual state, to the redrawing and the three-dimensional modeling, had been possible to obtain a higher knowledge and also a clear idea of refunctionalization. The submitted proposal of valorization wants to define useful protocols for the valorization of sicilian rural architecture outlining possible scenarios for actions that respects the original characters of pre-existence, bringing back a new and contemporary function (also for the structural and installations adopted solutions) able to adapt flexibly at the use requested by contemporaneity and by the policies of territorial promotion.

ID 010

Smart cities and sustainable development

Diala ATIYAT

Amman, Giordania

Smart cities model promise solutions to sustainable development and a high quality of life with a smart management of natural resources, through participatory action and engagement. The study provides a critical review of this model of Smart heritage city (SHCity), and application attempts of smart urban technologies in heritage cities by particularly looking into emerging practices of smart heritage policies as exemplar smart cities initiatives. Through review of literature and best practices on the smart heritage cities model, this study attempts to address the research question of whether smart cities can provide effective urban development and management model to solve the cultural heritage problems of our cities. The findings shed light on urban planning and development considerations for the integration of smart urban technologies and their possible implications in shaping up of the heritage built environment using smart tools such as: (BIM), (GIS) tools. (BIM) implementation approach uses a socio-technical view which considers the socio-cultural environment that provides the context for its implementation. what is the study seeks to do is to introduce a new and innovative methodology, based on (BIM), (GIS) capable of improving the current smart conservation policies of the architectural heritage Integrate (HBIM) tools in the application through a conservation framework. Locally the current tendency is to turn heritage Amman city into a smart one.

ID 011

An evaluation on how to implement the Historic Urban Landscape (HUL) approach in a critical case study: the city of Valparaíso, Chile

Andrea ORTEGA

University of Melbourne
Australia

This paper explores the applicability of managing cultural heritage through the Historic Urban Landscape (HUL) approach in Valparaíso, Chile, a city that was declared World Heritage Site (WHS) in 2003. Valparaíso is a critical case study where Outstanding Universal Values (OUV) coexist with poverty and marginalization. The city is facing significant urban transformations, its management has been difficult at different governmental levels and local communities are increasingly demanding for more participation. Thus, given the complexity of its management, in 2014 the United Nations Organization for Education, Science and Culture (UNESCO) suggested that the HUL approach should be implemented, which implies a holistic and integrated approach to heritage management and urban planning practices. The Recommendation of the HUL (2011) is put in practice through local interpretations, while considering the specific political and socio-cultural context. Therefore, this paper will detail a research method to evaluate whether the policy framework of heritage management and planning in Valparaíso is consistent with the HUL. Following the assessment framework proposed by Veldpaus and Pereira (2013), the attributes (what), values (why), stakeholders (who) and strategies (how) are evaluated regarding the specific context.

ID 012

From recovery manuals to historic and construction building information modeling (h-BIM). Strategies for historical Sicilian centres

Tiziana CAMPISI

University of Palermo, Italy

Daniela SIDELI

Architectural Engineer

The recovery of historical centers constitutes today, as well as a priority objective of any urban policy also an activity of great strategic and economic interest. There have been many researches and policies of support concerning existing interventions, dictated by a sensitivity for the recovery of building heritage; this kind of analysis have necessitated a specific study of traditional construction techniques. Despite the complex regulatory and binding framework, interventions on historic centers continue to be conducted in many cases in an improper way. The use of uncultivated materials and techniques, transferred from the modern construction site to the recovery one, led to the creation of buildings, very different from the original ones. The loss of knowledge of the ancient construction techniques leads to a profound reflection on the need to observe and critically analyze the existing, making the interaction between construction technique and project, without neglecting the ancient wisdom that has been handed down over the centuries. The aim of this research is that to create guidelines for the conservation of historical architecture, defining the operative and decisional support tools able to verify the effectiveness of transformations and a possible restoration of original buildings elements.
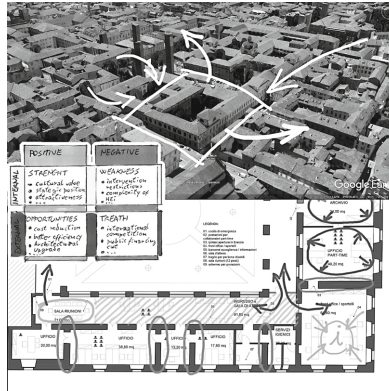
ID 013

SWOT analysis for the redesign of historic university building stock

Simone LUCENTI

University of Pavia, Italy

Since the Middle Ages, universities have established their importance in many small and medium-sized European cities. In many cases, institutions for higher education have reused abandoned existing buildings, adapting them to new university uses (e.g. monasteries, hospitals, barracks, factories, ...). Since the late XX century two main trends which imply the redesign can be observed: the reuse of historical buildings for new premises (either in case of expansion of existing universities or in case of foundation of new universities) and the reorganization of existing buildings to improve efficiency of use (and also reduce costs and expense waste). In recent years a sharp acceleration of the changes due to the increasing international competition (e.g. university ranking) and to the diffusion of new technologies (e.g. diffusion of ICT and multimedia tools) has took place. These trends have led to a new focus on built heritage which, in addition to being adequately protected and enhanced, must also be updated periodically on the basis of regulatory developments, changes in the users' requirements and the introduction of new functions (which imply new space demand). Moreover, in many countries, due to the reduction in funding (which hit harder the non-core business sectors), the need for greater management efficiency has been affirmed.

ID 014

Metric survey and possible representations of Historic Architectural Heritage: the case of the Santa Giustina Abbey

Alessandro PIOVANO

Fulvio RINAUDO

Roberta SPALLONE

Polytechnic of Turin, Italy

The semi-automatic metric survey techniques developed in the past years allow the recording of 3D models with an ever-increasing level of details and accuracies. The 3D database, usually georeferenced in a cartographic system, opens the floor to different kind of representations (e.g. 2D drawings, 3D models, digital animations, AR/MR applications etc.) conceived to satisfy different requirements at different graphic scales and aimed to increasing the knowledge of Cultural Heritage. The paper introduces some different representations that can be extracted from a 3D database: the "as built" representations, which put in evidence all the irregularities of a real building, as it today appears because of anthropic interventions and endogenous/exogenous events happened during its life. Starting from this 3D database the main task of the representations is interpreting and synthesizing the collected information aiming to recognize the architectural values of the building, the geometric matrices of the shape, the modularity of the composition, and the relationships between architecture and decoration. The Romanesque abbey of Santa Giustina in Sezzadio (Italy), a well preserved building, which considerable dimensions, constructive accuracy, and rich decorations testifying its territorial importance, is a significant case study for these purposes.

ID 015

Harmonic Qualities Need in Architecture Teaching at Architecture Faculties as in Music Teaching at Conservatories

Sandro RANELLUCCI

"G. d'Annunzio" University of Chieti-Pescara, Italy

The object of this study is the living environment in Mediterranean and especially Euro-Mediterranean environmental architectural context. This work is based on an extension of the concept of beauty. The beauty of the material consistency of the monument as a whole should be replaced with the beauty of pre-modern construction techniques. The beauty of the monument must identify with the propriety of the rules of traditional construction. The starting point is the fact that designers, and poets, intellectuals, and politicians, in Italian and Mediterranean context should no longer devise shapes according to a creativity of absolute freedom, but according to widely used and recognized rules. No entity should be conceived according to a groundless unjustified creativity. Yes to a dialectic understandable on the basis of established rules. No, to an uncontrolled globalization. Yes absolutely to a strong signification founded on shared and consolidated rules. It is therefore necessary to recognize and respect rules which are consistent with the concepts of completeness and homogeneity. Which means that the requirement is to interpret the urban renewal as a harmonious urban renewal. Especially in a urban environment in the Euro-Mediterranean area which is recognized as historic, architecture should not be interpreted in a sense of modern style.

ID 016

Modernism at the highest level. 1930s Modernist buildings constructed in Poland at abnormally high altitudes

Maciej MOTAK

Cracow University of Technology, Poland

During the Second Republic of Poland (1918-1939) there was a marked increase in tourism, including hiking, skiing and healthy pursuits in mountain resorts, which resulted in many new architectural projects. This paper deals with the most unusual of these: Modernist buildings erected in the high parts of the Tatras. Four cases are discussed: three cable-car stations linking Zakopane with Kasprowy Wierch at respectively 1,030, 1,350 and 1,960m, the highest of which was equipped with a small hotel, and the fourth is the meteorological observatory at the summit of Kasprowy Wierch (1,985m). All four of them were built between 1935 and 1938, their architects skilfully combining Modernist ideas with local features, e.g. concrete structure and flat roofs together with granite-clad walls. The Kasprowy Wierch cable-car stations still perform their original function. However, a new way of circulation has enabled the system to transport more people, and its restaurant has become of more importance than the hotel. The Kasprowy Wierch meteorological observatory is still used for its original purpose. In conclusion, the paper emphasizes the importance of the role played by these buildings despite their relatively small size. Their efficient construction in highly unfavourable conditions is viewed as something of a technical achievement, and in addition they have helped functionally to promote these mountains both for tourism and for science.

ID 017

Research and design in the area of Early Christian basilicas in Cimitile

Pasquale MIANO

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Despite the increasing number of archaeological studies, the 4th-century-old Early Christian settlement in Cimitile still represents a urban-architectural episode difficult to be interpreted, as archaeologist Lehmann pointed out few years ago. To both expand the visited areas and regain open spaces for citizens, a work on-site has been developed over the years, a unitary process in which adopted techniques and technologies and archaeological, urban, architectural survey have been continuously intersected with design, giving the first significant results from the point of view of attraction and realization. In particular, for the intervention on the margin redefinition in Via Pozzo Nuovo, during the archaeological excavations planned for the realization of the high-low levels connection to the basilicas, it was possible to understand that, below some abandoned houses in Cimitile historic center, there were significant spaces connected to the "new basilica", object of previous studies and reconstructions made by Gino Chierici and other archaeologists. As the excavations were carried on, different design proposals have been elaborated, conceived like many different interpretations on the topic of connection, with the intent of choosing a solution that, while not aspiring to become definitive, has eventually led to a deep renewal in the configuration, the image and the perception of the basilicas themselves.

ID 018

The landscape as a testimony, or resource for the future?

Nadia FABRIS

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We are all aware of the importance of identity for a community of its recent past and of the resources it produces. The legible part is useful to the sense of identity of the inhabitants or visitors, in symbolic references, the ability to preserve their identity historical, maintaining an evolutionary rhythm remaining in step with the transformations without neglecting anything through an examination attentive to the culture of the places. While the stressed, complex and contradictory landscape, anarchic product of overlapping intentions and degrading processes the previous heritage, in constant evolution, generator of senses of disorientation that often afflict periurban situations or with recent settlement development (P. Castelnovi 1998). From the nineteenth century post June 22nd 2017 Vado Ligure - The demolition operations of one of the two chimneys of the power station have started today electricity of Tirreno Power, in Vado Ligure (Sv). The demolition of the chimney, 200 meters high, will last about 6 months: in the first phase scaffolding will be built, once the summit is reached the real demolition will begin. The landscape, after years of disfigurement of the Vado Sabatia valley, slowly regained its recent landscape, which had acquired an identity memory that did not adhere to such special places full of history and Mediterranean environment; returns to its origins.

ID 019

The newly founded centers in the Agro Pontino: from the local to the global, from the past to the contemporary, to the future

Alberto BUDONI

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At the beginning of the Twentieth century, new cities and new villages were founded in the Agro pontino of southern Lazio, proposing an architecture capable of both interpreting the language of modern movement and to be respectful of the genius loci. The architecture of these newly founded cities, as for other Italian and European centers, was often the expression of authoritarian social and economic models or, in any case, incompatible with a democratic and pluralistic vision of society. Although the decorative elements of the fascist regime propaganda have been removed, the architectures of the new cities continue today to live within complex realities, changing in their physical, social and political features, suffering from the effects of a silent colonization due to globalization, and determining new cultural landscapes. Through a few examples, the contribution aims to define a survey methodology in order to rethink these cities so that the critical analysis of the design choices on which their foundation is based, might be the starting point for new urban redevelopment and planning interventions able to conjugate the identity of places with the new demands of today's life. It would be desirable to outline criteria for the development of new urban scenarios through safeguard and enhancement operations, capable of using existing resources, linked to the historical-architectural heritage, sources of sustainable development.

ID 020
Conversions and Resilient Materials

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Nowadays different and various forms of resilience draw our attention but, there is no doubt that, among all the inflated meanings of this term, we are greatly attracted by the one concerning the ability of the material itself to re-generate in a different present when it is widely employed both in sophisticated technologies and also in very simple methodologies to support Man in his research, his knowl-edge and his production in a world still to be planned far from the logic of the brutal beton. Today the anthropic world of what has already been built must be reconsid-ered in terms of redesign, systemic rewording, methods and results employed in the making (even in the case of new artifacts). The present environmental emergencies force us to adopt the principle of "Circular Economy" ap-plied also to Architecture, never before considered as a complete cycle, that is, at the time of its birth (project), its life (realization and durability), its death (deconstruction and re-use). Dry construction systems and other parallel techniques allow easy interventions with the purpose of building on what has already built, of redesign, of re-cy-cling, all actions able to give shape to different resilient urban sceneries, so able to be reborn, to defend them-selves and to become active again in the face of adversi-ties (earthquakes, natural calamities and anthropic emer-gencies).

ID 021

Analysis of Masonry Ancient Neapolitan Helical Staircases

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An analytical structural study of general helicoidal shells is presented. The study is concerned in particular with Neapolitan staircases based on a circular planform. Such stairs are composite masonry structures formed by a two or three layers of tiles disposed in a herringbone-pattern. The analysis is based on the assumption that the material is unilateral, namely a No-Tension material. The strucutral analisys is analized a stress field can be constructed; for the unilateral material here employed, singular stress fields, that is stress concentrated on surfaces (membranes) or lines (arches) are allowed. The statically admissible stress fields that are constructed, combining membrane stresses and 3d diffuse uniaxial stresses, are purely compressive and balance transverse loads either uniformly distributed or localized. A simple case of real analisys is presented.

ID 022

Recomposition of architecture in the historical city. The San Bernardino area in Padua, Italy

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The work we propose concerns the theme of the recomposition of public spaces in the ancient town when compromised by old and recent speculative interventions. The methodology looks at the city as a product of functional systems (political, social, economic), but overall contemplates the urban form as a result of its spatial structure. The life of the urban form is investigated in its physical specificity, the only one able of giving reason of its special nature over every social, economic and political aspect, certainly important but not sufficient. Our teaching at the University of Padua is based on fundamental 1960s studies about typological analysis oriented towards the theme of public spaces and establishing relationships between these ones and private spaces. The spatial aspects and formal image of the transformations in the city are studied as a premise for the design of the new architecture. The San Bernardino area in Padua is one of the subjects investigated by our students, thought as an opportunity to reconfigure the lost unity of a very symbolic and representative place of the city, custodian of its memory and identity. The San Bernardino area has been affected by rapid post Second World War reconstruction that has resulted in the organic unity with surrounding parts of the city being lost.

ID 023

Facades of Krakow's townhouses from the turn of the 19th and 20th century – protection and restoration

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The facades of the Krakow's townhouses from the turn of the 19th and 20th century are of major historic value. Unfortunately, some of them have not undergone any conservation works for years, resulting in severe damage. Wooden window and door frames have been particularly affected. Many of the original wooden elements have been replaced with new ones. Also entry gates with stained glass structures placed in fanlights, steelwork, such as balustrades and bars have suffered. Very often the doors are damaged in the lower parts and near the handles, and in many cases they have simply been replaced with new ones when intercoms were installed. Superstructures are yet another problem – attic and garret adaptations involving modifications regarding the window size. Unfortunately, sometimes the new and the old elements do not match harmoniously. Original paint with rich texture is often covered with oil paint. Styrofoam wall insulation changes the size of the details embedded in or attached to the plane of the wall. The aim of the paper is to emphasize the importance of preserving the original window and door woodwork, including their original layout and colour, renovating historic details and decorations, making the right choices with respect to roofing materials and the colours of the renovated paint. The paper presents several case studies of successful townhouse renovation carried out recently in Krakow (Poland).

ID 024

Sustainable rehabilitation and reconversion of Palácio da Rosa (Lisbon) in a dance school

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Lisbon benefits from the existence of a National Conservatory that occupies an old palace in the Bairro Alto, in an advanced state of degradation and with manifest lack of space to accommodate the two schools that work there - the School of Dance (in activity since 1839) and the School of Music (since 1835). Due to the singularity of the training provides by the School of Dance, it is necessary to transfer the school to another building that provides better conditions for the development of its activity and that takes advantage of the models defended by Maria Montessori and Reggio Emilia. In this sense, a proposal of urban-architectural intervention of reconversion and rehabilitation of the Palácio da Rosa, in the Mouraria neighbourhood, is developed. It is an ensemble built with an extensive built area in neglect and degradation state, but with enormous potential for adaptation to the new function, transforming its large halls with double foot and overlooking the city of Lisbon, in dance studios. The proposal that is presented, in addition to being part of the revitalization policy of that neighbourhood, endorsed by Lisbon City Hall; integrates sustainability principles, passive and active strategies and comfort criteria, able to offer students quality spaces and conditions necessary for their development and learning; further stimulating a set of new functions in the local community.

ID 025

*Redesign of urban space due to archaeological
sites in Southern Serbia*

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Discovery and representation of archeological sites are
challenging for existing urban areas. Intensive building
reconstructions and infrastructural projects in Serbia, af-
ter political and economical turmoil in 1990s, recently led
to discovery of several archaeological sites. Some long
neglected research and works on representation of ex-
isting archaeological sites were revived in recent years.
As consequence, many issues of redesign of urban fiber,
as well as planned urban interventions come along. The
main aspects of problem include local specifics, interna-
tional heritage preservation doctrine, technical demands
of solutions and operational issues. Serbia is considered
very rich in archaeological cultural heritage, south from
rivers Sava and Danube. Therefore, current increase of
investments in the area is expected to raise need for bet-
ter understanding of the topic.

ID 026

The recovery of illegal settlements: possibilities

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The Italian cities are often characterized by widespread phenomena of illegal settlements, which have resulted in a worsening of the quality of cities, people's life and the environment quality, as well as a high soil consumption. The different Italian Regions have tried to solve the problem differently and the Campania region has provided for a specific planning tool, taken from national law. Given the serious situation of economic scarcity of public administrations that are difficult to predict demolitions or acquire all the abusive assets, it is clear that today, more than in the past, it is essential to focus on plans for recovery of illegal settlements. Urban planning must today both reason on the damage produced by illegal settlements in terms of irrational soil consumption and inhomogeneous territorial development, and must develop solutions to redevelop the areas currently burdened by the problem. The goal of this paper after the critical reading of some used tools is to exhibit the foreseen future intervention strategies.

ID 027

Piazza Medaglie d'Oro in the Società pel Risana-mento's projects in Naples. 1885-1964

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Piazza Medaglie d'Oro is one of the most important squares of Arenella, a borough in Naples stared its development in the last two decades of XIX century, when it became necessary to plan new residential areas for the extension of the city. it has gone both a strategic link of road network which connected the old districts, located on the "lower" city to the hilly sites of expansion, and one of the new residential and commercial cores of the middle-class. So, it was at the center of strong economic interest, particularly of Tiberina Bank, that bought wide rural territories in this not yet urban area, aiming to parcel out and to build new residential settlements. Its present octagonal layout with eight streets converging in a radial pattern, was defined after 1885, although recent studies have proved it was designed before 1884. At that time, Naples was growing by the "Piano pel Risanamento" [Master Plan for the Renewal of Naples], which was designed by engineers Gaetano Bruno and Adolfo Giambarba, which was transforming the old Bourbons capital in a modern metropolis. The main goals of the piano were to renew the urban fabric, making modern sewerage and drinking water systems, improve the infrastructure and public utilities, define new neighborhoods for expansion, shaping new middle-class neighborhoods and, above all, reorganize the road network. Giambarba designed plans of many other districts, including Arenella district too, which was approved on 9th December 1886.

ID 028

The cycle highway RS1 in Essen: a model of green-oriented mobility to promote urban history

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Paper aims to analyze the impact of the Radschnellweg Ruhr (Ruhr Bike Highway) – RS1 for short – on the urban quality of Essen, in terms of protection and promotion of landscape and cultural heritage, and the role model of the project for many European cities that are currently launching programs for land restoration. The RS1 is a 100km-long bicycle highway, designed on a large scale by the German state of North Rhine-Westfalia in the last few years as an element of innovative regional mobility strategy. The track in Essen area, the first one opened in 2015, is particularly attractive because of its historical connotations as well: along Rheinische Bahn (Rhenish railway line), the safe and comfortable greenway, laying on existing infrastructure and old railway tracks brought back to life, connects old industrial building and facilities, once fallen into disuse, and becomes an interesting know-path through the most important cultural heritage sights of the Ruhr valley, such as the Krupp belt and the UNESCO Zollverein Coal Mine Industrial Complex. The analysis focuses on the importance of promotion of historical values and green-oriented mobility concepts in the process of successful transformation of Essen from mining city to European Green Capital in 2017.

ID 030

Cadastral mapping and virtual reconstruction of civil war air-raid shelters in Castellón de la Plana. The air-raid shelter under Francesc Ribalta Institute

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Beatriz SÁEZ RIQUELME

Alba SOLER ESTRELA

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During the Spanish civil war, Castellón de la Plana, like most of the cities on the Mediterranean coast, suffered air raid by rebel forces. To keep safe the population, the City Board of Passive Defense projected to build more than two hundreds of shelters under the existing urban fabric. These constructions would formalize a complex network of tunnels communicated among themselves, that would run through the basement of the city. However, with the arrival of rebel troops in the summer of 1938, the construction of the projected shelters was stopped, having been done only 43. All this defensive architecture must be understood as part of the cultural heritage and therefore they should be preserved. Unfortunately, at present, many of these shelters have disappeared and others, the majority, are in a very poor state of conservation. The virtual reconstruction of these elements from existing material, allows not only recreate the original state of existing shelters, but know the original network of tunnels designed by the City Board of Passive Defense.
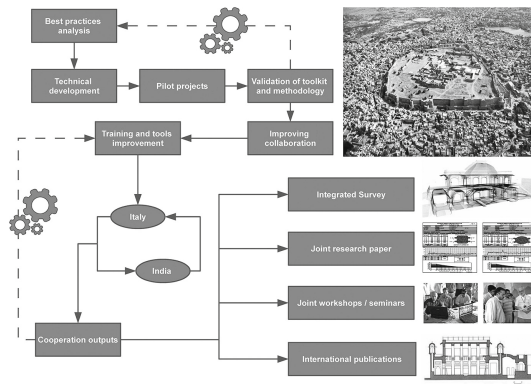
ID 031

A place for technology transfer and digital techniques applications for survey and representation: the ancient fort of Nagaur in Rajasthan, India

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Pietro MASSAI

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The existing layout of Ahhichatragarh fort has been created along the 12th century in the ancient city of Nagaur, one of the first Muslim strongholds in Rajasthan, northern India. The fort has been heavily altered over the centuries. The 25 years' - and still in progress - project for its rehabilitation, has been involving the training of many artisanal craftsmen, adhered to principles of minimum intervention. At the same time, several capacity building programmes were implemented in order to increase also the skills of professionals and experts of the conservation field. In this framework, in a research path carried out over 5 years, the main focus of the activities has been the evaluation of technologies to be apply on Indian Cultural Heritage. The pilot projects and experimentations carried out by the international team aimed at identifying functional methods for the analysis, representation and diagnosis of the architectural heritage of the complex. The fort requires continuous monitoring and planning of interventions aimed at the preservation of its historical value and this might be accomplished in a more efficient workflow exploiting the advantages offered by new technologies, such as non-invasive analysis and digital techniques for heritage enhancement, tools not yet functionally integrated in the conservation processes in India.
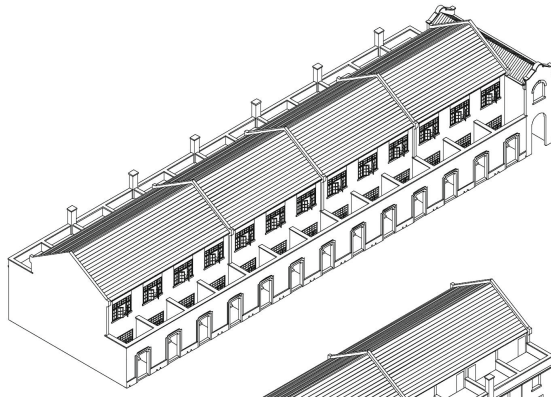
ID 032

The Chinese house inside the ex-foreign concession in Hankou: description of Lifen

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The study want to describe a system of buildings, located in the city of Wuhan in China, with specific homogeneous architectural morphological characteristics, identified with the term "lifen". The Chinese word "lifen" is composed by two characters. The first is Li "里" used to identify something inside that can be associate in the case of urban structure, which is a space inside a boundary. In Wuhan, there are many unique examples of Lifen realized to meet the demands of a Chinese new social class from the end of 19th and early 20th century. Firstly realization was during the period of the foreign concessions in China. In Wuhan the area was along the bund of the city of Hankou where was established the foreign settlement, on the north side of the Chang Jiang - or named, at that time Yang Tze Kiang. The foreign nations - England, Russian, France, Germany and Japan has initiate the urban expansion of the city with foreign characteristics so like an unprecedented in the history of Chinese cities. The most knowed examples are the urbanization of Tianjin but many Chinese cities give way strategic locations for trade to the foreign countries. In Hankou during few years growing up banks, administrative buildings, religious buildings, offices of companies, etc Together this new constructions, which the native people never seen before, born the "Lifen" as homes designed in a new vision to host the new Chinese working class.

ID 033

Literature as a representation of changes in urban landscapes after 1945 (on Polish, Czech and Slovak examples)

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In my paper I would like to focus on changes of urban landscapes after 1945 under the communist regime in a way that they were presented in Polish, Czech and Slovak literature published after 1989 (when a climate for talking about politically uncomfortable topics has changed). The main subject of my interest is how surrounding landscape influences people's behaviour. The destruction caused during the WWII in Polish (former German) towns like Gdańsk, Szczecin or Wrocław and decision of contemporrary authorities not to restore anything for many decades forced citizens to live in surrounding full more and more decaying. Bratislava has not been destroyed during the war, but the city have been rapidly growing assimilating neighbouring villages. People who started being a part of a city are forced to change their traditions, habits and a lifestyle. An architectural example can be Bratislava's churches – one of them is now surrounded by a modern highway that has nothing common with holiness of the sacred place. Losing historical values of Polish, Czech and Slovak towns leads to losing identity and moral precepts by citizens – protagonists of literary pieces, as if the authors wanted to say that not only people create their neighbourhood, but also – how surrounding can influent inhabitants.

ID 034

App and Go. Edutainment for Micro_Cities on the Sicilian Ionian Coast

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This study, which began in 2012 with the analyses, the surveys and the drawings of some small Sicilian cities on the Ionian coast (Mandanici, Alì, Forza D'Agrò, Fiumedinisi, Itala and Allume in 2018), it now continues with some projects useful for the sharing and the implementation of the obtained data and for the increment of the awareness of the inhabitants and occasional users regarding the architectural and landscape value of these places. The little cities on the Ionian Coast, despite the some peculiarities, are similar in location, structure and shape, in addition they often, have the same architectonical language. The Micro_Cities are having to deal with the profound economic crisis of the region and the progressive and inexorable depopulation. One way to increase their economy is to intercept the touristic flow that comes from Taormina and the Aeolian Isles which are not far away. This study tries to evaluate the potentiality of an organic communication strategy able to form a net with all these centres, and to enforce their visibility on the new media. One of the many possibilities that the new media offers is an "app" which takes into account the survey data (drawings, 3D, analyses) the potentiality of the landscape (orography, view and special locations) and the novel taste of young adults for the edutainment. So "App and Go" is an app which allows you to play with places, architecture and monuments.
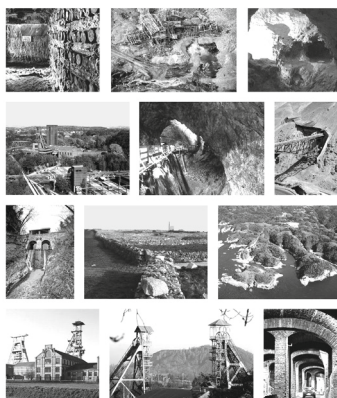
ID 035

Identifying gaps. Mining sites on the World Heritage List

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NAVAS-CARRILLO**

**Francisco Javier
NAVARRO DE PABLOS**

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In 1994, the World Heritage Committee launched the Global Strategy for a Representative, Balanced and Credible World Heritage List. Taking in consideration the Gap Report developed by ICOMOS (2005), this paper starts from determining the importance of the mining legacy in the List. Once, it has been detected that only twelve mining sites are currently inscribed, a comparative analysis between them is carried out. This phase focuses on the identification of the Statement of Outstanding Universal Value (OUV) and the selection criteria under which each property have been inscribed, as well as the main features that characterize and define them as heritage objects. The goal is to detect gaps where other mining sites can be considered, whether or not they are included in the tentative list, such as the Bingham Canyon Mine in Kennecott (USA), the Mir Mine in Sakha Republic (Russia), the Bauxite Mine and Alumina Refinery in Gove (Australia), the Big Hole in Kimberley (South Africa) or the Mines of Riotinto in Huelva (Spain). In particular, the comparative analysis shows that those dynamic landscapes have been devised hitherto from a purely cultural angle. However, it is possible to address them as result of the interaction between natural and human factors that would justify their inscription as Mixed Property.

ID 036

AR-VR-MR Innovative interactive visualization methodologies for the exploitation of archaeological sites or for the on-site visualization of building organisms not accessible or partially destroyed by earthquakes

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This document explores applications and innovative interactive visualization methodologies applied in contexts for the enhancement of cultural heritage. The design intent of applying new interactive technologies is to renew and reformulate the experiential process of knowledge and fruition of the archaeological heritage, with a view to edutainment, defining high interactivity concept of communication related to the history of places (storytelling), as well as their reconstruction or digital anastylosis. In the light of the state of the art, the diversified experiences that are currently possible are critically illustrated, using the latest and most innovative ICT technologies, with an in-depth knowledge of computer architectures, considered optimal for the pursuit of these purposes. The final aim of adopting such technologies with a high interactivity of use, is to make the in-depth knowledge of contexts extremely easy and stimulating and to centralize the attention on visitors by contemplating any singularities.
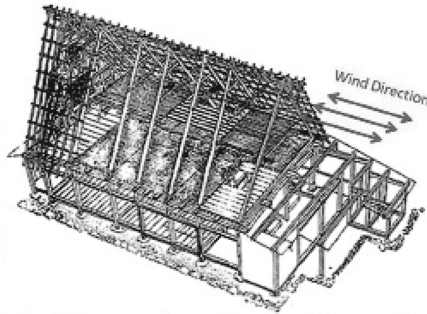
Ex. Unified direction and structure of traditional houses in Shirakawa-go for surviving seasonal heavy wind

ID 037

Traditional Knowledge of Disaster-Resilient Design in World Cultural Heritage, Japan

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The theme of this paper is to revile the reason why traditional buildings and cities such as World Cultural Heritages in Japan have been able to survive so many disasters in long history, and become designated heritages at last. It explains the new and old view point with the cases of Japan as that design of heritage buildings and historic cities which were sophisticated with traditional, limited materials and technologies in past is a kind of survival design for mitigation of unavoidable disasters. Recently, "disaster mitigation" to ward-off the unavoidable disasters within minimum damage is looked again, compared with "disaster prevention" trying to perfectly control all of the damages into zero, because we already understand the fact that even the latest modern technology can not completely cancel damages by disasters such as Kobe Earthquake in 1995 and 311 Tsunami in 2011. Cultural heritages which can be seen now are the "heritage" surviving many disasters at last with traditional knowledge. This paper introduces some of World Cultural Heritages in Japan from the viewpoint of their resistance to disasters, and sheds light on "survival designs" that employ limited materials and technologies available even in case of modern technologies getting damage because of serious disasters in near future. In this content, targeted natural disasters are divided into 3 parts as Earthquake, Fire and Snowstorm.

ID 038

Architectural heritage for the scene. Recovery strategies between changes in the show, organizational models and current production bonds

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Architecture and theater, two limbs that can be measured through space and time, are the first place of the second. The disruption of the system of spatial rules, which, starting from the first half of the 20th century, seems to affirm its independence in the new relationship between actors and spectators, causes the loss of bond between space and representation, showing useless spaces for theater. But the change of spectator point of view, his obligation to an active and participatory role, the contamination of artistic forms and theories – culminated in Italy in the conception of the Manifesto of Ivrea (1967) – have sedimented experiences that give the theater a privileged role of daily life, with social involvement, emotional and dynamic, perfectly in line with the current modus vivendi, based on indispensable technological supports. The show requires a place that allows, with a mix of genres, installations of the most recent dramaturgical research; a place where transformation can act constantly on space, returning useful to the work of the actor in his interaction with the viewer; a space that from time to time can be re-invented and re-designed.

ID 039

Geo-climatic applicability of sunspaces in European climates including resilience to climate changes

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The paper will implement a methodology to assess the local geo-climatic applicability of sunspaces in European climates considering both winter and cooling seasons. The proposed method is based on the development of a key performance indicator (KPI) able to define the potentiality of sunspaces in reducing the winter energy demand of buildings according to the local climate conditions. Furthermore, a second KPI will be introduce to include in the analysis the negative effect of sunspaces in the summer season considering the positive effect of shading systems and natural ventilation for preventing and dissipating the overheating effect of this technique. The proposed KPIs will be calibrated using two technological configurations of a sample residential building unit considering different levels of performance of the building envelope (high insulated envelope and low insulated one). Calibration and analyses will be based on the use of virtual-climate related energy demand indexes (heating and cooling degree days) and on the parametrization of results of a large number of dynamic energy simulations performed on the sample building unit using EnergyPlus. Finally, effects of climate changes are considered including typical weather morphing in accordance to IPCC scenarios. This last analysis will help in introducing a resilience-based calibration of the previous defined KPIs facing climate change impacts.

ID 040

Design of indoor climate-control passive systems in buildings: experiences for a PhD course

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In the last decades, the amount of energy consumed for space cooling and ventilation has raised significantly. Furthermore, cooling energy needs are expected to become one of the major consumption voices in the building sector. The air-conditioning market is growing faster and faster both in industrialized and developing countries, and even if the EER of these systems are higher than in the past, the total energy consumption is rising. For this reason, and in accordance to the requirements of the EU towards NZEB and the diffusion of renewable energy sources, the development of low-energy alternative for space cooling is an important issue for the research sector. The paper will focus on the effect of passive cooling systems in reducing the cooling energy demand of buildings assuring users' comfort conditions. The paper will report the results of a Ph.D. course on "DESIGN OF INDOOR CLIMATE-CONTROL PASSIVE SYSTEMS IN BUILD-INGS", that will be held at Politecnico di Torino in February 2018. Different passive cooling ventilative techniques will be analyzed comparing different methods of calculations ranging from very early-design phases (building programming), using simple ventilative cooling potential tools, to advanced design phases, using dynamic energy simulations. The effect of different design choices on the expected reduction in cooling energy needs will also be considered.
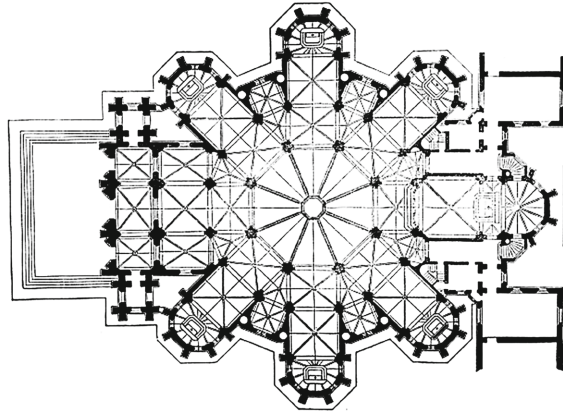
ID 041

The Sanctuary of Castel Petroso: reflections on architectural representation

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This paper is the result of wider research that aims to create a link between the most prestigious architectural complexes in Molise, independently of their function, period of construction and state of preservation, the intention being to catalogue and document them, but also to create tourist itineraries. In this specific case, the complex in question is the sanctuary of the Madonna Addolorata at Castel Petroso, a late 19th century Neo-Gothic design by the engineer Francesco Gualandi. It is a unique example of its type in this regional territory and its construction was a long and difficult process. This research has looked at documents, letters, drawings, and photographs with the aim of reconstructing the building's history and its design process. Documentation belonging to the bishop's see of Campobasso, the architect's papers belonging housed in the Archiginnasio Library, Bologna, and those of some local cultural associations were examined as part of this activity. The research uncovered a substantial amount of information that provides an understanding of the choices behind the decision to build such an original and important structure for the Marian cult in this poor and uncontaminated area. The inductive methodology used to analyse the drawings has made it possible to appreciate the building's conceptual, formal, distributive, structural, technological, and theological aspects.

ID 042

Abandoned Railways and Cultural Heritage. Networks for spread regeneration

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The Italian policies of incentive for road transport, the progressive depopulation of the internal areas and the communication patterns of the digital age have contributed to a gradual abandonment of the railway lines connecting the smaller centers. The increase of unused railways requires effective reuse models, aimed at relieving the State Railways Company from the heavy management burdens of assets which are no longer able to generate income. Ten years after the 2008 Finance Act, which established a fund of 2 million Euros to start a reuse program of the abandoned Italian railways, the unsuccessful cases of railway enhancement are several. Referring to the law 128/2017, which provides for the creation of tourist railways by reuse of abandoned lines in areas having particular naturalistic or archaeological value, the research illustrates a model of resources integration based on the recognition of local cultural and socio-economic potential, in order to activate spread regeneration processes. The knowledge of the natural and cultural resources and the study of the current fruition models allow to plan enhancement measures, according to the value and vulnerability of the assets, the social benefit that may derive from them, the use needs and the ability to attract private investors.

ID 043

Building Design and the City in Recife (Brazil)

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DA MOTTA**

The Federal University of
Pernambuco-UFPE, Brazil

Even though the theme of the "city" is in the spotlight of
the contemporary architectural debate and a movement
of integration – especially in the field of urban planning –
between public and private spaces is in place, the archi-
tectural building design itself seems to be disconnect-
ed to these challenges. Nevertheless, has the building
(architecture) always been away from the public space
and from the urban life? The appeal that the project of
the building makes to urban life (the city) varies from one
historical moment to the other and whether the project is
designed for a consolidated urban area or for a neighbor-
hood under development. Thus, after one first period of
protomodern architectural interventions from the original
historical fabric of the city and the presence of an archi-
tecture integrated to the urban context – including exam-
ples of buildings with passages and galleries open to the
public – there is the consolidation of a long period when
the modernist building seems to deny the city or intends
to replace it through the so called multifamily club condo-
miniums. However, and in conclusion, this text suggests
that the recent architectural debate from the second half
of the 21st century seems to point out to the emergence
of a resistance movement against the paradigm of the
monofunctional vertical building isolated in the lot.

ID 044

Innovative instruments of territorial environmental management: the need for a regulatory approach

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In the present work, a broad legal analysis will be carried out on the changes that have affected the growing environmental protection, starting from its identification as a principle of values up to the birth of an environmental subjective right at the international, European and national level. In terms of environmental protection, the scheme adopted by both European and national legislators is based on the classic provision/sanction scheme, i.e. a command-control rule. Such a protection model, however, causes an increasingly ecological deficit, to which contributes the lack of sense of responsibility of the economic operators and of the community benefiting of goods and services. The challenge presented by the new regulatory approach on environment protection aims to the adoption of an environmental protection regulatory system mainly based on incentives and private certifications as promotion of public loans. Therefore, the scope of work is to encourage a reflection on the gradual support and/or replacement of the State's traditional powers of intervention and regulation on environmental protection with those instruments provided for the environmental certifications, while analyzing the effects that such approach would imply on the local authorities responsible for the territory.

ID 045

The Redesign of Boundary between River and Ground. A Technological-Environmental Approach for the Resilience of River Corridors and Health of Inhabitants

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Through the regimentation of rivers, the water has determined the evolution of anthropic development and settled communities. Because the extreme climatic events, in the last years the boundary between inhabited lands and water bodies was often transformed through an illogical separation between the dimensions of control the river flows (monitoring, safeguarding, regenerating) and the dimensions of inhabitants' life-activities (moving, recreating, open-air living). On the contrary, this boundary can become the main site in which to reactivate resilience capacities working on an innovative design approach able to incorporate the randomness and uncertainty triggered by the mutated climatic conditions, forecasting settlements' variable structures guaranteeing a state of adaptive safety and healthy living. This 'inter-dimensional re-design process' can contribute to the definition of evolutionary inhabiting scenarios though a proactive re-composition of strategic, tactic and operational actions. In this symbiotic adaptation of the human kind to the natural environment (proposed with this abstract), is possible to implement different levels of resilience: the safeguarding of exposed natural/artificial elements (resilience of metabolic flows); the safety and health of inhabitants (resilience of communities/organizations); the integrity of architectural/infrastructural heritage (resilience of the built environment).

ID 046

To save from oblivion and destruction. A historical-juridical perspective on the cultural heritage's protection.

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It's undeniable that cultural progress has generated the growth of sensitivity for the protection of environment and cultural heritage. It's a process in continuous evolution that marks this matter by intrinsic historicity. The seventeenth and eighteenth-century tendency to collecting made works of art as indicator of wealth and, therefore, of social prestige. This point of view changes later with the assertion of the principle according to which the work of art remains the most important witness of the history. Law must deal with the protection of the cultural heritage from oblivion in order to keep the historical roots of the country alive. The awareness of the civil function of cultural heritage requires own rules in order to preserve the identity of the Nation. But what can happen when war or natural disasters, such as earthquakes and floods, eradicate the roots and impose the reconstruction? The ground on which the legislator fights his hard struggle is the choice between the preservation of what remains and the reconstruction by falsifying historical identity. The choice to define normative tools to redesign, restore and reconstruct is not neutral but rich of consequences.

ID 047

Structural morphology of the oldest Church in Capocastello (AV)

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Generally, the religious complexes, such as churches for example that arise in historical aggregates have a great cultural impact on the aggregate those places. The S.S. Salvatore and Trinity Church has had the characteristic of strengthening the community union that grew up around it. On a square with a panoramic terrace of the Capocastello town stands the Church that will be treated in the paper on whose front is given a date 1636 (date of its origin) and above the stone portal there is another latin inscription "VIRGINIS HOC TEMPLUM CASTEPENE-TRARE MEMETO - HANC SINE LABE COLASCVE SINE ALBE FUIT - 1739 D.A.". The oldest portal on the façade seems to date back to 1558. The particularly interesting trait from the morphological point of view is the formation of a single Church derived from the union of two churches fused together by the S.S. Salvatore Confraternity. The Church, in time, undergoing maintenance and restoration, presents a unique volume with a bell tower. The material of the mannerist portal is stone. Next to it there is the sacristy entrance with a portal with a carved stone frame. The architectural beauty of this monument well conceals and notable structural problems that the building has shown since the beginning of its construction.

ID 048

Seismic safety evaluation and push over analysis of the oldest church in Capocastello (AV)

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The S.S. Salvatore Church in Capocastello shows interesting structural morphology. Its current morphology derives from two churches of different ages union. For this reason the church structure will be modeled by using structural engineering software. The static-nonlinear analysis (pushover method) will be performed. By using this method structure will be subjected to gravity loading and a monotonic displacement-controlled lateral load pattern which continuously increases until an ultimate condition is reached. The analysis will be defined by using data in the Italian building code (NTC 2008). The preliminary knowledge phase considers the structural morphology of the church derived from the merger of two churches, the degradation state, the restoration interventions, the materials mechanical properties, the structure geometry etc… The paper shows the relevant of an accurate structural model for the conservation assessment state and vulnerability analysis of religious buildings deirivated by the historical stratification of the town of Capocastello.

ID 049

Ancient roads of Southern Etruria: historical evolution and digital investigation

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Southern Etruria represents an area of crucial importance for the comprehension of Etruscan and Roman old roads. In Roman period, the campagna romana became a "filter area" where the ancient roads originated and important settlements and resting places for travellers and troops arose. The knowledge and the individuation of these archaeological remains allow us to develop an appropriate local planning and to preserve the traces of the historic landscape. Between the 50s-70s, the studies in this area led to important outcomes for the comprehension of the ancient landscape, in particular through the use of aerial photography realized for military purposes. In these pictures it is possible to recognize road layouts and archaeological sites that at that time were well visible. The research aims at presenting the historical routes evolution of the Southern Etruria with a focus on the area between Rome and the lake Bracciano. This is a big area located north of Rome and historically strongly linked with it. The paper try to outline a possible archaic scenario related to the ancient routes, starting from a morphological analysis. Differently from the beginning of the 50s, we nowadays have the possibility to investigate the problem of the archaeological remains with digital methodologies and techniques. In particular, the use of the digital photogrammetry allows us to georeference the pictures of the past and to integrate these data in order to create a cultural heritage documentation.

ID 050

PCM in the energy redevelopment of social housing

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In Italy there is a substantial building heritage of social housing built in the '70s/'80s with industrialized/prefabricated techniques with low energy efficiency. These buildings require energy redevelopment actions. However, the interventions that can be carried out must necessarily be compatible with the building techniques, which are not very invasive and have fairly low costs. Therefore only a very limited number of solutions related to the envelope and to the systems can be applied, allowing users not to leave their accommodation. In most of the Italian climatic zones, the interventions to be adopted on the envelope, generally related to the external insulation and to the replacement of the windows, generate however an improvement of the energetic performance and of the comfort only in winter regime. In fact, during the summer, internal comfort conditions get worse, because the internal temperatures tend to raise of a few degrees. In addition to these solutions this requires also systems that allow at least not to worsen the conditions of summer comfort. This paper presents the application to a representative building of this historical period in Florence area, realized with the "SBS" building system, adopting an external insulation, varying and evaluating the thermal insulation materials, also applying phase change materials (PCM) and systems to prevent the indoor overheating in the summer season.

ID 051

The Visibility of the Monumental Heritage and the Network Society

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The need to collect, classify, eventually rediscover outstanding monuments as well as minor assets is a fundamental step in any protection and recovery initiative. This necessity may meet the request for knowledge and participation that comes from a conscious and motivated part of society. The space of digital communication and the network appears increasingly as a place of integration between cultural policies and community trends. On the Net it is possible to find websites, promoted by institutional bodies, private foundations and museums that offer photographs, digital reproductions but also three-dimensional models. These top-down initiatives coexist with innumerable spaces born of spontaneous participation in which discussions and free contributions accumulate information and widespread knowledge. An audience of enthusiasts can offer images and data often ignored on monuments, works of art and archaeological sites. Finally, scholars cannot underestimate elusive communities of lovers of the territory and anonymous explorers who are also ready to challenge legal restrictions in order to access and visually reproduce abandoned spaces, often with remarkable architectural or artistic quality. On the whole, we are in front of a phenomenon that is still evolving but probably shows the future step in the new frontiers of heritage protection for which new forms of integration will have to be studied.

ID 052

Ziride and Hammadite palatial architecture and its influence on Norman architecture in Sicily

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In 973, the Fatimid Caliphate al-Mu'izz, abandoned the two royal cities of Tunisia, al-Mahdiya and al-Mansuriya, for Cairo, leaving the dominance of Ifriqiya to the Berber tribes of Beni Ziri; with the capital Achir in Algeria, on the slopes of the mountain Lakhdar that dominates the high plain of the steppes. After a few years Prince Buluggin ibn Ziri abandoned central Maghreb and its capital, moving to Kairuan in Tunisia. The protection of the old capital of the Ziride kingdom was entrusted to the Hammaditis who, taking advantage of this new situation built, in 1007, another royal city: the Qal'at of the Benu Hammad, located in the Hodna mountains in northeastern Algeria. Unfortunately the illustrious Fatimide civil architecture has almost disappeared, neither Mahdiya, nor al-Mansuriya, nor Cairo allows us to define its spatial planning framework. To try, in some way, to trace back to the palaces of Fatimid it is necessary to study the architectural designs of some noble palaces built in the Ziride and Hammadite time, which also show some analogy with various Norman buildings.

ID 053

Asinabka: Cultural Heritage of a Native Sacred Place

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Late Ojshigkwanàng, (William Commanda, 1913-2011), Algonquin Elder of Kitigan Zibi Anishinabeg (Québec, Canada), initiated a plan entitled "Sacred Asinabka-Chaudière/Victoria Island Site". This vision, endorsed by Algonquin Elders and other Aboriginal communities of Quebec and Ontario in 2002-2003, projected the development of a site that would include a park, a historic site, a conference centre and an Aboriginal centre. This on the Sacred land of Asinabka, located two kilometers from the Canadian Parliament. The heritage (archaeological remains, artifacts and archival documents) of this millennial presence is currently preserved in various museums, archives and private collections. To understand the First Nations of Canada's capital, it is essential to address this heritage as a whole, a process which has not be done so far. These documents are fundamental to reconstruct the Aboriginal ancestral occupation of the National Capital Region. They also serve as markers to confirm the sacredness of the Falls and surrounding islands. The exercise is crucial since a real estate development underway could compromise the spirit of place if it omits to respect the ancestral character of the environment. It is therefore essential to understand the heritage underlying the vision of Ojshigkwanàng William Commanda. Methodologically, this presentation takes into account the Aboriginal knowledge and perspective as well as works of non-aboriginal researchers and observers.

ID 054

A spatial multi-criteria analysis model to identify intervention strategies for the recovery of abandoned olive groves. The case study of Lucca Hills

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In Italy, human knowledges and competences in modelling territories, together with a variety in morphological, geographical, cultural and social features, have brought about a large variety of rural landscapes. Rural landscape is a fundamental part of the cultural heritage that, when full of historic-identity, ecological and environmental values, represents also a resource for rural area development. Furthermore, traditional rural landscapes are not only an expression of cultural identity, but also examples of sustainable management of cultivated land. This resource is presently threatened in mountainous and hilly areas where the progressive abandonment of cultivation is one of the main causes of the degradation of both traditional rural landscapes and cultural heritage. In order to prevent these phenomena and to protect traditional rural landscapes, it is necessary to identify governance models aiming at the enhancement and restoration of rural areas, while remaining coherent with the present socio-economic structures. The study describes a method for the assessment of abandoned hilly farmland and for the identification of strategies aiming at their productive and landscape requalification. The method is based on a spatial multi-criteria analysis and it has been tested in the hilly rural area of Compitese (Lucca, Tuscany), where terraced olive groves with both high historic-identity and landscape value are predominant, but where there are evident processes of "renaturalization".

ID 055

Landscape redevelopment as a tool for the enhancement of rural areas. A project proposal for the case study area of Padule di Bientina (Lucca – Italy)

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Landscape is an extraordinary resource to read the past, the present and the future assets of a territory. At the same time, landscape is a common good whose conservation, maintenance and enhancement are generally seen as a local communities' duty. According to the retro-innovation approach, a historic rural landscape can be a development engine for a territory when it is properly reinterpreted and redesigned on the bases of new local communities' needs. This should be done by preserving its primary function of food production while, at the same time, improving its ecological and environmental performances and strengthening (and not losing) the knowledge of the specificities of places. The retro-innovation approach has been the guide for a study performed on the reclaimed plain of Padule di Bientina (LU), and in particular on a sub-area of 235 ha cultivated with arable crops. This area shows evident signs of abandonment and carelessness and, at the same time, elements of naturalistic and environmental value and of historical-testimonial interest linked to the presence of a traditional arrangement of the fields. The proposed project was developed as a master plan of rural area re-organisation where the redevelopment aimed to catch and to develop different needs and vocations, i.e. the productive role of agriculture, the naturalistic, environmental and ecological aspects, the historical-landscape, the aesthetic-perceptive and the fruition of the territory.

ID 056

The reconstruction of an Image. The experiences of Quaroni and Piacentini in Basilicata

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The study about "the modern" architecture of Basilicata is an interesting field of research. Most of these architectures have yet to be completed or during the centuries, they had been object of several transformations because of no one recognized their formal value. In this way starting from the analysis of existent traces and from the info of archive documents, the use of virtual models allowed to restore and relive the architectonic experiences of the early 1900s. Project Ophelia is an example in Potenza (Basilicata). In Potenza, in an area now heavily urbanized, there is an ambitious project built in 1906, which involved the construction of a hospital for the mentally ill: it consists of several isolated pavilions and service facilities. The project, designed with the most modern urban solutions and rational use of space, has been signed by the architect Piacentini and the Eng. Quaroni, but has been never completed. The research carried out on the buildings of the "Ophelia Project" aimed at creating a database of information that can be used in the implementation of restoration of these important architectural creations of the early'900. The photographical, architectural and metric survey has been supported by the archival research. The use of the virtual model, then, has made possible to study the project never completed in its entirety, in order to grasp all the peculiarities and architectural design and construction.
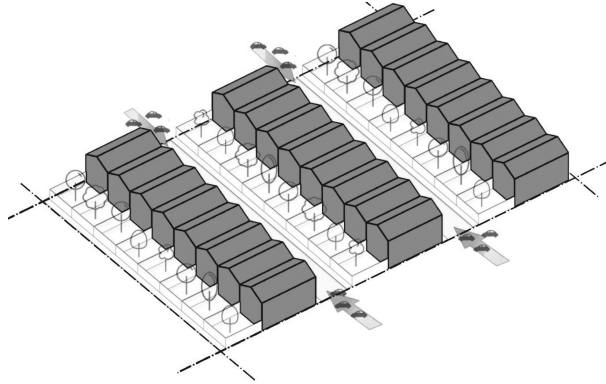
ID 057

The aggregation of the building elements in horizontal structures

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From its origins until today, the row house is claimed in a context of aggregate construction landscape, enabling you to achieve high urban densities without having to give up a type of single-family dwelling. In the course of the years there have been numerous trials of this specific building typology, which are influenced by different cultures and different technologies, they have generated a great variety of characteristics and compositions, from individual accommodation to the entire morphology of the urban fabric.

The multiple aggregations of this building type are defined by the relationships between rooms, the paths and pedestrian roads, with its connections to the parking areas, and open spaces public and private. The experiments of recent years made on the construction industry, horizontal, urban, have brought the architects and the landscapers to deal with the various needs and issues that affect the scope of the terraced buildings. The design choices that are made concern, in large measure, the density of population net and the possibility of access of vehicles.

ID 058

New trends in land-use planning local policies: between the need for reducing soil consumption and participatory urban regeneration models

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Every year, in Europe about 1,000 km (i.e. an area larger than Berlin) of new land is urbanized, with often irreversible environmental, economic and social consequences and costs. The increasing limitation of building possibilities, the problem of building saturation, the increasing importance reserved to landscape and environmental protection, the "zero" population growth and the increasingly recurrent hydro geological issues have laid the foundations for an overall reconsideration of territorial government policies, oriented towards urban requalification and regeneration rather than building expansion. In light of the above, the paper will focus on the study of recent Italian (national and local) public policies inspired by the needs to recover and reuse existing buildings and refrain from agro-natural soil consumption, in order to verify its effectiveness also in the perspective of holding the citizen called upon responsible – according to the principle of horizontal subsidiarity and to the recent meaning of territory as a common good – no longer "to be subjected to" public choices, but to actively participate both in the decisional and implementation stage.

ID 059

The main pillars reconstruction of the Basilica di Collemaggio

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The Basilica of Collemaggio in L'Aquila, built in the late XIII century by the will of pope Celestine V, experienced several seismic events during its life and, some of these, caused some damages to its masonry structures. Particularly, the April 6th, 2009 earthquake caused the failure of the transept area where the dome, the barrel vaults the triumphal arch with the above supported wall, the two main pillars and the roof structures collapses.

In this paper, the reconstruction project of the two main pillars, characterized by an inner hollow reinforced concrete column covered with the former outer layer of stone blocks recovered from the collapsed main pillars, together with the new relative foundation system is presented. After a brief description of the conceptual design on which the seismic retrofitting intervention was based, different type of numerical analysis are reported. Finally, a short description of the construction stages during their realization is described.

ID 060

The Promotion of the cultural heritage: brand new challenge, same old problems

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Together with the traditional task of protection, the Italian "Cultural Goods Code" arranges the main aspects of the new tasks of promotion of the cultural heritage, in order to improve its use and enjoyment by an increasingly large audience. The promotion task is known as a complex activity, which involves at the same time authoritative functions, public service performances, and both private and public law contracts. Moreover, the complexity of such task is combined to the involvement of private operators – most of the time, no-profit ones – who are asked to support this public activity by organizing the agenda and providing funds. Thus, it can be said that nowadays such issue has fully reached an economical dimension. For this reason, significant investments are needed, most of the time with no fruitful return in the short-term. The complexity of such task, the involvement of the private sector, and the low gains related to the investments needed raise a huge amount of legal dilemmas that have to be analysed. Amongst others, the most important ones are related to the distinction between "service" and "function", competition protection, and scientific definition of such entangled phenomenology, especially in terms of management models.

ID 061

The earthen architecture culture and campidanese house. Strategies for recovery and enhancement of the Quartu Sant'Elena's Old Town

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Sardinia, the second largest island in the Mediterranean sea, is the Italian region that boasts the largest number of old town centres with earthen architecture. Following the modernization of society and the new methods of construction, the vernacular architecture of this beautiful island is going to disappear: over the years, poorly managed municipality and negligence of citizens have destroyed whole testimonies of an architecture that as lived for centuries and it has been an integral part of the daily life of the Sardinians. The "Campidanese House" is the symbol par excellence. Definitively losing a cultural heritage of such historical and testimonial value is unthinkable. Through a careful study on the raw earth architecture culture, the peculiar constructive characteristics of Sardinia have been defined, subdivided into five macro areas. The city of Quartu Sant'Elena, the third largest in terms of the overall population in Sardinia, boasts the largest earthen historical centre of the island and perhaps of Europe.
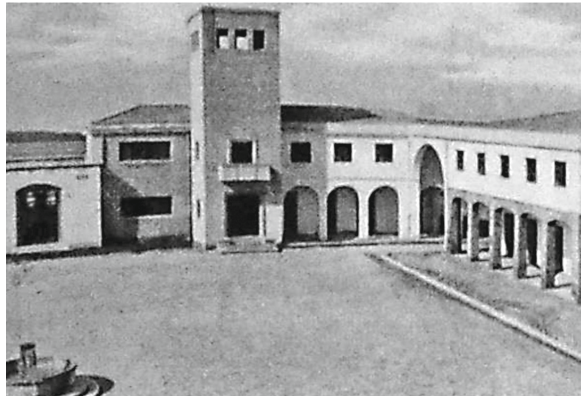
ID 062

Sicilian rural borghi, urban and architectural entities between concreteness and immateriality

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Sicilian rural borghi, conglomerates arisen during the Fascist period, were planned to boost the revival of the rural world, meanwhile ultimately discouraging the historic latifunduium, typical of the island.

These modest aggregates were conceived as core for the adjacent small farms. The main services were settled in these villages, inhabited only by people who worked there directly. Architectural, urbanistic and socio-economical unique entities arose in this scenario. From a technical, social and formal perspective, the hamlets were influenced by features of the rural world.

The examples under exam represent the proof of an unprecedented architectural language full of immaterial cultural contributions. Some of them are crystal-clear, while others only show the potential of a higher value.

The past joins the present within this setting, yet the modernity is pushing them aside, as background to a more complex society in its never-ending, rapid expansion. Nonetheless, although the modernity may be canceling the hamlets themselves, it cannot cancel what they represent: a symbol of identity, connection and history.

ID 063

Assuming and Enhancing the Youths' Perspective on the Caribbean Territorial Heritage: the Caritalents Training Program in Barbados and Dominica

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Climate change and markets globalization threaten the Lesser Antilles human and physical landscape imposing huge natural, socio-economic, and cultural transformation. Barbados and Dominica share the duty of preserving and enhancing their Caribbean Heritage as a resource to fight territorial fragility, cultural impoverishment, economic vulnerability and social disintegration. The Caritalents project focus on territorial heritage by the perspective of young people, aiming at improve their living and working conditions by training them with innovative participatory tools. Its experimental training concept previews a two-steps transfer of knowledge. First, to qualify and specialize education personnel linked to cultural, educational and leisure institutions. Then, to impact a larger range of social actors, especially young citizens 'in situation of risk', targeting them through actions aimed at enhancing the awareness and knowledge about the territorial heritage. The 'Experimental Laboratories' represent the project's crucial contribution in favoring the human development of the participants, where to evaluate its performance according to the achieved results on redefining collectively the existing categories of the local material and immaterial heritage.

ID 064

Smart urban solutions to preserve cultural landscapes and territorial collective identity dealing demographic pressures

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Over half of the world's population lives in urban areas, while the coming decades the proportion of the world's population living in urban areas is expected to increase to 66%. To meet these challenges, cities and national governments around the world are investing in the potential of smart cities at an ever increasing rate. The main drivers for cities to become smart include: demographic pressures; environmental pressures; fragility - vulnerability to natural disasters, preservation of collective identity, preservation of cultural landscapes, etc. Such pressures may strongly deteriorate urban resilience. To address all above issues, city administrations must increasingly find novel, efficient, effective and economic approaches to governance. Based on these premises and using different examples, the paper attempts to explain the importance of elaborating strategic plans as innovative and effective tools to define a vision of urban and future development desired and to coordinate actions and solutions shared by public and private actors. In this logic to start and measure strategic policies in cities, there is a need for realistic data on which to base choices at every level, from environmental policies to individual users' choices; as a useful base for a governance where engagement becomes active participation with Decision Support System tools.

ID 065

The built heritage copied and replicated. Reproduction processes of the urban heritage: transcription, restitution and displacement

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The theme addresses the issue of the morphological evolution of the urban fabric in particular its relationship with the monumental buildings. The main goal of the study is to understand how the urban heritage was systematically transformed, created and invented, retrieve the processes implemented that, from a theoretical point of view, can be transpose to the heritage intervention of today. Methodologically, the study establishes a reconstructive analysis of the successive stages and actions that make up the morphological dynamics of the heritage sites, particularly those that have resulted in the reproduction of the urban object by copy or replication. Reproduction is a (re)interpretation process of a past memory, aiming to restore the symbolic value that certain spaces or singular buildings have had in society. The approach to the case studies focuses on the critical reading of multiple operations of production and transformation of the urban fabric over time, understood as examples of the creative invention of the heritage sites. Complementarily, the concepts and processes applied in the Japanese patrimonial intervention are approached as a counterpoint to the logic defended in the West, particularly in Portugal. As such it is stated that the urban heritage is a product resulting from a creative process of invention. That is, it is a man-made physical and cultural identity that results from a constructive process, settled and never stagnant.

ID 066

Orchestration of natural and cultural heritage: Re-framing stone structures

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The paper investigates contemporary approaches to environmental and landscape design upon two different intervention scenarios. The first scenario builds upon recent environmental design project for the regeneration of Elassonitis' urban riverbanks, around its 17th c. stone bridge. The second scenario refers to a landscape design project conceived as gentle accessibility plan for Venetikos' riverscape, around the Portitsa 18th c. stone bridge. The two different and methodologically inverse scenarios constitute speculative approaches within environmental awareness agendas. Both cases confront aspects of natural and cultural heritage, as well as programmatic delegations on extended post-byzantine pathway networks on Greek mainland areas. The paper is organised upon four distinct sections. An introductory part presents current interdisciplinary statements within the subject. Certain instances and international cases follow, while the third and main part of the paper presents and thoroughly compares the two opposing cases. The paper argues for a challenge of typical assumptions on the boundaries between natural and artificial realms. A multi-layered green penetration of urban sphere and a linear urban deployment of riverine complexity are unlike interventional schemes, with similar objectives. Finally, the paper intends to conclude on the outline of interdisciplinary interventional framework for natural and cultural performativeness.

ID 067

*Seeing the View: Landscape Architecture for a Wild
Natural Site at Jebel Jais Mountain, UAE*

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Jebel Jais Mountain at Ras Al Kaimah (RAK) is the tall-est peak in the United Arab Emirates, UAE. It is a part of Hajar Mountains and it is characterized by a spectacular, rugged, almost surreal natural setting. This innate context brings challenges to design process of reading the preex-isting identity, with a purpose of understanding potentials and providing meaningful new experiences. The opportu-nity of seeing the space as the first and ontological act of cultural engagement between man and nature, poses a question: how the act of seeing is shaping the landscape as a scene, a view, a visual manifestation? How are we 'Seeing the View'? Even though holistic search for identity and 'genius loci' in landscapes is not a new approach and exists since 1960; recently it has regained greater atten-tion, where design is addressed as a critical endeavor. This paper describes landscape architectural project for a Viewing Park on the top of Jabail Jais designed by the authors, that is based on creative process of reading the site, through hand sketches, diagrams and site images. Materialization of the concept idea is presented with a proposal that is currently under construction. Stimulated by a new need for tourism and "use" of natural beau-ty, RAK municipality is facing great need for a change. Therefore, the aim of the paper is to emphasize the role of sensitive ways of cultural interaction between man and fragile natural environment, instead of aggressive human action upon nature.

ID 068

The role of Italian cultural heritage in sustainable urban regeneration. New references from four case studies

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Urban transformation generated by post-modern industrial and urban crisis has required new methodological and operational references for sustainable and resilient regeneration strategies and tools. These have highlighted a growing interest in historical, environmental and social issues. This interdisciplinary framework can enable the valorisation of strategic parts of cities with the construction of public spaces, facilities, transport and social housing and the "mending of urban fabric" in order to improve cultural identity, landscape and ecological quality and social inclusion. Italy has played a key role by initiating a debate on the recovery of the existing city by identifying conservation as a place of innovation, extending – temporally and spatially – the sphere of valorisation to many urban and territorial components. Nowadays, these components, such as industrial heritage and modern city landmarks, represent the core elements of multi-scalar and integrated regeneration strategies, as shown in the case studies of Florence, Venice, Genoa and Naples illustrated in the paper.

ID 069

Smart Heritage Strategy: a new intelligence for resilient historical centers

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A Smart city is "a city where digital technology embedded across all city functions" (Smart Cities Council), originally born as a commercial adventure for new cities planned according to principles of livability, workability and sustainability, futuristic cathedrals in the desert (Masdar City, Abu Dhabi). The Smart ideology of the "over-planned" city has found its strength in the apocalyptic feeling that phenomena such as climate change and the supply of water and energy have routed in the citizen through the mass media, and that the same multinational companies producing this new urban model promise to solve, through standardized actions anywhere in the world. Is this the future awaiting us? A city can be really defined Smart if it doesn't lose its memory, if it doesn't forget its past and if it uses the most advanced ICT to rebuild public spaces, offering actions and strategies built in adherence to the specific context, establishing a new civil conscience in human, social and economic relationships. Especially in Italy, the importance of adapting technologies to highly identifiable historical contexts, as places of historical memory and testimony of cultural heritage, is a central theme for the construction of the contemporary city, putting "best practices" into action on historical centers of large or small Italian cities, aimed at enhancement and revitalization, in opposition to the current phenomena of abandonment and gentrification that pervade these urban realities.
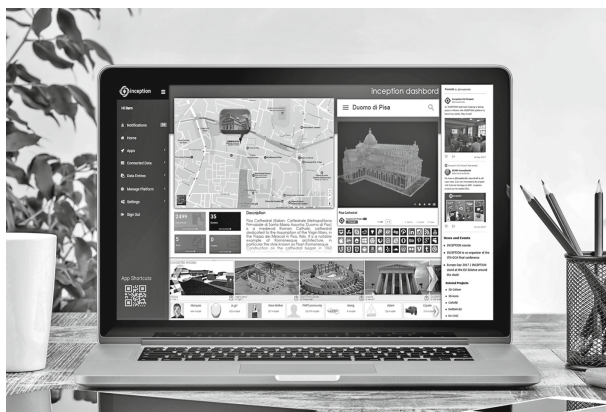
ID 070

An inclusive approach to Digital Heritage for knowledge and conservation of European assets: the INCEPTION project

Federica MAIETTI

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One of the main challenges to be faced at European level is to contribute to an understanding of cultural identity. In this direction, new technologies and digital cultural heritage should play an innovative role, enhancing heritage accessibility for as many people as possible by using ICT functionalities and applications. Nevertheless, we are witnessing to a more and more growing dichotomy between engaging user experiences and the enrichment of the scientific knowledge. Within this framework, the EU funded project "INCEPTION - Inclusive Cultural Heritage in Europe through 3D Semantic Modelling" is consistently aligned by accomplishing the main objectives of accessing, understanding and strengthening European cultural heritage by means of enriched 3D models where semantic attributes are linked to geometric models for management of heritage information.

ID 071

The commercial relations between Great Britain and the Kingdom of the Two Sicilies in the XIX Century

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The end of the Napoleonic wars and the return to the peace in Europe opened a new phase of relations between the Powers of the old Continent. With the end of the Continental System and the consequent reopening of the international trade, Great Britain showed to the world the clearly superiority of its productive apparatus which, together to the maritime dominions, projected it into a position of absolute advantage over the rest of european countries. Within this international scenery, the Kingdom of the Two Sicilies, a country still predominantly agricultural and with a very breakable production structure, had to confront itself in terms of commercial relations with the dominating power. To the model of british multilateral trade, the Neapolitan Kingdom responded, in a diplomatic framework of a country with a "limited sovereignity", with a highly protectionist model, aimed at finding a commercial space within the new european market that was simultaneously structuring. The commercial conflict that ensued, continued with ups and downs until the definitive collapse of the Neapolitan Kingdom, highlighted the inability of the Bourbon Government to carry out a radical transformation of the socio-economic structures of Southern Italy.

ID 072

The Value of Social Media for Reconstructing Lost Heritage in the British Overseas Territory of Montserrat, Site of an Ongoing Volcanic Crisis

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Montserrat, a British Overseas Territory in the Caribbean, has been experiencing a volcanic crisis since 1995. This has led to significant internal displacement of persons as well as the forced migration of two thirds of the pre-crisis population of 11,000. Many public and personal records have been lost, misplaced or destroyed by volcanic events or during crisis-related evacuations. There is concern that these losses will affect the memory and identity of children and adults in Montserrat as well as in the diaspora. Many displaced persons from Montserrat speak of losing valuable mementos, simply because they assumed that they would get to return to their homes as had happened with the two previous evacuations. In responding to the final call to evacuate, many left behind that bag holding personal documents that were just clutter for previous evacuations to shelters with space constraints. They never had the opportunity to return and collect that bag and personal losses escalated. The pyroclastic flows that swept through villages, destroyed not only buildings and homes but in many cases, treasured items that held memories.

O·N·C· LA CHIE/A NELLA III°ZONA - LITTORIA · PAX·

ID 073

The resilience of a settlement model in the age of fascism: the new churches in the foundation centers of the "Opera nazionale per i combattenti"

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After the huge losses suffered during the First World War and the serious economic deficiency of the post-war reconstruction, in Italy the advent of the fascist government created the illusion of a positive turnaround in the social structure of the nation. In opposition to the contemporary expansion of industrialism in the other western countries, the government led by Mussolini established that the agriculture should have been the pivot of an economic and social restart founded on the principles of autarchy and ruralism. In the years of fascism the "Opera Nazionale per i Combattenti", a state institution founded in 1917 to provide for the reintegration of the veterans of the First World War, controlled the environmental remediation of vast unproductive territories and, after the construction of primary infrastructures, colonized the redeemed lands dividing them into farms arranged around community centers of foundation. The target was to order large agricultural areas, populated by farmhouses built according to the principles of functionality and economy, hooked by a rational road system to the new service centers, where aggregates small public buildings suitable for functions of civil life: public offices, medical services, schools, gyms, stores, workshops and churches.

ID 074

Functional behaviours in the requalification of public residential buildings

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Social and economic conditions together with constructive features of great public residential housing built in Italy, from the immediate second postwar period up to the early 1980s, is currently subject to physical, technical and technological decay as well as to a significant functional obsolescence. Over the last few years, this condition led to an important reflection on new opportunities for the whole society thanks to the application of architectural and urban renewal strategies and approaches. At the same time, up to now, from a more technical point of view, to reduce the enormous social, economic, cultural, perceptual and environmental complexity typical of building technical form, in terms of both energy consumption and spaces' thermo-climatic control processes, a reductive-energy approach has been applied. Moving from the analysis of one economic and popular housing area in the city of Bari, selected as case study, this paper aims at highlighting, firstly the significant technical and technological decay state of these properties and then, the serious inadequacy of housing conditions for new contemporary residences models.

ID 076

Observing urban landscapes. View-points for the representation of contemporary city

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Through a sequence of images that runs in parallel to the text, the contribution proposes a reflection on the languages that allow the documentation of both the material and the ephemeral qualities of the contemporary city. Three visions of the urban spaces are proposed; three projections, three visions obtained from different points of view, from the sky or from the street. A first vision of the city, (concerns projections on the vertical plane), allows the reading of the endless production of Street Art, a language that conforms the urban space through its skin, the wall, producing opportunity for urban recycling and artistic production. The second visions of the city (concerns projections on the orizontal plane), is the view from above: some photographers are interested in representing urban spaces through a point of view that seems almost to simulate the abstraction of an orthogonal projection: Andreas Gursky (Bangkok, Ocean), Yiorgis Yerolimbos (Orthographs), Andreas Gefeller (Supervisions). The third vision of the city (concerns the projection on the oblique plane), the photographic capture of urban episodes is kept walking across a medium-sized Italian city, taken as a case study. The languages of the Drawing and the Photography are proposed as irreplaceable means of expression and privileged places of experimentation in all phases of the knowledge of the architecture and the environment.

ID 077

The design as a tool to valorize local and oral tradition for future generation

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The research is centred on the detection of local knowledge of Italian territory by exhibition experiences based on stories, proverbs, festivals or recurring events which have been handed down orally for ages and now risk to disappear. The work aims to communicate local heritage to young people passing them a largest quantity of information through different kind of experiences in temporary exhibitions and local museums. The research try to collect the cultural and traditional knowledge to find links to the local territory to be transmitted to new generation Besides the research intends to share the know-how as starting point for future developments in areas such as tourism and education. To this end, the work could suggest new uses of the ancient traditions adapting them to contemporary needs. According to these goals the research also proposes the use of augmented and virtual reality technologies to recreate the reference scenarios of the past for a better understanding of the current cultural identity. As a result the research traced the foundation to study a platform of open, collaborative and flexible tools able to share the past knowledge, allowing new cultural re-workings starting from the tradition, for future changes in different scenarios. These tools register every new use and share the results on the network.

ID 080

Made in stone

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Since first documented archeological site 9.600 years B.C. Stone was receiving different forms and had a different meaning in architecture. Bypassing the external influences and concetraited on analysis of the primary 5 rules of stone in choosen examples it is possible to examine tendences how the meaning of stone has been changing during the history and what are the consequences for contemporary architecture. Made in "Italy" is usually perceived as good quality product with original design – Made in "Stone" during my research is connotation with natural sources, with specific place, potential of local culture, local tradition, local character and global technology and global heritage. Rewiev of some examples of contemporary architecture which are Made in Stone give an occasion to see how the connections between local context and global knowledge and possibilities can bring anexpected, new quality solutions. Some of five basic rules: aesthetic, constructional, simbolic, technological and contextual are never passed and other of them tended to develop despite of competition between new materials. New requirements of users and of the architecture creates challenges as for technic aspects of elaboration of stone as for the way of design.

ID 083

Integrating governance of the National Reserve of Coyhaique, Chile, into regional sustainable development

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Most protected areas i.e., national parks or reserves, follow a strict management model that restricts activities within these areas to hiking on assigned paths or the observation of flora and fauna. Economic acticities that would benefit local populations are usually not allowed and hence lower interest for or trigger conflicts over protected areas. Therefore, new models of local enviornmental governance are warranted. These models should link local governance of protected areas with sustainable regional development through topics of common interest such as energy, tourism, education or employment. Due to the lack of blueprints for such models, we suggest to apply participation of local populations for creating models that best work in the places of interest. With the example of a project in the National Reserve Coyhaique in Chile, we show how such participative processes can be initiated and what can be gained for the local population. The project combines the vision of a 100% energy self-sustaining reserve with retrofitting infrastructure, environmental education, environmental-friendly transport to and from the reserve, and the dissemination of information through a homepage and a web application. These project components are implemented by creating spaces for local governance through participatory processes that should be durable even after the project has finished.

ID 084

Increasing resilience of Cultural Heritage Assets: the "BIMtoB Academy" project

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The Cultural Heritage is increasingly threatened with destruction not only by the traumatic events, but also by rapidly changing social and economic scenarios, which consider reusing existing building in the same way as building preservation. The current digitalization of the building sector arises, thanks to both the technological maturity and increased accessibility of ICT tools, a way to increase the resilience capacity of the cultural heritage. Moreover, the interoperability of systems as well as the new ways of sharing competences, among all the actors involved, lead to awareness on the existing cultural heritage assets and risk factors related to transformation processes in the built environment. Consequently, it is possible to identify sustainable maintenance and enhancement strategies to make the preservation effective. The current "BIMtoB Academy" research project is focused on impact evaluation of the BIM-based digitization in the construction sector for existing building project management. The study is based on the application Integrated Project Delivery Methods (IPD) in order to define, among the Universities, enterprises, real estate asset managers and Public Administration involved tailor-made information with different levels of detail and representation according to the type of intervention. Diagnostic analysis, safety, maintenance and an inclusive approach for the project are certainly emerging as key findings in order to drive more effective results.

ID 085

Enjoyment of the Cuban Contemporary Architectural Heritage: an innovative cultural visitor route to connect the UNESCO site of Old Havana to the National Schools of Art

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The UNESCO site of Old Havana is located in the old city center and includes an interesting mix of baroque and neo-classical monuments. The National Schools of Art in the western urban area, currently nominated for UNESCO's World Heritage List, constitute outstanding examples of contemporary Cuban architecture. Among these two sites more than 50 buildings designed in the 20th century and acknowledged to be significant examples of the Cuban Modern Movement merit to be known and enhanced. The article proposes a methodology finalized to design an innovative cultural visitor route to connect the contemporary architectural heritage in Havana to the old city center, with the twofold purpose of capturing the economic value of a selection of emblematic buildings and promoting forms of direct and indirect enjoyment of them, possible thanks to the support of new IT/ICT technologies, addressed both to citizens and tourists. The proposed methodology is finalized to define stakeholder engagement strategies that, through the guiding principles of inclusion, transparency and feasibility, can promote a new "cultural tourism". The result is a participatory process to design a cultural visitor route able to extend and diversify the potential visitor target and to be developed into an open air museum. This project can represent a real challenge for Cuba that is living a phase of transformation, probably a crucial historical period that might positively foster many opportunities at urban level.

ID 086

The approach of the Resilience to the cultural heritage of the inner areas: new tools of knowledge and adaptive management

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Cultural heritage in the inner areas (UNESCO 2011; 2014) has peculiarities that distinguish it from medium-large cities, for social, cultural, environmental, economic aspects (relationship between built and natural heritage, agricultural landscape, oral traditions, folklore, crafts, etc.). This heritage is affected by extreme global (climate crisis, scarcity of resources, migration, weakening of social capital, etc.) and local risks (depopulation, uncontrolled exploitation of the territory, erosion of cultural capital and identity of places, degradation of the landscape, etc.). In recent years, new socio-economic and cultural dynamics affect inner areas. Despite of an increased exodus towards the cities, in fact, there is a spontaneous cultural process, carried out above all by "new inhabitants" (Battaglini, Corrado 2014) and at the same time a growing attention by the European and national institutions towards these territories. The traditional tools are sectoral and lack an integrated and dynamic vision for dealing with the different challenges and changes of the inner areas. The approach of "resilience thinking" can represent an effective tool and a new frontier of knowledge. The research proposes a Resilience Laboratory aimed at a complex and dynamic knowledge, at the assessment of the settlement system's ability to respond to the global and local threats, at the design of support tools in the adaptive management, at the involvement and training of citizens and stakeholders in the care and control of the territory.

ID 087

The complex dialogue between contemporary language and preservation of the ruins in the restoration of Paul II fortress at Cascia

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Pope Paul II's fortress at Cascia was erected in 1487. After excavation campaigns conducted from 2000 to 2004, priority was given to the consolidation of the surviving wall fragments, taking care to avoid jeopardizing the particular character the fortress has taken on as a ruin down through the centuries; it was decided to entrust concise, distinctly contemporary marks with the task of suggesting hypotheses for recomposing the fragments; at the same time, environmental cleanup operations made it possible to contextualize the archaeological structure, setting it into the environment. It seems evident than in the past as in restoration in archaeological areas is manifested today greater attention to debris-formal aesthetic aspects, namely those arising from the architectural language still expressed by the pre-existence. Nor, for that matter, you cannot deny the new facies taken with the passage of time, despite the reduction of aesthetic values 'first', by some monuments with the inevitable process of interaction with the surrounding environment. The interpretation/return of the text, just as an act of preservation prevalent, will therefore inevitably characterized by a formative process, designed to facilitate, in a critical path, the reconnection of the fragments, in an intense and constant dialogue between material signs of the past and language of the present.

ID 088

Landscape analysis of railway structures in heritage assessment: Bridges on the Victoria-Temuco railway line

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The process of assessing railway infrastructures as an object of heritage interest has a recent history in Chile. Departing from methodological background used in the declarations of Zona Típica and Monumento Nacional applied to industrial structures, we propose to develop a methodology for evaluating historical railway infrastructures. This method transcends object analysis and focuses on the landscape in which it inserts. Characterization and time-evolution analysis of this landscape makes possible to recognize the dialectical relationship between the infrastructure and its surroundings, enriching the interpretation developed historically on these technological objects. This research applies the method, focusing on three viaducts built in the second half of the 19th century on the Victoria-Temuco railway line, La Araucanía region. The analysis reveals how infrastructure transforms the interpretation of the surrounding landscape. It also helps to understand how landscape contributes to revalue the object through a contextualization process.

ID 090

Drawing as a tool for urban regeneration. Application case: the Color Plan of the Egadi Islands

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The Egadi Islands, at the western end of Sicily, preserve a cultural and environmental heritage of extraordinary originality. Man's work, over time, has transformed the landscape: the territory has been shaped by economic activities related to tuna fishing, stone extraction, agriculture. Today, the pressure of tourism threatens to upset this delicate balance built, in centuries, between people and environment. Therefore, the Municipal Administration decided to adopt a Color Plan to manage, in cultural terms, the inevitable processes of territorial transformations. The University and the INBAR (National Institute of Bio-architecture) collaborate with the Municipality to define the Guidelines. Drawing is used as a fundamental tool for analyzing, knowing, interpreting and communicating the specific characteristics of the landscapes of Favignana, Levanzo and Marettimo. The language of drawing is indispensable for the relief of architectures, traditional colors, intervisability relationships, connections with the landscape. The local population has been involved in this process; in particular, young people, middle school students, high school students and university students were asked to express, with their drawings, the perception of the current landscape and the expectations regarding the desired landscape.

ID 091

From the traditional to the virtual museum: a strategic cultural, social, environmental and economic resource for Europe

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The paper proposal aims to introduce an innovative framework aiming at preserving the traditional museum models while facing the new technological challenges to protect cultural heritage. The Virtual Multimodal Museum (ViMM) is a high-visibility and participative Coordination and Support Action funded under EU Horizon 2020 programme. It brings together global and EU leading public and private sector organizations working on Virtual Museums (VMs) and digital cultural heritage, to support high quality policy development, decision making and the use of technical advances to protect cultural heritage. It has among its main objectives: analyse and promote the role of VMs as a strategic resource in Europe; establish key economic drivers for the establishment of VMs, due to their added value for society, economic impact and their potential for investments; promote consultation and mutual support with international and EU organizations (e.g. UNESCO, ICOM, ICOMOS); support the inclusion of VMs in the integrated policy approach of the 2018 European Year of Cultural Heritage. ViMM partner consortium is coordinated by Cyprus University of Technology and is supported by an expert Advisory Group in building the ViMM Framework, involving decision-makers and expert practitioners – also through an ad hoc communication Platform and social media – in defining and resolving issues spread across 7 interlinked Thematic Areas and related impact areas.

ID 092

Wedge-shaped bricks spires. Construction and decorative aspects

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Polychromatic majolica tiles are very present in Mediterranean region's architectures, reworking the local building culture according to Islamic influences. From surface decorations in brick and shingle, to three-dimensional elements they are frequently found in the Sicilian area both in the monumental and in ordinary architecture. The inaccurate results of the consolidation or restoration works of these spires show that the operators are used to improvise interventions, ignoring both structural and decorative aspects, and the usual forms of damage and decay. The systematic research started, on more than a hundred of these artefacts, has allowed us to recognize geometrical aspects, different decorative and constructive systems, and a variety of majolica wedges used to many different forms and sizes. The study was possible thanks to a number of fundamental processes, such as: the historical and investigation; the retrieval of documentation both iconographic and archival; the analysis of constructive methodologies and the application of innovative surveying and representation systems. We identified the spires, built with single and double curved surfaces. We distinguished them in two categories: spires in which the wedge-shaped bricks are basically used as coverings with variegated geometric patterns; spires in which the spatial arrangement of the wedges, obtained with their juxtaposition of different colour, is used for static and decorative function.

ID 093

Pottery from the south-west area of the Castle of the Monte in Montella: the decorative repertoire

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Archaeological researches carried out in the Castle of the Monte in Montella (Avellino) between 1980 and 2008 have underlined a multi layered complex to whose first phase of employment as village of huts, going up again to the VI century, follows a curtis evolved it in the IX century in a gastaldate. On the fortified center between XIII and XIV century an elegant residence was built thanks to the work of an important person of the Angevin court, probably Charles II, which created an ample park of around 3 hectares. To this last phase of use belong unpublished fragments of pottery recovered in the castle area and in the underlying "rasole" 1 and 20, characterized by a variegated decorative repertoire articulated in geometric motives, vegetables and zoomorphic, whose examination gives new data about the production and circulation of the manufactured articles in hinterland of Campania.

ID 096

Itineraries of urban identity

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The current urban restoration projects must respect the components of social compactness that exist in a specific territory and that depend on the degree of relationship established between the inhabitants and the places in which they live: it is an "urban identity" that, especially in Italy, is a true heritage: shared, peculiar, nourished by stories, identity characters, memories of places. This identity was built by a balanced and symbiotic society, aimed at product excellence and quality of life. The dynamic strength of this compactness has designed the aspect of the cities with strong distinctive features, signs of cultural authenticity. Today this force is projected from the urban centre to the surrounding territories. In this direction and thanks to the renewed productivity in the food and wine sector, in recent years some famous Tuscan wineries have been built or renovated as very innovative architectural projects: buildings integrated into the surrounding landscape, associated with innovative technologies and designed to respect the value of the existing. They are models of a successful attempt to preserve the territorial identity by integrating the past (buildings, streets, gardens) with the present (wineries). This work presents the results of the research realised by the author in the identification of some "itineraries" within the Tuscan territory, to highlight the contribution of architecture and design to the maintenance of that ideal thread that links the best practices of the past with the cultural identity of the present.

ID 097

Principles of cultural landscape Restoration

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Increasingly, heritage site restoration projects, require conceiving beyond their disciplines to develop analysis, strategies and design concepts with other fields of expertise to overcome challenges that threaten eternity, unity, and the other heritage sites conflicts. Cultural Landscape restoration in heritage site, plays the crucial role in re-connecting tangible and intangible aspects of heritage site with considering the natural, historical and cultural aspects in an interdisciplinary restoration plan. "Bisotun" site as an outstanding universal value and a testimony to ancient Iranian civilization is inscribed on ICOMOS world heritage list (2006, No 1222). This research emphasizes on the principles of the cohesive restoration plan to converge conservation and design frameworks according to valuable layers of this heritage site as an asset for all humanity. With defined viewpoint to cultural landscape restoration, conditions of applicability and feasibility will be preserved for long-term benefits. Research results show that, during the last fifty years, the natural-historical succession of the site has lost its coherence and connection. The descriptive-analytic with correlation research methods have been applied to present and codify the principles in this site. Research in multi scaled zones is inevitable. Survey the information , the qualitative method, a detailed description of observation including the content of opportunities and threats considered meticulously.

ID 098

The representation of complex systems. New communication strategies

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In recent years, architecture, considered as a mere architectural organism, has gradually expanded its boundaries acquiring an increasingly broader meaning. We have thus come to see as an integral part of it what can be considered intangible, but which is nonetheless essential to contribute to defining its identity. The diffused visual culture and the tools available gave rise, once, to forms of representation that could be defined as 'progressive', articulated according to a sort of conceptual linearity that certainly ensured the structuring of an effective gnoseological path, but that, from another point of view, could always be considered partially focused on a few aspects at a time and above all, in some of its forms, addressed only to readers with specific skills. In recent years the expressive potential has grown so as to allow the involvement of users once excluded from a specific technical language. The growing awareness of the fragility of the landscape makes crucial the chance to focus more on collective awareness on certain issues in order to trigger "active elements" that make possible virtuous actions. The study proposed here addresses this theme with an experimentation focused on the terraced landscape of Liguria in virtue of its complexity consisting of historical, landscape, geological, agricultural, social and architectural factors.

ID 100

Historical heritage of Lecco city, a resource for improving urban resilience

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To understand the development process of Lecco city, the interpretation of its "forma urbis" and its historical remains is a useful tool, especially with the aim to preserve the historic value as a resource for relaunching the territory. The paper shows the results of the urban analysis, based on the comparison of the historic map and the assessment of the historic center at present. The following SWOT analysis and the identification of the potentiality of historic remains for developing a stronger shared knowledge and information, awareness of the common heritage as a spring of the resilience of the city. Lecco became a fortified city in the Middle Ages: the ancient walls partially remain as a neglected, misunderstood part of the city, that became mainly industrial in the 17th century. Due to the resources of iron mines in the surrounding valleys, many factories were settled along the river Gerenzone, in the northern part of the city.

ID 101

The tumb of Henenu, Luxor, Egypt: underground surveying

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The funerary complexes of the Middle Kingdom continue to be interesting 4000 years later. It is not for the first time that the Henenu complex (TT313) has been yet excavated (H. Carter, and H. Winlock in 1910 and 1922, respectively). The third season of MKTP in 2017 was focused among other works in the 3D reconstruction by laser scanner of the internal corridor and the exterior courtyard. Underground surveying of cellars, caves, and architectural spaces, is quite different from surveying on the surface. Researchers must deal with various challenges derived of the lack of light, temperature, and humidity, but also with accessibility. But the essential problem in underground surveying is that of orientating the underground surveys to the surface surveys. For this purpose, our methodology integrates different geomatics techniques, as the use of a scanner laser in order to obtain a 3D model, as well as classic topography, to locate accurately the control points according to the official reference frame of the Geodetic Network. The tomb of Henenu is a large funerary complex which includes an open-air courtyard of over 110 m long by approximately 30 m wide, and on the interior, over sixteen chambers communicated by shafts and corridors. Their study is particularly relevant because the relation between the excavation and the geological nature of mountains where is located. Our work will bring into light an important part of the middle Kingdom architectural heritage.

ID 102

The preservation of the architectural heritage of the twentieth century: the laminar structures of reinforced concrete

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The beginning of the 20th century brought a new typology of architecture based on the use of geometrical laws of nature, the use of a new material such as reinforced concrete, and the use of plastic calculus as a tool to mold continuous, adirectional structures, such as the long cylindrical shells or the hyperbolic paraboloids of Felix Candela. This type of architecture allowed the creation of large diaphanous spaces of great plastic beauty due to its close connection with the laws of nature that generates them. Little more than 100 years later we see how the necessary legal protection has not been given to these buildings to consider them part of the heritage and we are witnessing a process of disappearance of most of the structures that have defined an important period of modern architecture. From this research we have made an inventory of the main structures made with these techniques and their state of preservation today and the possible measures for their possible rehabilitation, and real or virtual reconstruction through the use of digital tools, 3D scanners or lifting using photography, and especially its inclusion in the catalogs of buildings that are part of the architectural and cultural heritage. The process culminates with the possible construction on a real scale of the models lost by digital manufacturing systems or the diffusion through augmented reality.

ID 104

Decline and Resilience of a Mediterranean City: the Case of Syracuse during Thirteenth Centuries

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Syracuse, great Byzantine capital, seat of the "Stratega", knew a medieval decline but became a focal point of fortified structures during Early Modern Age within the Kingdom of Sicily. This wonderful and challenged city faced a new decline at the beginning of the contemporary age. In fact, many hopes of economic development were born in the 1950/60 with the start of a process of industrialisation but actually it was a heavy failure. A new era appeared at the end of the 20th century with the urban planning, restoration and regeneration, and the final success, obtained as tourist capital of the Mediterranean. This important goal is representend by the island /district of Ortigia, connected to the main land, through two bridges. The aim of this paper is to examine the long term urban history and the different phasis which followed during thirteenth centuries in an "accordion city".

ID 105

The Sanctuary of Santa Maria delle Grazie at Fornò: studies for the restoration and seismic strengthening

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The Sanctuary of "Santa Maria delle Grazie" is located at Fornò in the countryside near Forlì (Italy). The first temple, built in 1450, assumes today's configuration at the beginning of the sixteenth century, to undergo various modifications, both for static necessities and for changes in tastes related to the time, as well as for natural disasters and war damage. Structurally, the Sanctuary consists of an external masonry cylinder, around 33m diameter and 15m in height, with four semicircular niches protruding outwardly; inside there is a similar concentric structure, the oldest temple, about 14m diameter and 20m tall, covered by a dome supported by an octagonal masonry structure. The space between the two circular structures is covered with a wooden roof resting on thirty-six main wooden beams. In the last years the Sanctuary has been subjected to numerous studies, surveys and analysis, including FEM structural analysis (also due to singular curvilinear typology of all masonry structures). To regard seismic risk, the building was studied focusing on the Guidelines (2011) for the "Evaluation and Reduction of Seismic Risk of Cultural Heritage." Today, following the entry into force of the new technical standards NTC2018 (January 2018) we have scheduled an update of the structural analysis and a series of proposals for restoration, anti-seismic improvement and dehumidification works, on regard to effects of decay caused by soaking on the mechanical characteristics of the masonry.

ID 106

Urban design and sprawled archaeology. From the "ancient vs new" dichotomy to pre-existence as design material

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The transformations of the contemporary city (in particular in the European context), from the construction of new buildings to that one of infrastructures, often cross ancient architectural fragments, thus implicating forced conditions of proximity between ancient and contemporary constructions. These occurrences undermine the architectural criterion of "separation" based on the "ancient vs new" dichotomy. Therefore, the hypothesis of "continuity" arises as a design criterion to go beyond this dichotomy. This hypothesis, encouraged by the real cases and the narrative potentiality of the ICTs, is recognizable in literature, from Rossi to Panella, with the attempt to consider the archaeological remains as architectural design materials. Nevertheless, it does not exist an unanimous vision of it in the practice. This continuity concerns with the architectural space and its meaning related to the time. Moreover, it requires the possibility of the alteration of both remains and contemporary architecture, to some extent. Analyzing the architectural projects that deal with the problem of the forced proximity and that are in according with the features of the hypothesized continuity criterion, we can sketch a possible framework of interventions, articulated by spatial purposes (to reproduce a previous condition or to look forward) and levels of interaction between pre-existence and contemporary architecture.

ID 107

Material and immaterial heritage as a strategic resource facing structural shifts: the case of the Fès-Meknès region (Morocco)

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The processes of structural change that are currently investing countries situated in the Southern Mediterranean involve rapid and radical transformations. The effects of modernisation are often associated with the loss of relevant elements of heritage which are especially strategic in a long-term perspective: environmental resources, settlements models, building techniques, local productions. The crucial challenge in these contexts is to reconcile pressures of change and innovation with identity preservation and sustainable development. In this respect, systems of heritage knowledge can play a key role as they express practical and technological expertise which is very strictly connected to the environmental and cultural characters of places. These sets of knowledge are rich in historical value, but most importantly of functional value: in this sense, they can be interpreted as design rules and principles that can be re-actualised with contemporary technological solutions. This paper presents a research in progress aimed at producing multidisciplinary design guidelines based on the enhancement of heritage knowledge at the territorial, urban and architectural scale in the Fès-Meknès region (Morocco). In this project, geographical information systems are central tools that allow the geo-referencing of heritage knowledge and a wide dissemination aimed at the construction of integrated projects.

ID 109

Derna: Gate of Libya. Tradition versus local identity: urban master plan for its rehabilitation proposal

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Tradition versus local identity: urban master plan for its rehabilitation proposal. The paper aims to illustrate the main phases of the master plan developed for the urban requalification of Derna. The analysis on the physical structure of the territory around Derna and of its social and urban evolution processes has been the starting point for the present study. The presence of the deep orographic gully of Derna Uadi, that flows tangent to the Medina, highlights the important role that water, ancient palm groves and terraced gardens played in the development of the city. At a second stage, the study focused on the Medina, because of its great importance within the urban ambit for both the historical and architectural characters of its fabric. The ancient roman matrix has been highlighted as well as the actus based framework made of Islamic courtyard housing. The importance of Derna and its strategic position within history and tradition of Libya has been often under valuated: the analysis phases leads to the recognition of its crucial role as transit gate for knowledge that arrive in Libya from the East thanks to Berber and Islamic peoples, but also from the sea through the Greek and Roman civilization. The role of Derna as important cultural crossroads of great historical interest is one of the main elements for the development of a renovation strategy of its urban centre.

ID 110

"…But what use is this art history?"

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Ten years have passed and I still remember him: green eyes, curly hair, slight build, all nerves, he leapt around the classroom while I was trying to explain art history to teenagers. The sound of the bell put an end to that lesson. I was exhausted by that constant leaping around, which had spoiled my concentration and prevented me from holding a good lesson. Suddenly he stopped, looked me straight in the eye and with an air that was both curious and arrogant at the same time asked me: "teacher, but what use is this art history? Stunned, I mumbled something but could not manage a proper reply. Driving home, I turned those words over and over again. I wondered where I had gone wrong and, at the same time, I looked around me. I looked at those wretched apartment blocks, lacking any attractiveness of form, lacking a defining colour, lacking any expression at all that could be defined as architecture. Just shapeless boxes with small holes for windows. And yet, I thought, at university they had made us read a lot about the genius loci, about the relationship between solids and voids, but in these boxy buildings I could find nothing of all that. Above all, I found none of that passion that must drive a good designer to create a work of architecture. Around them were no green spaces, only unkempt attempts at flower beds, and much decay. I wondered, ultimately, where is the beauty?

ID 111

The representation for the use of hidden heritage

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Thanks to contemporary technologies for representation, the expressive means of design has been strongly used in the fields of virtual reality and augmented reality. Through the design we are able to give shape and visibility to goods that seemed to have been lost or that are now difficult to access and usable. The photorealistic representation of what is existing, is integrated with the virtual reconstruction of what no longer exist, in an interpretative process that necessarily requires a subjective component and a historical knowledge. In this context, it is necessary to re-define the role of the designer and of the professor who, having strong humanistic knowledge (history, art, etc.), develops new technical skills with the aim of controlling the conscious use of digital tools. The study of the hidden heritage of the Genoese artificial caves is an opportunity to test current technologies for the protection, enhancement and communication of cultural heritage: the digital relief of the caves becomes the virtual base on which applying the knowledge of history to define their structure and original aspects. The virtual model thus created will allow a new management and use of the heritage itself, thanks to the new possibility guarantee by the digital representation and the awareness of the designer.

ID 112

The color of the city. Restoration and conservation of the painted facades of Palazzo Boschetti-Dalanzo then Avagnina in Carrù

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The contribution illustrates the conservative restoration of the painted facades of Palazzo Boschetti-Dalanzo, then Avagnina in Carrù, an ancient noble palace of seven-teenth-century structure located in the historic center of the Piedmontese town. The image of a city reappears in our mind through the memory of the network of streets, alleys and squares: light and shadows, full and empty, views and perspectives, colors and materials, frescoes and decorations. The public spaces that we cross and travel are defined by the architectures that become the face of the city. The facades of buildings – diaphragms between public and private interior – can express the structural elements of the architectural and urban object, or be independent and become support for other stories, they can arise from the planimetric development or hide it. In fact some squares are legible and identifiable in the façades of the buildings, others in the plant; essentially they are real stages for stable theatrical performances. The research shows – with relief drawings, analysis and restoration charts, photographic images before, after and during the construction site – the operating method used in each phase of the intervention. During the construction, the best practices for the conservation of historic build-ings were used, choosing the most appropriate solutions for each single restoration phase.

ID 113

A Resilient Environmental and Social Design Strategy

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The Dryline project, of the BIG office of New York, is an emblematic design strategy for Resilience. The authors of the paper, after a long process of knowledge of this design strategy though contacts and interviews with some of the designers, want to put in evidence the complex approach for Resilience as carried out by the project. Against Southern Manhattan coastal flooding the projects means to create a complex barrier incorporated in a global renewal strategy for the area which is chiefly addressed to people living in the place: parks, green areas, improvement points for quality of the place, with a social involvement of the people. The idea should be repeated for any design solution which aims to be really Resilient: not only environmental solution, not only social activities, not only beautiful new space, but first of all an osmotic place with a multidisciplinary approach which really could demonstrate to be incisive for the place and for the people.

ID 114

Zhang Zhidong and Modern Transition Heritage in Wuhan: Witness of the Regeneration of a Chinese City from 1889 to 1907

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This article provides an overview of the Modern Transition Heritage in Wuhan, a Chinese port city that was industrialized and modernized at the turn of the century. It argues that the Modern Transition Heritage, which Governor Zhang Zhidong left in the city, has global significance. Zhang actually played the role of urban designer by intentionally establishing industrial enterprises, setting up modern schools and institutes, building river & lake dams and rearranging the transportation systems in the chaos of China's semi-colony era. The article starts by identifying the Modern Transition Heritage in Wuhan now, including heritage buildings, historical blocks and cultural landscapes. It then evaluates the current situation and discusses the OUV of them, under the framework of UNESCO's World Heritage. Then it discusses the strategies of urban and architectural conservation, which inevitably linked to the political, cultural and economic realities. The article concludes by providing a feasible way of the conservation and utilization of such urban heritage, using the method of historical urban landscape (HUL).

ID 115

Natural or human disasters? Autonomy of the science from politics. Facts, needs and challenges in Italy

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As everybody knows, probably, in Italy after the tragedy of L'Aquila earthquakes, scientists of Italy's National Commission for Forecasting and Predicting Great Risks (Commissione Grandi Rischi) were indicted not on their inability to forecast the magnitude-6.3 earthquake that struck L'Aquila in April 2009, but on their provision of "incomplete, imprecise and contradicting information" (Nature 477, 264–269, 2011). At the end of the 3rd level of Justice, all the scientists were acquitted, and only one was sentenced as guilty. The case highlights, on my view, a central problem in Italy, but also in other Countries - the incestuous relationships between science and politics. When the American Geophysical Union and the American Association for the Advancement of Science issued statements in support of the indicted Italian scientists, I pointed out to these organizations that the international scientific community should have been made aware of the real content of the indictment made by Attorney Fabio Picuti before they sent statements of support to President Giorgio Napolitano. Otherwise, it would have appeared that the scientific community was trying to influence the Italian President on the basis of a false premise. In Italy but as well in other Countires, a conflict of interest between scientists and politics is the norm.

ID 116

Ductility-based incremental analysis of masonry structures strengthened with composites

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Strengthening systems based on organic matrices (i.e. resins) and high performance fibers (i.e. carbon, glass or basalt) have proven to be efficient to improve the seismic capacity of existing buildings. However, for some structures not every system can be applied to perform retrofit strategies. In particular, wide part of the existing building stock is made of masonry. Furthermore, many masonry structures are subjected to special historical and architectural constraints. In this background, some strengthening systems could be incompatible with the restauration criteria. In this work, two main strengthening systems typically applied on masonry structures have been investigated: composites made of basalt and hemp fibers, coupled with inorganic matrix. The failure surface has been estimated starting from the bending moment-curvature diagrams. Several incremental analyses have been performed to asses the ultimate capacity of curved masonry elements strengthened with composites. In many engineering applications the unlimited ductility represents the base assumption into the numerical analyses. However, it could provide some drawbacks for numerical analyses of strengthened masonry elements. The incremental analysis approach allows the continuous monitoring of the ductility demand until the ultimate state of the masonry element.

ID 117

The technology of reinforced concrete elements. Determination of project parameters: concrete cover and distance between bars

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The reinforced concrete is a construction material widespread in the 20th century. Its composition based on a "stone matrix", which include concrete and bars, defines a material with a strong compression and tensile strength; its characteristics allow complex architectural forms. The mechanical resistance and the durability are guaranteed by the respect of design rules, material confection and siting operation, specified by several national and international regulations that define the limits of technological and structural parameters. The ongoing research starts on the observation that often substantial inconsistencies ensue between the design and the construction phase, due to a low deepening of technological details in the design phase and to a lacking application of regulations as well. This work aims to deepen the aspect connected with the determination of an appropriate concrete cover and the distance between bars in the design phase, considering the real interferences in the execution phase. The research, developed on a case study, has promoted a wording of some rules for the interferences reductions between bars in structural nodes and shall promote a methodology that aims to realize the overlap of bars, solving critical issues by ensuring a proper structures durability.

ID 118

A "Cartilla de mantenimiento" as a tool for the protection and manteinance of the earthen architectural heritage in Tunja, Colombia

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Over the centuries our gaze incessantly fell upon fine under-paintings which, imitating architectural elements and classical and vegetal decorations, have favoured the illusion of depth and space in a built space. Mastering sophisticated techniques of rendering created "areas" of color perceived as real, erasing the traditional boundaries between what is real and what appears to our senses, and raising interest in an illusory three-dimensionality enclosed in a two-dimensional material reality. The two suggested examples, the first regarding an ecclesiastical context and representing a religious message aimed at "educating" the faithful through (the depiction of) well-known martyrdom episodes, the second regarding a private context in which emerges a clear impression of splendor in an attempt to ennoble the austere front of a Palladian Villa, have a common denominator: they both increase the physical space creating an illusory one in which the narration conveys ethical, moral and religious messages. In both cases the perspective restitution applied to the high-resolution orthophoto, the first obtained through a traditional photographic approach, the second through an accurate photography survey (Agisoft software) allowed a reconstruction of the *finctae et pictae* architectures. Their virtual clones pointed out visible and partly-non-visible spaces, verifying their accuracy of execution, their technical and geometrical complexity and their visual and fruitive strategies.

ID 119

The deception of the colour: digital reconstruction of finctae et pictae architectures

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Over the centuries our gaze incessantly fell upon fine under-paintings which, imitating architectural elements and classical and vegetal decorations, have favoured the illusion of depth and space in a built space. Mastering sophisticated techniques of rendering created "areas" of color perceived as real, erasing the traditional boundaries between what is real and what appears to our senses, and raising interest in an illusory three-dimensionality enclosed in a two-dimensional material reality. The two suggested examples, the first regarding an ecclesiastical context and representing a religious message aimed at "educating" the faithful through (the depiction of) well-known martyrdom episodes, the second regarding a private context in which emerges a clear impression of splendor in an attempt to ennoble the austere front of a Palladian Villa, have a common denominator: they both increase the physical space creating an illusory one in which the narration conveys ethical, moral and religious messages. In both cases the perspective restitution applied to the high-resolution orthophoto, the first obtained through a traditional photographic approach, the second through an accurate photography survey (Agisoft software) allowed a reconstruction of the finctae et pictae architectures. Their virtual clones pointed out visible and partly-non-visible spaces, verifying their accuracy of execution, their technical and geometrical complexity and their visual and fruitive strategies.

ID 120

The role of overstrength in damage propagation and monitoring of architectural heritage

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The protection and structural retrofitting of architectural heritage is a fundamental issue for both modern architects and structural engineers and requires a great combined effort of different skills. Historical constructions accumulate damage during their lifetime due to materials deterioration, repeated loads and exceptional events. In this sense, it is important not only to evaluate the safety of these structures under traditional loads, but also their structural response to propagation of damage. Thinking about robustness, indented as the capacity of a structure not to be too sensitive to local damage, whatever the source of damage, in the present paper a methodology able to increase the robustness of historical structures is proposed. The paper aims at evaluating the contribute of an additional strength (i.e., overstrength) in the retrofit of key structural members and in the development of several collapse resisting mechanisms of the whole construction. The procedure proposed in the presented paper suggests a strategy that is suitable for monitoring an historical construction, considering the effects of overstrength in damage propagation.

ID 121

ICTs to train on World Heritage and Tourism: the case of the Massive Open Online Course "Tourism Management" at UNESCO World Heritage Sites

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While Information and Communication Technologies (ICTs) have been extensively used in the field of conservation and restoration of Heritage, they can be also applied to support learning by relevant stakeholders. ICTs offer extensive opportunities to provide multimedia data and to promote both expert-to-learner as well as peer-to-peer knowledge and experience sharing. Additionally, they offer extensive flexibility in terms of space and time of fruition, so as to care for various needs and contexts. In recent years, a particular form of ICTs-supported training has emerged, namely that of MOOCs – Massive Open Online Courses. They combine Open Educational Resources, hence freely available online, with a course structure. Moreover, they can provide several interaction opportunities as well as a certificate of participation. While several studies have covered the emergence of MOOC and related practices (e.g.: the role of short videos in learning), few research has tackled the Tourism and Heritage field. In this paper, the case of a recent MOOC on "Tourism Management at UNESCO World Heritage Sites" is presented and discussed. In particular, a profile of participants (#3'500+) is provided, with a specific focus on their educational background, professional experience, and reasons to learn.

ID 122

Local identities & excellences. An industrial network to re-produce uniqueness through waste reutilization

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The aim of this project is a study of feasibility that allows to start up the experimentation and the consequent introduction of some innovative methodologies in the managing of the leather production waste, the waste produced during the cutting process. The leather production sector, takes on great importance in the Italian economy. More than 1/4 of the national production and about 1/5 of the whole E.U. production is made in Tuscany. For this reason, our study will be based on the Santa Croce sull'Arno leather district and will theorise some guidelines that can also be adapted to other districts. The tanning industry gives a high "added value" material to a series of initial production chain, in particular in the fashion and design sectors (interior design, transportation design). The skins waste material is today considered a special waste according to the CER 04 01 08/09 codes. This waste is mainly produced during the leather cut process and at the moment it is disposed of in different ways. The present study is aimed to make the leather production waste a secondary raw material for new materials/products, representative of a local identity, to put onto the market and to get to a "zero waste" production chain cycle.

ID 123

Sinkhole in the metropolitan area of Naples, Italy

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This paper reports the results of a multidisciplinary research activity aimed at enhance the knowledge of the triggering factors of sinkhole phenomena in urban contexts mainly due to the presence of cavity network. The study started from The research and collection of the location in a GIS/BIM model of cavity and of past sinkhole events. The model contains information on coordinates, access location, year of collapse, triggering factors, diameters at ground surface, D, and depth of sinkholes. Furthermore, it is coupled with location and stratigraphy of 383 logs and the subsurface networks when available. These data permitted identification of the geological and geometrical features of caves and selection of a relevant real case study to perform numerical modeling, in order to define the most likely triggering mechanisms. A detailed field survey of this phenomenon permitted to define the stratigraphical and geometrical setting of the pre-existing cavity and collect undisturbed soil samples for the geotechnical characterization. These data were adopted to perform numerical analyses in order to validate the identified cavity-collapse models. The back-analysis of the case study allowed to identify the most relevant parameters that influence the hazard assessment in this area and consequently to implement strategies for the management and mitigation of the risk.

ID 124

*A requalification project hypothesis for the Bagnoli/
Agnano (Naples, ITALY) ex NATO Headquarter Area*

**Mariateresa
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In our society, there is a growing concern for the environment, with subsequent focus on the retraining of our construction heritage – for an improved urban life quality. Bearing in mind the above, I found it intriguing to redesign the former NATO Headquarter area of Naples-Bagnoli/Agnano – in particular the main plaza. First, I carried out a careful analysis of the historical and environmental area aspects. It was the essential support for a better identification of the origins of every existing feature. Then, I analyzed the critical issues and the area potential in order to draw a plan combining the "past" with all the ethical, aesthetic and performance aspects. The plan foresees a multipurpose settlement for young people aimed at their cultural and social growth. The plaza shows the rigour and the rationalism of the Italian architecture of the 20th century. The intervention on such area will aim at mixing the older heritage and the new buildings. The plaza itself would not undergo a complete change: the new buildings will modify its look. The plan includes a "culture and arts house", a two-block structure for exhibitions, art galleries, designers' ateliers as well as a library. History and culture inspire the plan itself, the opinions exchange, the paths as well as the final aims. Light structures, essential designs, a bright and well-defined horizon. Soft tints brightened by canvases and panels. The "different" would thus naturally find its place within "the existing".

ID 125

Strategies to re-active an urban landscape

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Re-active an urban landscape, through a complex system of relationships, has a goal: trigger a course of identification based on cultural heritage like an "ID card" (De Vareine, 2005). To do it and to don't lose historical common memory (Volpe, 2015), culture doesn't has to be only for an "elite" but it has to begin a nerve center of development. When Kevin Lynch wrote about wayfinding, it was not for turists but for inhabitants, who daily lives in that place: the field of "orientation" (Vidler, 2009) was essential for him like it was for Camillo Sitte. This theorist of urban planning (not understood enough) said that "the space and the city are important if they are active" and Wieczorek (1994) explains that "active" means the rule of the spectator in the perception process. Recently, the experience of study, design and realization of Wayfinding Agrigento, has a aim: a local sustainable development that causes Agrigento to be a creative city, to re-start from its identity, from its abandoned places, from its neglected architectures, from the difficult orography that characterizes its urban pattern. This project guides urban users throughout Girgenti (the historical center of Agrigento), in a slow dimension of life, to stand out urban pattern identity, in a progress of discover and re-discover of the historical and social heritage. The paths suggested are connected with a web site that can also (through Google Analtiytics) analyze city users' movements in the historical center to plan services and public urban "gears" for the community.

ID 126

Heritage dissemination management in spanish world heritage cities. the cases of Santiago, Mérida and Toledo

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This current research emerged as a result of the urban threats to World Heritage, which increased during the spanish booming housing market. Situations such as the recent Torre Pelli construction in Seville or the approval of Toledo new urban planning where protected lands were requalified, promoted whether their heritage value was known, in these cities inscribed in the World Heritage List, and what were the most suitable strategies to make it known and to which audience it was directed. The research focused on studying the Dissemination in these kind of cities. First, the agents responsible for its management were identified. In this process, it was observed that dissemination beyond tourism, was almost non-existent. However, in some cases, there are institutions called "consorcios" who do an intense rehabilitation work and develop a different dissemination, directed in addition to the tourist, the resident community and their young students. These cities were Santiago de Compostela, Mérida and Toledo. In them, a total of more than 1200 activities were inventoried. This inventory helped to make a classification of the different agents involved in its management, as well as the different activities organized in them. Finally, it was possible to determine its audience and its main objectives.

ID 127

Post earthquake cultural heritage rehabilitation. The digital and integrated management of artwork from Amendola

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The municipality of Amandola is a complex territorial organism composed by a set of living systems: infrastructures, built landscape, environmental resources, cultural heritage. The paper reports a project focused on the scientific analysis of undesirable effects caused by a potentially destructive phenomenon, such as an earthquake, and propose how to manage its consequences affecting historical, environmental and cultural assets. The project, designed by a multidisciplinary team, was based on a specific method addressed to bind together different conservative strategies. The system's structure allows simple data-query and updating, and its implementation, if necessary. The project presents two different phases: a first study about the territory, and afterward the management of the objects repository authorised by Italian Ministry of Cultural Heritage (MiBACT). This second step is characterised by the setting up of a Datawarehouse concerning restoration. A G.I.S. (Geographic Information System) provides a monitoring tool for the phase of intervention on the territory. Thanks to this tool is possible to collect data, to analyse territories and to manage different resources simultaneously. Within the second work-area of intervention, the team has developed a digital repository. Inside this digital space, each and every data resulting from the analysis is storage, ready to be used in decisions concerning interventions.

ID 128

Two outstanding samples of vernacular architecture in Talas town, Anatolia

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Kayseri had always been an important administrative center throughout its history. After Istanbul's conquest it kept its importance as a Central Anatolian city. Talas, which is a town in Kayseri region, is situated at the slopes of Ali Mountain at the northeast of Erciyes Mountain, about ten kilometres from the city centre. Talas is an important historical town having and outstanding traditional vernacular texture occupied by Turkish, Armenian, Greek population in the late Ottoman period. Harman District where the two surveyed houses are located is the core of the housing texture of Talas. Also this district, situated at the center of Talas, attracts attention with its unique dwelling buildings. In this district, two specific houses present different characteristics compared to other traditional Talas houses. These houses have two extra departments with different functions that the other types do not have. These departments are called haremlik which is the private quarters of the houses owners and selamlık which is a place for meetings and greetings of the men's of the family. Selamlık is desinged with more architectural concerned than the other areas. This difference is noticed at the facade desing as well. The desing of this houses were based on cultural needs and appreciation of the users who live in the houses.

ID 129

Paul Bellot architecture: between resilience and redesign of "sacrum"

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At the beginning of the 20th century, the buildings of the French Benedictine monk and architect Paul Bellot (1876-1944) respond to the need to create a religious "style" suitable for modernity. In particular, the restoration, re-construction and completion of religious structures –St. Paul's Abbey, Oosterhout (1906-1907); Quarr Abbey, Isle of Wight (1907-1911); Solesmes Abbey; St. Gertrudis in Heerle; Oratoire Saint-Joseph du Mont-Royal and Abbaye Saint-Benoît-du-Lac, Québec- as well as the construction ex novo -Saint Chrysolus at Comines, Notre-Dame de l'Immaculée Conception at Audincourt, Notre-Dame des Trévoies in Troyes; Nossa Senhora da Conceição in Por-to- reveal a dual artistic instance: on one side, the attempt to resist the destruction caused by French anti-religious policy and by First World War by recovering traditional techniques and materials; on the other, the search for a language capable of combining classicism and techno-logical progress through the recovery of the most au-thentic medieval lesson. Widely appreciated in life and considered one of the greatest architects of the new century, Bellot has been neglected by the most recent critics, although his style has given rise to an architec-tural vocabulary widely attested in Northern Europe and Canada, where he influenced several architects and his figural language is known as "Bellotism". His theoretical writings constitute an ante litteram attempt to conjugate cultural landscapes, sustainable development, resilience and transformation.

ID 133

Resilience transformation projects

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The paper aims to deepen the theme of the Greek mercantile communities in theMediterranean sea, both as a Western area of Orthodoxy and as an expansion of the commercial rights recognized in the treaties with the riparian countries. The mercantile nations and the Greek commercial diaspora, as a result of the creation of a figure of intermediary merchant between the Eastern Mediterranean and theWestern markets, will be the object of s particular analysis about the great international trade routes within the Modern age. The relations held by the Greek merchants of Messina and Naples with the various diaspora communities and with the mother country will also be examined. The conclusions will concern the influence of the Greek mercantile "nations" with respect to the affirmation of new social and mercantile groups in the Kingdom of Sicily and in the Kingdom of Naples.

ID 134

Protection and Integration of linear watercourse cultural landscape in urban development. A case study of Orléans and Yangzhou

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As a part of cultural landscape research, how to integrate the protection of cultural landscape into the urbanization is always a complicated issue, because of the inherent characters of evolution of cultural landscape. Orléans (France) and Yangzhou (China) have established their partnership in terms of urban cooperation since 2015. As the starting city of the Loire Valley registered in the World Heritage as cultural landscape, Orléans has common elements related to the urban development with Yangzhou which as an important city of the Grand Canal heritage site: natural watercourse, canal and historical district. Both cities are facing the common issue concerning the protection of watercourse cultural landscape in urban and rural development. Orléans has already launched a series actions and regulations for the planning and management of cultural landscape since 2000, making effort to integrate the protection of cultural landscape into the policy of urban development; while Yangzhou promote the protection and management of Grand Canal with the surrounding watercourse into the urban development during recent years. This article explores the relations between the protection of watercourse cultural landscape and urban development, discusses the influence of planning policy and management on the evolution of the cultural landscape, compares the two 'Integration' modes between Orléans and Yangzhou, including the manage system and structure of the governance of this two sites.

ID 136

Russian approaches to estimation and experience of monitoring of radon radiation

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Radon gas impact to the inhabitants may cause serious health damage, including cancer illness. Russian approaches to radon radiation estimation in conditions of urban territories are discussed. Different sanitary normative indexes using in Russia are described, including radon equivalent equilibrium volume activity, density of radon flow etc. Sources, peculiarities and results of monitoring of radon radiation of urban territories are analyzed. Requirements for radon measurements are discussed. Measurement results of radon radiation on living territory of Samara region of Russia are considered. Analysis of measurement results have been carried out. The most dangerous zones of territory of big towns of Samara region are determined. Maps of radon radiation of the territory of Samara region of Russia have been designed. Approaches to radon negative impact reduction are suggested. Results of radon radiation estimation are showing that there is serious problem of radon negative impact to the health of population.

ID 137

Approaches and results of estimation of noise impact to the health of population

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Noise negative impact to the health of population presently is one of the most significant problems. Noise levels in towns are increasing every year causing discomfort and health damage of more and more inhabitants. Approaches to noise influence perception by the population are described. Criteria of risks to health damage during noise impact are suggested. Possible illnesses caused by noise impact are discussed. Method and results of correlation-regressive analysis of population illnesses from noise negative impact are described. Dependences of population illnesses from noise are shown. For noise perception by different groups of population special questionnaires were developed. Results of population questionnaire survey are analysed. It was obtaned that the older the age of inhabitants the most negatively they are percepting noise impact in the same conditions with the people of other ages. It was also shown that the more the duration of peoples living in housed in noise dangerous zones the better they are estimating the living conditions. Noise measurements in living territories of Samara region of Russia with questionnaire surveys were carried out. Maps of noise pollution of the territory of Samara region of Russia have been developed. Results of research are showing that methods of noise estimation and perception by population are should be improved taking to account additional conditions and factors.

ID 139

Majolica and Architecture. Treatment of the lacune.
The case of the bell tower of San Paolo Bel Sito

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The bell tower of San Paolo Bel Sito, in the province of
Naples, is a building dating back to the early sixteenth
century and has played, over time, an important urbanis-
tic and landscape function. Its structure, in the parts that
emerge from the building context of the center, bears a
series of decorations to "riggiole" with the presence also
of sculptural inserts in "petenated terrecotta" of sure inter-
est for their high testimonial and artistic value. In different
parts these decorations show the lack and loss of portions
of decorations that need to be reintegrated with the clear
awareness of representing contemporary grafts in a more
ancient artifact. Modern technologies help to propose
integration interventions respecting the ancient remains
and able to maintain the degree of aesthetic usability of
the building.

ID 140

The historical context and the urban regeneration

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The acquired awareness regarding the protection of the environment requires us to take steps also towards the quality of the urban environment, with reference to the redevelopment and improvement of the building. The regeneration of the built must be conceived placing at the center the expectations of the residents in the reality of the built environment and of the modifications that will be made. The impact of the current crisis has reverberated on the reduced capacity of the city to mobilize resources and activities related to change and development, to overcome the obstacle will have to equip itself with integrated programs, form coordination groups to face the most difficult challenges such as the fight against poverty and specifically the redevelopment of historical centers and suburbs. Urban regeneration is a process to give a name to the things and to the settled spaces and a sense of recognition common to the living spaces. A flash inherent in the redesign of a building inserted in the urban renewal designed by Filippo Juvarra in 1729, whose past has been unraveled for three centuries becoming an intervention of Social Housing that has constituted a moment of mending with the surrounding urban fabric, the social economic revival, the relational integration of the inhabitants with the territorial reality and the unequal settlement purposes.

ID 141

Typological classification of vaulted structures in masonry churches

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The damage analysis of historical masonry buildings and in particular of churches, following the seismic events that recently affected the Italian territory, has shown how vaults and domes, which represent architectural valuable elements, are characterized by a very high structural vulnerability. Over the centuries, master builders, architects and engineers designed and built vaults relying on intuition and practical geometry knowledge, especially with in situ experience. The construction techniques of vaulted structures varied according to the skills of the different builders, as well as the choice of materials depended on socio-economic factors and the formal result to be achieved. Architectural treatises concerning the "best practice", between the 15th and the 19th centuries, greatly influenced the design and constructional procedures of vaulted structures, providing indications on the proportions and geometric shapes to be adopted. Based on this premise, this paper provides a typological classification of existing structural types in order to identify geometric and structural affinities among different vaulted architectural elements

ID 142

Innovative systems for the redevelopment of historical buildings: BIM application

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Giusy Emanuela LO CACCIATO

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The building construction is characterized by a deep transformation due to the use of Information Technologies that are changing the way of life, work, production and exchange of information (BIM). The BIM overcomes some limits of the traditional organization of the design activity. In the last years, its use has increased as a tool for the control and management of the architectural project for both new buildings and for the redevelopment of existing ones. The paper will present the results of a study developed on the technological, economic and procedural advantages that can be obtained from the application of BIM for the redevelopment of historic buildings by the use of innovative envelope realized with advanced computerized technologies. The work was been organized in three phases: cognitive, classificative and experimental. During the first phase the main potentials of BIM were identified through the vast choice of commercial software platforms, in the second one we proceeded to the classification of case studies in which the use of BIM contributed to the redevelopment of emblematic historical buildings, while in the third phase the experimentation of complex shapes was developed for the constructive and productive optimization of evolved envelopes.

ID 143

Evaluation of the indoor comfort of the Arabic-Norman Architecture for the revival

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In 2015, the Norman Arabic route of Palermo became a World Heritage Site. Among the monuments of the route, the Zisa is an extraordinary example of building typology with unique technological and environmental characteristics because, originally, it was characterized by the integration of some conditioning passive systems for the improvement of the indoor comfort. Zisa was built in 1160 by Arabian craftsmen. It was characterized by the presence of an evaporative cooling system and natural ventilation that guaranteed levels of comfort that could be satisfactory even today. The research proposes the results obtained through the application of a fluid dynamics software able to simulate the internal comfort conditions obtainable with the presence of some of the conditioning passive systems present in the Zisa. Some specific computerized simulations have been carried out to prove the hypotheses concerning air movement and temperature control in the interior of the building. A computer model has been created; it considers the architectural configuration of the building, its position and its orientation according to the proposals of different historians. The work has achieved results that could enable some of these systems to be put back into operation. The application of this results could represent an added value in the enhancement of the Zisa for the benefit of the entire UNESCO cultural route.

ID 144

Structural behaviour of masonry vaults according to architectural types

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Over time vaulted masonry elements have been designed to withstand mainly symmetrical permanent load conditions (eg due to own weight), but many other environmental actions, such as earthquakes, may produce asymmetrical loads, which can undermine the whole structural system. Recent seismic events in Italy highlighted the vulnerability of masonry structures, in particular of vaulted structures, which should be somehow limited by applying preventive structural interventions. To interpret correctly the structural behaviour of masonry vaults, it is necessary to take account for their interaction with the entire building organism as well as to consider the relevant resisting mechanisms, which is governed by internal stresses induced by the static and dynamic loads and by any existing structural pathology. This paper aims at better understanding the structural response of vaulted masonry elements, based on the historical constructional periods, architectural style and geometrical types, in order to acquire useful information for a preventive analysis of the major potential vulnerabilities in case of seismic events.

ID 145

Design with Nature: The Connection between Critical Regionalism and Biomimicry in a Moroccan village

Pedro MARTINS-MOURÃO

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For far too long we've dedicated our lives to using nature's resources to achieve our own goals and ambitions, in many cases pushing it's natural qualities to the brink of extinction. Regarding a person's well-being and living standards, architecture stands in the spotlight. Our pursuit for housing the world population on a universal scale, using costly and pollutant materials, would soon fell victim to the environmental crisis of the 70's and so on. Yet, when it comes to finding environmental solutions we seem to underestimate the cleverness, the simplicity and the efficiency of our ancestors' designs or nature's adaptability, just because they don't carry industrial ACs, are not universal and aren't mass-produced in steel, concrete and rectangular shapes. In this paper we hope to understand the inner working of the Moroccan Cultural Heritage in the village of Tamnougalt, the secrets for it's connection to it's region (Critical Regionalism), it's relationship with nature (Biomimicry) and how it can be replicated through parametric design and digital fabrication.

ID 146

Preservation of historic buildings: two examples in Sant'Agata de' Goti, Italy

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Pierpaolo D'AGOSTINO

Francesco SILVESTRI

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Annalaura VUOTO

Engeneer, Naples, Italy

The paper deals with the preservation of the historical village of Sant'Agata de' Goti (BN), a typicalhistorical town in the Central-Southern Italy resting on a soft rock slab crossed by cavities. The research is aimed to evaluate the seismic hazard considering the interaction among soil-foundation-structure and the cliff stability taking into account the presence of cavities. In detail, the focus is on the connection between super-structure and foundatio-nusually reported as a "black line" in representation and redesign projects. After a historical introduction on the development of the village, the paper describes the multidisciplinary studies carried out on the ancient urban center in order to assess the hydrogeological and seismic hazard. The main geological and geotechnical properties of the soil deposits are reported. Two prestigious masonry buildings were identified on the opposite sides of the rock slab andanalyzed in detail: "Cervo Palace" and "Seminario". In the first case, the geometrical survey of the underground cavity below the Cervo palace through an advanced approach useful toincrease the accuracy of the numerical model is discussed.

ID 147

Sports Architecture: the soccer stadiums of the twentieth century in Brazil and Portugal

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The article studies the social and economic impact of the soccer stadiums in Brazil and Portugal through the 20's century. The technologies that were used to build them and how the process of conservation and preservation of those until today. Most of them later became icons because of the architectural and cultural heritage they left for the next generations. The process of the stadiums becoming the cities brand and the values they incorporated not only as the urban equipment itself by the new design but also as they legitimated the pre-existing area. The improvement of the quality of life of the people who live there and the political, economic and social attractiveness for the new focal point of the city. It's most important to enhance how the finest and newest technologies can be used to preserve, protect and safeguard the "old" with respect of the period they symbolize and must be used with a clear conscience of the impact they can have not only in the process of construction, but, in the lives of today's and the future generations to come.
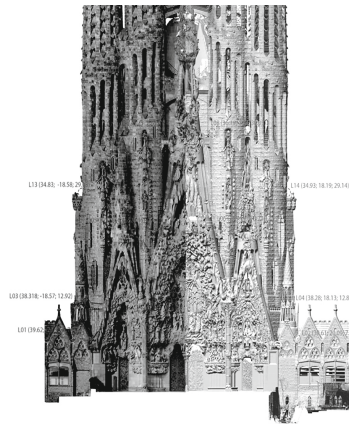
ID 148

*Data taking and quality control for complex surveys:
Case study Sagrada Familia*

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Jordi CASALS

Adrià MARCO

Daniel LÓPEZ

**Pilar
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This article proposes a methodology to make the survey of complex and high buildings, with the Antoni Gaudi's Sagrada Familia (Fachada del Nacimiento) as case of study, with high resolution Topography, Terrain Laser Scanner (TLS) and Photogrammetry technology. An architectural survey of huge complexity due to the difficulty on the data taking and the volume of the recorded data, considering the height (107m), the incidence angle and the self-occlusions; the geometric complexity of the façade, and the needs of a resolution, precision and covering higher than 95% of the heritage building, that allows the detection of pathologies in restauration processes. The TLS survey was made using different kind of equipment, tripods with telescopic arms, a telescopic pole of 8m and lift platforms of 22m, 26m and 32m high; with more than 3000 TLS positions, all related to each other. The photogrammetry survey was made with cranes and stabilizing systems. These solutions require of some quality controls during the taking data with sensors and while processing the data, validating every position, the alignment between them and during the photogrammetry process. Obtaining in this controls an average statistical error less than 7mm, comparing the support high resolution topographical network to the TLS model and the photogrammetric orthophoto.

ID 151

Territory visions: dimensions of observing, measuring and returning

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The essay proposes theoretical reflections on the evolution of territory observing modes aimed at the tutelage, conservation and enhancement of cultural heritage and landscape. The history of cartographic representation and figurative sources teaches us that the image of the territory is the result of visions of the world linked to the culture of every age. Shifting the observation point, with man in space, the world view and then the approach to data changed again. The availability of images, the aerospace ones and those managed by the territorial information systems in the institutional portals, offers us a lot of information that, often, we are not aware. Moreover, the spread of open data, due to their accessibility features, and of algorithms to realize different types of mapping, guide the knowledge of the territory and allow to go further the morphological reconstruction of the earth's surface. Therefore some considerations emerge: the transcalar management of information; the increasing interoperability of data and the tendency to create software environments to simultaneously manage different types of information. Acquiring a scientific awareness of reading, managing and returning of the available data, will allow us to broaden our knowledge and set new objectives in the strategies of foreseeing and managing the territory.

ID 153

Reuse or Recycle?

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The definition of strategic planning able to describe a growing hierarchy of alterations of the preexistent, to define a progression of the grades of transformation, leads to the distinction of different categories of manipulation and different operators. If we imagine the urban scenery as an immense ruins, in which coexist the abandoned fragments, the refusals of the cities that is built (or tries to build itself), the historic ruins that identified in archeological sites or in the vestiges of historical monuments, as well as ruins from the late Modern, does still make sense to distinguish the project of renovation from the project of the building? It is still necessary the distinction among the restorers, only guardians of the knowledge of some techniques able to scientifically solve the conflicts that every intervention of recovery involves, and "creative" architects? It's a consideration that invests all the scales of the project where the re_use action, intended as the will to confirm the dominance of existing values, has clearly prevailed on the possibility of regenerating urban portions and architectural bodies with a re_cycle action in which the existing becomes useful material for a completely renewed project. This operation, like many actions belonging to other cultural areas in which elements coming from different sources blend together, where the New coexists with the Ancient, forms a tie, a virus, that informs and supports contemporary culture.

ID 154

Psychiatric Hospital of Volterra: Farm Units

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The Psychiatric Hospital of Volterra, formerly known as "Frenocomio di San Girolamo", under L. Scabia's health management, reaches its maximum development at the end of 30s, when it was able to accommodate 4500 patients. The Volterran experience, despite the land ownership extents and the presence of numerous production workshops could be considered, despite its marginal geographic location of the Pisan territory, one of the most important experiences in the national and international overview. Thanks to the organization of agricultural production in farm units, the Hospital could be considered as a real city inside the city at the beginnings of the 2nd World War. It coined its own currency for internal exchange for a while, and it was autonomous in food production and processing, livestock breeding and butchery, it was also able to produce elements and materials for building production. The asylum therapy is oriented since its origins to works activities in these production areas. The speech focus on the building configuration's development and the farm units' territorial distribution, in the land of the Volterran slopes, that is extended far beyond the borders of the areas intended to medical cares.

ID 157

Revealing the hidden layers of socio cultural heritage in a large metropolis: An analysis of agricultural knowledge of urban farmers in İstanbul

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KALYONCUOĞLU**

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Even though the benefits of urban agriculture have been widely acknowledged, promoting urban agriculture in Istanbul has been hampered by rapid urbanisation and the lack of understanding of the economic, social and ecological roles within the larger urban system. In order to propose solutions for this challenge, it is necessary to understand the perceptions and practices of gardeners and relevant stakeholders in the city. This study investigated gardening practices in ten urban gardens in Istanbul. The study aimed to describe the socio-physical characteristics of the gardens and to examine the association between gardeners' socio-demographic backgrounds and their perceptions, motivations and farming practices.

ID 159

Survey between protection and orientation of transformations. The case study of Floridia

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The purpose of the study is to evaluate surveying experimentation conducted on Floridia, a town on the outskirts of Syracuse. Property speculation deriving from the economic boom of the 1960s and 1970s, unfortunately, triggered a process of widespread degradation of the historical centre of the town. Such a process encouraged an uncontrolled development of a new 'concrete jungle' without any architectural value and any relation with the surroundings and at the expense of the late XIX century urban planning characterized by a minor Liberty Style still perceptible in small fragments around the area of Floridia. The research was carried out through an approach connected to the detection and documentation of these widespread fragments and of the small late XVIII century ecclesiastical heritage, using innovative technologies of digital surveying. The experimentation is the result of the fruitful synergy of the Laboratory of Representation of the University of Catania and the Urban Center of Floridia municipality. The purpose was to detect and protect valuable fragments and typological features of the old urban fabric through the implementation of an informative and morphometric database of the architectural elements of the town. The expected goal is to steer the management and the future transformations of the urban planning towards interventions directed to the protection and enhancement of fragments of 'minor' architecture.

ID 160

Public Buildings accessibility in Fortaleza's Historical Center

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Tourism in Fortaleza is vital to the local economy, having this in sight, the matter of accessibility will be addressed in order to provide to the citizens the proper integration to the civil and tourist buildings, which enable the development of educational, cultural and leisure activities. Thus, it is assumed that a public space allows access to all, where visitors can use all the spaces and appointments safely and independently. This research constitutes a study focused on the accessibility of people with some type of handicap or reduced mobility, in properties listed in the historical center of Fortaleza. The goal of this work is to democratize the built-up spaces in a way that makes them accessible to all users, not only in the access to the place, but also in the escape routes (emergency exits). In this way we will create some paths through parametric drawing. Based on a mixed methodological approach with a qualitative basis, a record will be developed with accessibility criteria. We will begin by specifying parameters to define the buildings that will be analyzed in the historical center. After the case study analysis of the chosen buildings, parameters will be created, to promote mobility to the properties without intervening "negatively" in the building. The main objective of this work is to promote the accessibility of historical buildings, so that, where we can't intervene physically, we will ally the technology and the digital tools enabling the creation of interaction strategies in the urban space.

ID 161

The museum building and its role in conservation of artifacts in Albania

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Museums represent our cultural heritage and are buildings of great importance with a significant representative character. As a matter of fact, museums are very special buildings, as they are supposed to preserve important and in many cases unique, cultural heritage objects from outdoor climatic conditions. In Albania there are two main typologies of museum building; buildings designed to be museums and cultural heritage ones used as museums. The study, focuses on these typologies considering as a case study the building of Archeological Museum in Tirana, "Onufri" Museum in Berat and National Historical Museum in Tirana. In some of the new museum facilities the indoor environment conditions were established by heating only or by HVAC systems. Actually all these systems are out of use and the building indoor climatic conditions are not monitored anymore. Museum facilities housed in traditional and historic buildings constructed with traditional materials and techniques are naturally ventilated. They are used to respond passively to climate and have architectural features that contribute to thermal performance. This study aims to measure, evaluate and analyze the buildings facilities indoor conditions focusing on the thermo-hygrometric parameters, which are key control variables to ensure the conservation of artefacts. The data and recommendations of this study will serve for future museum buildings refurbishment aiming to improve the indoor climatic conditions for artefacts conservation.

ID 162

The use of new technologies in the commemoration projects of the centenary of the apparitions of Fatima

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The city of Fatima in Portugal is world renowned for the apparitions of Our Lady to the three shepherds, on May 13, 1917. From this religious phenomenon, the city begins to transform and settles in this territory one of the largest and most visited shrines dedicated to Our Lady of the world, with thousands of sightings each year. The city is set up as a sacred territory. Religion, throughout the history of mankind has developed an important role in the process of Europass to the cities, as it combines the spatial and spiritual territory. In the case of Fatima, this transformation will occur from 1917, year of the apparitions, forcing the city to adapt. In 2017 with the celebration of the centenary of the Aparições, the sanctuary was prepared for the visit of thousands of people. Using exploratory qualitative research, this case of study aims to present the technological resources used in the elaboration of the projects and in the construction of the new altar situated in front of the Basilica of the Rosary.
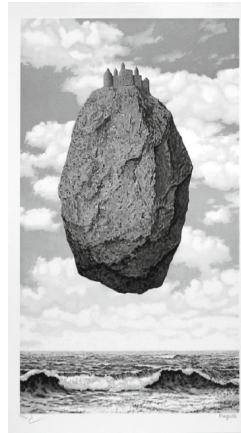
ID 163

The implementation of the Smart City paradigm in complex and user-centric domains

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It is possible to affirm that the sensitivity of SC should be expressed in two dimensions: a technological sensitivity and a social sensibility. In an anthropocentric conception we cannot ignore the creation of the conditions so that the same opportunities are enjoyed by all, in this sense, with the dissemination of information and communication technologies (ICT), the expression coined in the years ' 90 is still current, "network society". The SC are the realization of what I. Calvino had thought in poetic form, what is invisible are the technologies used, the new rules that are established, the ways that serve to accompany the rules of the company like queuing, visiting a museum, all the little gestures present in our daily life. Through certain factors it is possible to identify urban systems predisposed to develop the smart size of a city for which there are other preconditions that can be divided into pre-conditions of process and system preconditions, among the usual factors we consider are the size, the functioning and the organization. For complex domains, talk of smart reconfiguration, means to refer to policies and interventions that, also through the new information and communication technologies, orient the system towards sustainable states and efficient. The social capital of the local community is increasingly called to play a role of active citizenship. In the face of the cultural specificity of the sites the inclusive and sustainable approach is used to improve the quality of life.

ID 164

Traditional games and culture

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In the contemporary age traditional games could be a way to debate and establish a comparison of knowledge carriers to communicate methodologies of good practices adopted and experiences in the use in the protection, conservation and safeguarding of cultural heritage. Different intellectual approaches (Parlebas,1999, Lavega 1996, Lumen 2013) defined traditional games are an expression of a country's cultural background, beliefs and passions as well as reflect the living conditions at the time of their creation. Traditional games seem to have developed similarly through the ages in various parts of Europe even though these were distant from each other. Traditional children's games could be Goal of project to incorporate elements of traditional children's (outdoor) games in the design of an intelligent, interactive playground.
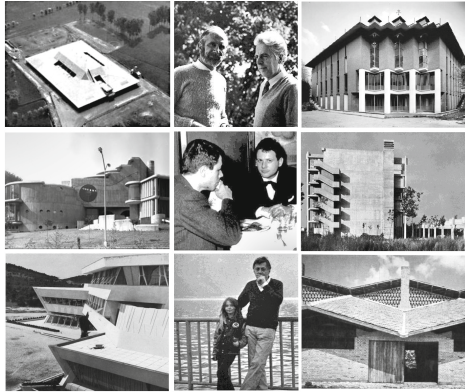
Opere e protagonisti dell'architettura italiana del secondo Novecento

ID 165

From "author's rights" to "conservation policies", first hypothesis for its re-use of Italian architecture of the late twentieth century

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The research adresses the issue of protection, conservation and new destination of Italian architecture of the late twentieth century, more and more object, particularly in recent years, of complex interventions managed, most of the times, through decidedly contradictory measures that can compromise the integrity of the work. If in fact, quoting Bruno Reichlin: «The preservation of modern and contemporary architectural heritage [...] is perhaps one of the great opportunities that are currently offered to the architect to rethink his profession», it is necessary that the architect of the safeguard is able to operate in the field, mastering the knowledge of the work, the materials and the construction techniques, the verification of the state of conservation or alteration but also the procedural and operational issues of the redistribution phases: the project, the call for tenders, the works management, the construction site. Always in the application of the current legislation on the protection of the late twentieth century (copyright / relational bond / recognition of the important artistic character), unfortunately still lacking significant previous case laws. In a path that is in part alternative to what has already been produced by the entities set up for protection, the specific figurative and distributive characters of some emblematic cases of the late twentieth century are analyzed to allow, in the compatibility of a new use, to preserve as much as possible it integrates the original form of expression, language and perception.

ID 166

Contentious Heritages with-in the city. Adaptive reuse strategies and critical heritage

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Since the 90's a growing corpus of studies has been delving into heritage and heritage practices from different and widened perspectives. They have been theorising heritage as multifarious and multilayered, mostly contingent and open to different readings; nor static neither a fixed entity already in existence, but a "constitutive cultural process" (Smith 2006). On the wake of these studies new promising lines of inquiry have been emerging and taking roots, expanding the field of study to include contributions from different disciplines and opening up to important theoretical and methodological opportunities to investigate different "types" of heritage for the potentially diverse meanings that may gather around them. As an architect researching on heritage and museums, I've been increasingly reflecting on possible implications of this understanding of heritage on architectural theory and practice, as well as wondering which conversely might be the contribution of architectural studies to such a debate. My assumption is that the above mentioned understanding of heritage as "cultural production in the present that has recourse to the past", focusing on "interactions" and "relations" rather than on the physical architectures per se, can provide a new and promising critical perspective for thinking architectural intervention on the built environment and architectural preservation today.

ID 167

Design 4.0. Practices and processes of diffuse and circular design for the enhancement and development of local cultural heritage

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Elisabetta BENELLI

Laura GIRALDI

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The production of cultural heritage has for a long time found a privileged position within manufacturing and inside the factory (of goods and construction), where innovations were developed and quickly translated into production actions. Alongside his fragmentation, today we learn the horizontal distribution of design centers, due to the strengthening of communication networks and enabled by new value emergencies, which no longer belong only to production sites but are closer to the world of consumption. If the contribution of ICT on one hand has influenced the organization of production, new technologies, such as information highways and big data analytics, also generate an impact on the design processes, up to generate new project practices (i.e. co-design), increasingly open to the contribution of an "inexperienced" audience of users and amateurs. Thus the design matter is transferred from the factory to the market or, better said, in the society where every product built his meaning and value matrix. In this context the contextual factors become relevant, and they are precisely expressed by the local user, which determines the connotation of the cultural heritage of a tribe, a buying group, or a local community, which builds a cluster of relationships, through the lattice aggregation of people around a common fire.

ID 168

Maps through time and redesign

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Knowledge takes many forms and shapes. Usually we associate our gathering of information and knowledge by what is transmitted in books and text. But it is often through our visual heritage the we perceive and build a notion of world and space around us. According to J.B. Harley (1987, p.1) there has probably always been an natural impulse to create maps. Cartographic maps are historically synonymous of power, since geographic representation and knowledge in them concentrated influences, moved reigns, borders, and controlled market routes. As a system of signification, the credibility of a map is seldom contested, and these objects "possess an 'extraordinary authority', even when they present errors, which may be lacking in other types of image" (Harley, 1987, p. 2). This is a structure agreed upon by centuries of development, appropriation, graphic familiarity and analogy to physical realities, which has allowed them to be an object quickly retained by sight and quite immersed in semiology as a "general metaphor" of our space. The resilience of these objects has also allowed the construct of imaginary spaces and realities that are made credible by their cartographic representation. We will focus on present and long lasting examples of maps and demonstrate how their design and redesign continues to shaped our knowledge, by the way they interconnect with our visual perception of truth.

ID 170

The Portuguese "Praças de Toiros", a case of Resilience

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With the publication of the Portuguese, Decree-Law nº 89/2014 (11 June) that states that "(...) The bullfighting is, in its various manifestations, is an integral part of the heritage of the popular culture of the Portuguese. Among the various expressions, social practices, festive events and rituals that make up the bullfighting, the importance of the shows in the bullfight arenas (...)". At the same time that it recognizes that "(...) the safeguarding of the public interest also involves the harmonization of the interests of the various stakeholders in the spectacle of bullfighting, and for the defense of animal welfare". This lays the groundwork to rethink the formal aspects and their idiosyncrasies but giving greater emphasis to the rituals, scenic and artistic aspects. Both in the manifestations of the popular practices, but fundamentally in the essence of the established or "professional" bullfighting spectacle. So, this research aims to make present the work that we have been developing over the last few years, in order to study on this type of buildings - "Praça de Toiros". Mainly as a product of a particular Portuguese popular heritage, but also as an architectural heritage with a vernacular or classical character. In particular in the aspects that pertain to their Resilience, Restoration, and Preservation.

ID 171

Historic urban centers. Construction characters and seismic vulnerability

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Simultaneously to the drafting of a seismic micro-zonation that highlights the different responses to earthquake that the various areas offer in terms of amplification of ground seismic waves, in relation to the stratigraphy and the orography, it is fundamental to know and predict the effects of an earthquake on urban system. It is therefore essential to carry out an analysis of the existing built heritage in order to know its characteristics, assess the level of vulnerability and identify a scale of intervention priorities, in particular investigating the survey on historical centers, particularly complex contexts, historical interest and potential vulnerability. Starting from these general assumptions set at a territorial scale, every intervention on the construction scale must therefore be conducted taking into account the results of these analyses: these are the basic principles that define a "Plan of Seismicity". To verify the ways in which these principles can effectively be implemented, a research and experimentation was carried out for the Municipality of Carini (province of Palermo, Sicily, Italy) and in particular in its historic center, presenting a medieval origin, a great architectural and urban interest but which presents strong criticalities in terms of seismic safety. The first level of investigation has been that on a territorial scale, in which the entire municipal territory was analyzed in order to define homogeneous zones of seismic vulnerability, based on the knowledge of the existing building heritage and its current conditions.

ID 172

Internet of things and artificial intelligence technologies preserve cultural heritage

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The novel Information technologies become a strong booster of the progress. The synergy of Internet of Things and Artificial Intelligence can be helpful tools to study, conserve and popularize the Cultural Heritage. The presentation is dedicated to the application of these technologies in the Cultural Heritage domain. Different aspects of the applications are considered: in Entertainment and Protection, in Narratives and Interpretation, in Semantic and Annotation. The power of Artificial Intelligence paradigms in solving problems is shown such as Expert systems and Neural networks, Augmented reality and Robotics. The interaction between Internet of Things and Artificial Intelligence is illustrated with case studies in the Cultural Heritage domain.

ID 173

The historical gardens of the outskirts of Seville (Spain) from the 18th to the early 20th centuries. The origins of a heritage public space

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The historic city of Seville (Spain) lacked sufficient public space inside the walled urban area, for this reason important public gardens were created in its near outskirts, during the long nineteenth century (1789-1914). These urban interventions were promoted by visionary mayors and made by prominent architects, botanists and gardeners of each period, who reused some unused, obsolete or unhealthy land, located close to the Guadalquivir River. In this research are analyzed in chronological order such green areas: the tree-lined urban promenades along the river banks called Delicias, Malecón, Arenal, San Telmo and Bellaflor in the 18th century, the botanical garden and plant nursery known as Paseo de Las Delicias (de Arjona) and the urban garden and paved walk called Salón de Cristina both in the 19th century and finally the great park of María Luisa in the 20th century. For this purpose, the most notable related publications are studied, and it is complemented by the analysis of the graphic documentary sources, plans and views, that represent these gardens, as they provide significant information and show the spatial, historical and visual relevance of these green areas. In short, it favored the public use of those spaces that were not occupied by urbanization, making the city more balanced, resilient, habitable and sustainable. Thus, these gardens today are part of its rich heritage and they are an essential element of the historic urban landscape of Seville.

ID 175

Italian grain silos from the 1930s: knowledge, conservation and reuse

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This contribution is focused on the grain silos built in Italy during the 1930s, when the so-called 'collective grain storages' were established under the pressure of the Fascist agricultural policies. Largely unused and in state of abandon, this network of silos is deemed rarely as worthy of attention despite its significance and multiple values. They, indeed, bear witness of a significant part of the Italian agricultural history, they're expression of the new construction techniques introduced during the early 20th Century, and they were sons of the architectural language that was spreading worldwide at the time. The research objectives, therefore, were to develop a new tool for the inventory of such buildings and to propose a framework of guidelines for their conservation and reuse. The first efforts were oriented to analyze their typological and technological features, and also to develop for the first time their mapping, which allowed to identify 79 silos up to now. The inventory tool was conceived to enable a critical and comparative analysis of such buildings, and to be compatible as much as possible with the existing international inventory systems (ICCD, Docomomo Register, Arches). The contribution will describe the inventory fiche, will give account of the mapping results and will also discuss the possibility to transfer the gathered information on a web-based open-access GIS platform.

ID 177

Heritage: tangible and intangible dimensions

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This paper integrates more than one subjects of the conference. It is about a mammoth project called 'HYDERABAD HERITAGE', a mobile application, designed to create interest in public, specially school going children. It is a database of 275 sites of Hyderabad, India, ranging from Historic trees, gardens, lakes to many heritage sites and components. The sites have been marked on a google map and have been detailed with text, pictures, handmade sketches, audio files (the intangible dimension in the form of folktales, facts and poems, recorded by school going kids) and short video file to give a glimpse of the site. The text describes the architectural elements, the handmade drawings and videos give the present image of the site without any cosmetic changes being made. The application has filters due to which one can search the sites in 40 different categories (historic typologies), for example: Places (mahal), clock towers (ghantaghar), tombs etc. It will be a useful tool for the tourists and also help the concierge desk of the hotels, to understand, appreciate and discuss more about the historic city of Hyderabad. A product of 14 years of research of conservation architect Madhu Vottery, the application HYDERABAD HERITAGE, designed by Apeiro Technologies Inc, USA, can be checked on the google play store at present.

ID 178

Destructive tests for mechanical characterization of in situ structural timber

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In this paper the results of an experimental campaign aimed at assessing the structural behavior of ancient chestnut beams are presented. The timber beams under consideration, which have more than two hundred years, belonged to a floor structure of an existing building and presented both natural defects and different types of degradation, which are typical of in situ- timber elements. In particular, compression tests were carried out along the direction parallel to the grain conducted, both on actual dimension specimens and defect-free small specimens. The obtained results allowed to define a specific procedure to assess the design compression strength of in-situ timber structures, based on the assumption of some safety and defect coefficients, which could be determined according to the type of specimen and the defectiveness of the structural element under consideration.

ID 179

Correlation between NDT results and mechanical strength of structural timber

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The refurbishment of ancient timber structures requires an acquaintance of the residual structural capacity of members in order to design reliable repairing interventions. Such information cannot be always obtained by means of destructive tests on sacrificial elements extracted from the existing structures. This difficulty can be overcome by using in-situ non-destructive tests (NDT). In this paper, a methodology based on resistographic NDTs is analysed. In particular, an experimental campaign of NDTs carried out on ancient chestnut elements has been developed for determining a correlation between NDT results and the mechanical strength of the basic wooden material, which could be obtained by means of destructive tests according to the procedure provided in the companion paper. In addition, as in normal conditions, situ NDTs can be easily performed only throughout the direction transversal to the growth rings, a correlation between longitudinal and transversal NDTs is also presented. Finally, in order to validate the proposed correlations, the procedure defined by this experimental campaign is compared with those of the existing literature, putting into evidence interesting and satisfactory outcomes.

ID 180

From information to knowledge Building new learning on heritage throw graphics and new technologies

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Based on graphic representations, it is possible to create new supports and tools which are creating new relationship models with reality and knowledge and which will have to be researched in the immediate future, as the new means of communication which they symbolize. Simultaneously, these means and technologies that are already available now, allow an increase in accessibility and interaction with multiple contents of the cultural and heritage scope. There are various well-known applications in the heritage interpretation sector, in which specific sites or aspects are displayed or experienced with immersive reality. In this direction, this research project proposes to define a "Self-Contained Multisensory Knowledge Module" to develop a prototype in order to assess its contribution to both knowledge and accessibility. It aims to explore the creation of learning supports that combine more or less participatory perceptive stimuli (visual, tactile and productive) with which to experiment in autonomous learning. This type of approach is important in the new context of learning offered by information technologies and also in relation to the manipulation and accessibility options which these new forms of knowledge can provide. With this approach, the preliminary study is presented for the development of a prototype of the knowledge module, in which different information contents, supports and stimuli are combined in the presentation of a monument to provide open communication information addressed to the educational sector and cultural interpretation.

ID 182

Proposals for urban regeneration of two different cultural heritage abandoned areas in Athens, Greece

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Abandoned areas that making part of the cultural heritage in cities have become a key in urban regeneration resuscitating a long-standing debate over their reuse. The paper aims to identify causes of the urban decline of two different cases making part of cultural heritage in Athens and to propose sustainable solutions. The first case study regards the former semi abandoned residential district for refugees in heart of Athens, while the second one a former abandoned industrial area near to Piraeus. The two sites, even if they were formed during the last century, have a very important historical connotation, even if each one is different and are making part of the cultural heritage of the Hellenic capital. The first case of the district for refugees brink back to the mind the Catastrophe of Asia Minor; while the second one recalls the history and industrial development of the Attica peninsula. The project proposals are launching a new vision for urban regeneration based on the values history, identity, social well-being and environmental responsibilities through the merit of design inside a possible economic and legislative frame. The projects, after a careful study of local urban development, aim to solve the various problems that have been presented both after the abandonment of the residential complex and after the cession of the activities of the industries and to express regeneration proposals.

ID 183

Three Schools: Torino, Avellino, Palermo

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The design purpose aims to give a unitary character to the design of the school complex. This is outlined as an element of mediation between urban arrangement and landscape design, between educational activities and cultural events. The aspects on which the school system is based are: Safety. The subject of security is the control of intrusion and the definition of an anti-seismic structural system. For the first aspect, a boundary perimeter ensures the control of users in and out. For seismic safety, the building has an autonomous base with domed vault, supported by 5 pillars on spring jacks. The upper floor has a wooden structure resting on the base using spring and ball joints. Welfare: the sloped surfaces and the natural ventilation wells of the covers contribute to the regulation of humidity and temperature. The relationship between climate and project is understood with respect to the control of solar radiation during the use of teaching aids. Energy and environmental sustainability. The ecological approach derives from the natural resources present in the site: wind, solar energy, rainwater, green, geothermal. The natural ventilation with an adjustable ventilation system, the photovoltaic panels for the conversion of solar energy, the recovery of rainwater from the impluvi roofs, the external greening and the use of well water, reduce energy consumption.

ID 184

Mediterranean bio-cultural landscape: network of expertise

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Jean Monnet said that if he should launch into building the Europe Union, he would do it through culture. The increased level of interest for bio-cultural landscape – an all-encompassing international concept – proves him right. Indeed, whereas in the past heritage has been linked to nations and their history, today the bio-cultural landscape, in all its meanings, is not limited to a collection of national properties, an album of remarkable and listed sites. It is a network of expertise with paradoxical characteristics (unity and plurality, memory and creative present, identity and cultural "melting-pot"…) that, while making it unique, also give structured reflexes and answers to their own heritage questioning. A thematic approach, with a view toward the future, involves heritage and cultural landscapes: growth levers, a management model involving the respect of nature and humanity, and interest and sustainable development that correspond to an exceptional openness to worldwide cultures and heritages, through cultural interdisciplinary exchanges. In this contribution, the theme is addressed in terms of transversal expertise acquired during a research work on applied methodologies and fieldwork on materials and construction techniques, energy and technological aspects for retrofitting the Mediterranean cultural landscape.

ID 185

Virtual community content sharing to support decision making process in protection, conservation and safeguarding of cultural heritage and landscape

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In the past years the proliferation of network access and usage has facilitated the rapid growth of virtual communities. The impact of virtual communities is increasingly pervasive with activities ranging from the economic and marketing to the social and educational fields. The utility of virtual communities often covers organizations that do not possess all the required knowledge within their formal boundaries. Thus individuals have often to rely on outside knowledge resources to better carry out the same process. Professional virtual community, residing outside organizations, constitute one of the most important ways to obtain external knowledge. This contribution aims to present a tool which allows individuals to create a virtual community, to share contents, to relate it to a specific place and to geo reference it. Moreover this online tool will allow the specialists to retrieve historical, cultural and social information about the building or a specific place and use them in the process of protection, conservation and safeguarding of cultural heritage and landscape.

ID 186

Material and immaterial values of the "Trulli" of Alberobello, Puglia (Italy)

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The urban structure of Alberobello, a small town in Puglia, is characterized by the presence of a strongly connatural building typology known as the "trullo". This particular building stands out for its unique conical roofing and it is built using a hard and compact limestone found locally. This stone is worked in order to obtain polished slabs with an elongated shape and variable thickness. The "trulli", structures diffused only in this small region of the territory, concretize the cultural expressions of the community to which they belong. In spite of their notoriety they are not adequately documented. The few existing publications are not exhaustive and they are almost without a scientific information. This study of the "trulli", which is part of a wider research, provides an initial phase of systematization of existing documentation. The next phases, on the other hand, will be dedicated to a definition of a scientific methodological procedure with the aim of optimizing and putting in synergy the cognitive contributions coming from multidisciplinary competences. In fact, this study provide a characterization both from an historical, both from a chemical point of view (characterization acquired through a SEM-EDS analysis) of these geographically typical buildings.

ID 187

Hidden river: recovering the memory of a city

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The Rio Darro represents a fundamental element of the natural and cultural heritage of the city of Granada. With its banks and bridges it has told for centuries both the life and culture of the city by the foundation, which was closely related to the river itself. From the beginning of the 16th century, Granada began to lose its river through a long process of covering that today hide a large part of its path. With the loss of the river, Granada gave up to perpetuate an essential part of its history: how can we restore the memory of the Rio Darro in the XXI century? Starting from an analysis of the transformations relating the historic centre following the covering, the study is based on the reserch of new strategies to return to the city such an important part of its heritage, in order to bring it back to light and show it once again, but above all in order to use it to make things better for the present day city. The recovery of the river therefore entails a urban regeneration of the historic centre, which moves towards a pedestrian fruition of its streets by creating a green walk alongside the banks, limitating vehicle traffic which is nowadays affecting the city. The growth of green areas and the design of pedestrian paths, demonstrate how the rediscovery of this hidden part of the natural, cultural and historic heritage of Granada, the Rio Darro, might be not only the culmination but the tool through which it is possible to plan a modern and sustainable city.

ID 188

The role of evaluation in B.I.M. models: from the representation to the simulation of the design

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The new Italian Procurement Code - L.D. n.50, 2016 - implementing the Directive 2014/24/EU, has introduced the Building Information Modeling as an innovative approach for the digitalization of construction sector. The recent Decree n. 560 of 1 December 2017 defines the methods and times for the gradual introduction of the BIM for the design, execution and management of construction works. BIM procedures involve a radical change in the design approach that goes from the graphical representation to the simulation of a process, both in the field of new constructions and in the field of cultural heritage conservation. In this perspective the article shows the results of a survey carried out on historic buildings. It aimed at verifying how much the modeling has remained confined to a low level of development (LOD A, according to the UNI 11337 standard is linked to a merely symbolic level) and those who have gone further by integrating specific and detailed information that allow real time to evaluate the sustainability of different alternatives.

ID 189

Adaptive and dynamic facade: a new challenge for the built environment

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Energy efficiency in buildings is an important objective of policy and strategy in Europe. According to the upgraded version of the Energy Performance of Building Directive, which requires Nearly Zero-Energy Buildings (NZEBs) as target from 2018 onwards, a challenging input is the development of a new generation of adaptive and dynamic facades. These envelope systems allow answering the necessity to improve the indoor environmental quality and to facilitate the exploitation of renewable energy sources at the building scale. Moreover, adaptive and dynamic facade are able to respond intelligently to the changing outdoor conditions and occupants needs, reducing the transmission losses and increasing the use of solar energy and daylight. The present work displays the first step of the WALLED project that is focused on design, testing and construction of a smart facade system composed by new materials, sensors and Solid State Lighting (SSL) technologies. The components of the "WALLED system" will be designed as modular elements that can be applied in external envelopes of new or refurbished buildings located worldwide. In detail, this study aims to investigate and compare several examples of transparent and opaque materials presented in projects and scientific works as possible envelope systems. This analysis is necessary to identify the marials that can be used as "second skin" of buildings and to define the preferable application field for each one.

ID 190

Preliminary energy analysis of the school buildings stock in the Province of Caserta

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Recent laws based on energy savings in school buildings define clear operating methods for new buildings construction, but they are far from defining a univocal strategy that allows analyzing the as-built state of the existing building stock. In Italy over 60% of schools require considerable energy retrofit interventions because they were built before 1976, the year in which the first law on containment of energy consumption in the construction sector became effective. The aim of this work is to propose a preliminary assessment method to catalogue the school buildings considered as representative of a randomly sample of schools chosen among the main municipalities of the Province of Caserta, Region of Campania, Italy. By identifying a series of qualitative and quantitative parameters, such as period of construction, quality of frames and heating system capacity, it is possible to classify the buildings of the reference sample in order to obtain homogeneous and smaller groups. At last, by comparing these groups, it is possible to define the most appropriate energy retrofit interventions for each building and then establishing an approximate priority ranking for proposing adequate retrofitting measures.

ID 191

Contaminated Land Recovery by Bioremediation: an Eco-Sustainable Approach to Face the Future Soil Shortage

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The worldwide growing soil demand for housing and agriculture as result of the constant world population growth coupled with the need for forest and biodiversity preservation, have recently turned the common interest towards the remediation of contaminated lands by using unaggressive systems aimed at making soils safe for human health as well as recovering their ante-contamination characteristics. Several processes have been successfully tested to perform an eco-sustainable soil remediation. As they are mostly conducted by bacteria and plants, these processes are commonly known by the general nouns of bioremediation and phytoremediation. Furthermore, traditional chemical systems, e.g. soil washing and soil flushing, when biodegradable extracting solutions are used, can be considered eco-sustainable as well. As result of the above mentioned treatment systems, a contaminated soil, from dangerous and useless for any human activity, gains back its previous value and it is potentially ready to be used for agricultural aims or incorporated in the urban fabric. Both these solutions are equally valid and the choice of one of them will depend on the specific conditions such as, mainly: (i) context, urban or rural, surrounding the contaminated land; (ii) level and type of soil contaminations; (iii) remediation costs. The experimental study presented in this work is actually focused to recover a real heavy contaminated soil by PAH performing the bioremediation through landfarming.

ID 192

The dealing of abusive buildings

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The architecture has two faces of different valence and contrast. There is the virtuous face of beneficial activity that allows the satisfaction of existential living needs, the support of economic activities, the protection of nature and the enhancement of art. But there is also the brutal face of harmful solicitia (connoted by abuse and collusion), which takes place in several directions with compromise of the environment and territory, as well as safety, livability and beauty of the places! There are increases in volumes, buildings and even entire buildings, not only not enabled but also not stacked, and moreover unknown to the tax authorities! With the third party of good faith who buys the property or builds on the purchased lot and pursued abusiveness, remaining suspended between the legitimate expectation of the institutions that have foreseen or not controlled the abusive construction and the sword of the criminal judge and the administration and demolition or confiscation and acquisition to the municipal heritage. It is a social wound still open to buy a house and then discover its incommerciability!

ID 193

Post-seismic rebuilding in Irpinia and resilience

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Not all earthquakes are the same! Every earthquake, however, has marked, with its destructive force, the history of the towns and territories struck by such a catastrophe. Depending on the era and the political, social, economic situation at the time, the changes and the techniques of the rebuilding process have been deeply different. Likewise different have been the urbanistic solutions employed, which have been also influenced by resilience. This article analyzes the earthquake that devastated Irpinia on November 23 1980, and reiterates all the themes of reconstruction, with specific focus on the destructions caused by human alterations, which have irreversibly corrupted both the natural and the constructed landscape. The town of Calitri is focused on for how emblematic it is, for how in the reconstruction, architectures created from scratch and ones recovered by restoration coexist. While the former are located outside of the old town, the latter are recovered on-site.

ID 194

A simplified method for seismic risk assessment of reinforced concrete school buildings

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The seismic risk assessment of school buildings is a problem of particular relevance in Italy, where most of the building heritage was not designed using anti-seismic criteria. It should be account for seismic hazard, structural vulnerability and exposure, which in this case is particularly significant, it being related to the number of the occupants. In particular, in the last decades many methods have been introduced for evaluating seismic vulnerability of structures, which are essentially divided into three levels: expeditious and simplified methods (level 0), intermediate methods (level 1) and rigorous methods (level 2), which differ from each other by the refinement of the applied methodology of analysis. At national level, in order to provide a contribution to solve this problem, a specific filling system called "Sistema Nazionale delle Anagrafi dell'Edilizia Scolastica (SNAES)" has been developed, it consisting of a census of all existing school buildings in term of consistency, degradation state and functionality. In this paper, starting from the existing methods and considering the parameters and the information present in the school building files of SNAES, a simplified methodology for assessing the seismic risk of reinforced concrete schools is proposed. Then, just to give an example, such a method is applied to a number of schools located in the Caserta provincial territory.

ID 195

Ezio De Felice: resilience design

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Painter and sculptor exhibits in Paris with Lucio Fontana and Pablo Picasso; first mathematician then architect restores the Theater of the "Palazzo donn' Anna" of Cosimo Fanzago in Naples; head of the Italian museographic experience that in the fifties started the reuse of historical-architectural spaces in exhibition spaces; designer, produces tables, chairs, stairs, prefabricated systems systems "in opera", jewels in semi-precious stones, monotypes. Insect designer. Ezio De Felice's multiform work, ascribable to a systematic formal sequence rather than a chronological one, escapes any possible cataloging. His production is a declaration of authentic design and compositional sincerity. The "biological" structure of the organism, be it environmental, architectural, museographic, living *strictu sensu*, represents the invariant to the different project scales; therefore, the body itself is invariant, in which each part performs a specific function of use, without misunderstandings. Function, sometimes even decorative. Each piece at any scale of the project is a unique piece and the repeatability -connotation required for the design (De Fusco 2005) - is traced in the design process rather than in the final product.

ID 196

The Mudéjar Style: An interpretation key of the Ibero-American Baroque architecture

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Transplanted in Latin America, the Mudéjar style since the sixteenth century has constituted a fundamental element into the conformation of the particular manifestations of Ibero-American architecture and art. The syncretic quality that distinguishes it allows the continuous incorporation of forms and construction schemes. During an initial period of European presence, the Spanish viceroy prototype was implanted in both religious and civil settings. Then, in a second phase, during the seventeenth and eighteenth centuries, with the advent and further development of the Latin American Baroque, the Mudéjar component became even more evident, so it becomes a real key for understanding this style. In its Hispano-American version, the Baroque is characterized by an extraordinary ornamental versatility, due to the convergence of different influences: in addition to the indigenous and the Mudéjar, other imported styles, such as the Gothic, the Plateresque and the Renaissance must be taken into consideration. A substantial role in the evolution of the Hispano-American Baroque, a true melting pot of plastic-constructive expressions, the Baroque also covered the great variety of native materials utilized, from Mexico to Peru. During the seventeenth century, specific constructive and decorative types were also developed: "the doorway" (known as facade-altarpiece), "the tiles" and"the altarpiece".

ID 197

The rediscovery and enhancement of the historical "Wool Road" through its recognition and reuse project

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Since 1464, the historical "Wool Road" allowed to connect Bergamo with important market towns in the northern Europe; it was a sort of "shortcut" that started from Gandino, the most prosperous manufacturing and trade center of woolen cloths in the Val Seriana, and reconnected the postal road to Bolzano. Because of the eighteenth-century manufacturing crisis, the "Wool Road" was abandoned and forgotten. Today, only some parts of this historical road remain; their path has been recognized through the comparison between the documentary information, the historical maps and the physical evidences still visible. This work was supported by the geo-referencing of the historical maps and by the subsequent field verification of the existing parts, surveyed and recorded with GPS. This phase of research was followed by the elaboration of conservation and enhancement project of the "Wool Road" and the artefacts built along its path. The dissemination and sharing of its history and its possibility of being revitalized and reused can now make use of the open GIS tools; they allow many actors, in real time, to implement and connect simultaneously various databases and maps. Consequently, the data provided and the modern widespread digital technological tools can contribute to generate ever-different cognitive paths, strongly linked to the culture and interests of individuals, and to stimulate a compatible use and a real enhancement of this important forgotten historic landscape.

ID 198

Sewell mining settlement: Construction of a unique landscape as an adaptive process for a complex and hostile territory.

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Sewell, the copper mining settlement declared a World Heritage Site in 2006, constitutes a remarkable example of adaption to extreme territorial conditions. It is located in the mountain range of Los Andes (Chile), at an altitude of more than 2200 m, in a steep topography, isolated, exposed to a rigorous climate with snow and strong winds, avalanches and earthquakes. The result of this adaption process is a singular landscape expressed in a stepped urban form and a constructive system that gradually adjusted to an adverse environment. Thus, the social, productive and technological systems illustrate the peculiar character of the site. The main component of the urban structure is a monumental staircase, built on the highest slopes, which runs through the camp, dividing the housing areas and the industrial zone. Furthermore, the staircase is a social axis that links the camp's public spaces, employing stairs and passages to connect to the access to the houses and buildings that follow the topography. Therefore, this work focuses on the answer to an imposing and inhospitable geography, transforming it into a habitable place through creative solutions on an urban, architectural and constructive scale.

ID 199

REDESIGN + RESILIENCE = University-School-Companies-Institution

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The goal of combining "the specificities of the productive fabric and the socio-cultural context" already promoted by the consolidated "University-School-Companies-Institutions" chain of the LANDesign® Research Project since 2011, has become an innovative teaching method of compulsory school-work activity for all students of the last three years of high school, one of the most significant innovations of law 107/2015 (The Good School) in line with the principle of open school "practical experience helps to consolidate the knowledge acquired at school and test the attitudes of students and students in the field, to enrich their training and to orientate their studies and in the future work2 (www.miur.gov.it/alternanza-scuola-lavoro). The LANDesign® Research Project of the Department of Architecture and Industrial Design (which established a Memorandum of Understanding on the subject from 2013 with the MIUR Campania) for the numerous courses of School-Work Alternation achieved last year the National Award "Regoliamoci" announced by the "Libera" and the MIUR and this year participates with 5 proposals at the National Competition "Stories of Alternation".

ID 200

Ezio De Felice: home re-design

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Ezio De Felice is the "architect of the beautiful" not only in relation to the great works of museography and restoration, but also and especially to domestic spaces and handcrafted furnishings. His home at Calata Trinità Maggiore in Naples is an example of this: an ancient space, the container of a domestic re-design project, "belonging to the house", to that house, characterized by declinable but unique solutions. Plants designed on site as "systems". Lifts, furnishing, lighting, water, heating, that can be easily inspected in case of breakdowns, with no coating, easy to be modified in case of different use, made of low-cost, appropriate, regulated, collected, chosen materials to be poetically used or reused. The balustrade of the staircase is a curved wooden element discovered in a company, the switches are pieces of rope adorned with discovered beads, the screws necessary to block the parts of the systems are all different as they were collected and stored, in order to be reused. De Felice thought: «I am a careful collector of handmade products of any kind (...) Only to save them from forgetfulness and destruction and then leave them in a place more suitable to witness the activities of man». The furnishings, in the elementary spatial organization of this house, have a double function or dual potential of use, the staircase is auto-bearing, the sliding doors in polycarbonate define the spaces but allow light penetration, tables are set on easels placed with the top in such a way that they can be easily moved thanks to the presence of wheels on the base.

ID 202

Know to preserve: Archaeological remains of the triconch architectures in Turkey

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Geographically, Turkey occupies the most western area of Asia, formed by Anatolia peninsula which divides Black Sea from Egeo to East Mediterranean Sea. Ancient and suggestive Christian archeological sites and ruins throughout the country show off the area's importance from IV to VI century. During the first Christian spread, Pisidia region played an important role, nonetheless starting from IV century, in Cappadocia region, first Christian communities influenced by Egyptian and Palestinian's Greek Orthodox monastery can be found. Many sites of archaeological interest in central Lycia provide information concerning the period between the fourth and seventh centuries: Xanthos, Letoon and in the mountains above Menre (Myra). At Dikmen, southwest of Alakilise, and above the road to Muskar, there is a triconchos church of the sixth century. Others very similar triconchos churches are in the area: one at Devekuyusu, north of Muskar and east from Karabel toward Alakilise; a second at Dikmen, near Alakilise and a third at Alacahisar, three kilometers southwest of Karabel. These churches adopt typologies in which Hellenistic survivals, Byzantine and Syriane influences coexist with technical and formal elements derived by the local tradition. The existence of cultural and religious common circuits could explain the great diffusion of unitary formal models that is recorded.

ID 203

*Green infrastructures and Eco-Planning: the Aversa
conurbation*

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Contemporary cities and territories are undergoing struc-
tural transformation both morphologically as well as in
terms of social, political, economic and symbolic relation-
ships; such new urban conditions have also led to loss of
identity. The planning discipline takes two opposing posi-
tions on this topic: one vacillates on accepting these mod-
els as contemporary urban landscapes with indifference
toward problems like sprawl and land consumption, while
the other adopts a critical viewpoint and seeks tools and
spaces to redefine the contemporary city if not as a fait ac-
compli, at least as a structured fact. The second viewpoint
often coincides with peri-urban and regional landscape
planning and design. It is not only the solid that produces
the form of void space, but it is the void that penetrates
the solid, redefining and requalifying it, giving form to the
urban settlement. Green infrastructure plays an important
role in this context. This paper begins with an overview of
the green economy to then examine some definitions of
green infrastructure. It proceeds to analyze the functions
and performances of ecosystems for humans provided
by green infrastructure and presents a design proposal
for green infrastructure in the Aversa Conurbation in the
wake of the Regi Felix project by Andreas Kipar for the
environmental regeneration of Regi Lagni area. The pa-
per concludes with some general remarks unrelated to
the specific territorial context.

ID 204

A New Role of Museums in Industrial Type Cities and Renovation Programs for the "Center-Periphery" Opposition: the Case of the Museum Quarter Togliatti Concept

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Elena SPERK

Samara State Technical University, Russia

Industrial type cities represent a complex object for the implementation of various social scenarios due to the polycentric incompact structure of their territory planning. The history of such cities and their "cultural gene" develop inorganically as the appearance of new city districts was always connected with the large -scale adjacent territory development and the launch of a specific production cycle. Besides, three key areas – industrial, "green" and residential – were singled out. The planning structure took into account the important ideological role that cultural, social and sport objects played in the life of the "working" city and allocated major recreational arteries for them. Being common and at the same time no one's territory, public spaces became an important attribute of the city. The period of the so-called social modernism was characterized by a particular spirit of internationalism and love for a paradoxical synthesis of "pure forms" in architecture and monumental and decorative art. Despite the globality and experimental nature of Togliatti as an urban planning phenomenon, a peculiar feature of the city's cultural map is that museums and museum complexes are not self-sufficient architectural ensembles capable of playing a significant role in the spatial,environmental and symbolic context of the city. With some minor exceptions, all the museums are temporary residents.
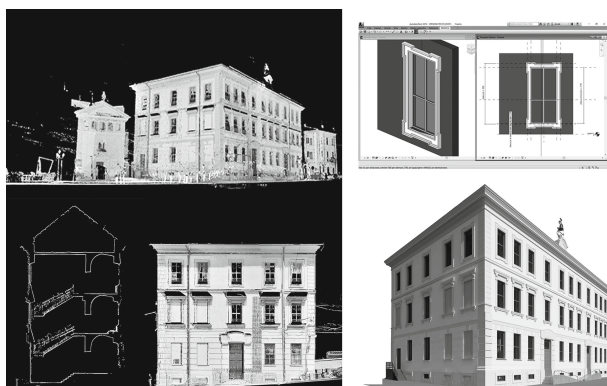
ID 205

Documenting the Architectural Heritage. From the survey to the three-dimensional modelling

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The documentation of architecture, in its role as a basic knowledge tool, is the foundation of conservation and enhancement of the architectural heritage. Within the process of knowledge and documentation of architecture, a part of primary importance is played by the survey. In fact, it contributes substantially to the understanding of geometrical, spatial, historical-formal and technical-constructive aspects, constituting the presupposition of historical-critical analysis. The theme of the survey, meant as an investigation of the building and its graphic representation, is closely linked to the theme of 3-D modelling, intended not only as a synthesis of the research results but also as a visual computing tool, i.e. data processing and analysis of architectural features. In the field of architectural documentation, the application of Building Information Modelling to architectural heritage (AHBIM) is assuming a role of increasing interest. The AHBIM, in fact, through an objected-oriented parametric modelling enriched with information, allows you to organize and manage large amounts of data of various kinds (structural, materials, costs ...), offering itself as a useful tool for knowledge. Through the analysis of a case study, the aim of the paper is a critical reflection on survey and 3-D modelling for the documentation and conservation of architectural heritage.

ID 206

The nodes theory as a management tool for the articulation of the roman architectural heritage

Isabel TORT

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The multidisciplinary research of archaeological remains, cultural elements and architectural components present in the Roman communication routes has allowed to observe, in some cases, the increasing condition of degradation of its patrimonial goods, constituted in some cases by a mere reminiscence. The theory of nodes raises an articulated system that recovers the Roman axis by means of a cultural tour across the dynamization of the localities that form the landscape. The methodological process is based on the classification of the nodes according to the current characteristics and the original functions of the Roman remains. The historical routes have been designed to fulfil commercial, strategic, military and political aims; these characteristics have allowed to define different scales of analysis along the Roman axis and to evaluate his architectural, historical, social and cultural values. Depending on the archaeological information obtained, a plan of interventions with the aim to revalue the localities depending on the diffusion of his architectural heritage is proposed. The theory of nodes aims to recover the historical heritage, develop the Roman axis depending on the articulation and put in value its nodes components for the diffusion of the cultural Roman heritage in the Mediterranean area.

ID 207

Productive green in the city: opportunities for eco-oriented transformations

Rossella FRANCHINO

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The design of green systems as an integral part of a city increasingly oriented towards providing concrete responses to sudden climate change is now a strategic theme that promotes studying in greater detail the aspects related to the technological and environmental quality of open spaces as well as, in general, systems that allow to integrate natural and built environments. This integration is an opportunity for transformations in an eco-oriented key since it operates on two fronts: a high one that allows to mitigate and improve the micro-climatic conditions of the intervention areas; on the other, to redevelop, from an environmental point of view, sites compromised by anthropic actions. This paper pays particular attention to the low-tech strategies and ecological aspects related to the urban productive green applicable to both the open and built spaces of the cities with forms of Building Integrated Agriculture. Urban agriculture, which creates opportunities to use roofs, balconies, facades and open spaces for food production, provides substantial environmental benefits, with it contributing to the increase of the biodiversity of the ecosystems and consequently the improvement of their stability. The advantages related to the use of nature's own capacity to control the negative effects of urban transformations are also highlighted through the use of particularly interesting case-studies due to them referring to different geographical areas and significant contexts.

ID 208
Aldo Rossi: Berlin, 1960-1997

**Maria Luigia
DI BENNARDO**

Architect, Naples, Italy

In 1964, an article written by Aldo Rossi appears in Casabella-Continuità, he takes his first steps in the academic environment and as designer. He begins to learn about Berlin when he's invited by the director of the Deutsche Bauakademie in Berlin and is passionate about it. Shortly after, he writes the article entitled "Aspetti della tipologia residenziale a Berlino", where are described the various typologies of housing characterizing Berlin in the 1930s, before the Great War. He describes in detail the three types of housing: The Block construction, a residential building born in the industrial period to accommodate as many people as possible; The villa, the single-family house that with time begins to have its own characteristics and creates discontinuity in the urban and The Siedlungen a typical building of the rationalism, which give great importance to green and to the bioclimatic conditions. Rossi's reflection is about the city before the bombings of the Second World War when Berlin changes its face, It's destroyed and It must be redesigned. Rossi participates with various projects, including the building for the Schutzenstrasse, a building that has in many different times and styles, built on an plot close to the Wall line and on the remains of a building. The building is emblematic of a process for the whole city: building the future without forgetting the past.

ID 210

Beit Beirut the War Museum

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The experience I want to write about is Beirut, the city of Armenian exiles, Palestinians, Kurds, Syrians. I just came back after an exhibition and conferences held at the Arab University. Perhaps it is no coincidence that in this city, capital of cosmetic surgery and night clubs, where a table for an evening can cost even $ 1000, the winds of war come back to blow. For the turbulent Syria and why the world gendarme shared the wicked choice to move the capital of Israel to Jerusalem, with the unbearable trail of dead and wounded that ensues. And Europe remains silent. I was really thrilled by the visit to a building that not only tells us about the disasters of war, grief and ruins, like the suggestive photo gallery where previously there was the photographer's shop, ruins that still bear traces of the warm life of man but because this building seems to respond perfectly to the coordinates that launch the 16th International Forum La vie dei Mercanti, or Representation Restoration Redesign Resilience. This is the Palazzo Barakat, now renamed Beit Beirut, or the place of many mysterious, hidden events that do not appear in history books, events that flow and intertwine with each other like karst rivers and suddenly reappear. After all, the name of Beirut derives from a Phoenician word which means "source". On the contrary, those of the large cities of the interior – Aleppo, Damascus, Baghdad and Cairo – which are of Arab origin.

ID 211

The Real Estate Fund for the redevelopment of public administration buildings

Francesco VERDE

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The enhancement and re-use of the properties of the Public Administration through the financial instrument of the real estate fund, established pursuant to art. 33 of the law of 15 July 2011, n.111, follows the purpose of the rule to make use of an integrated system of real estate funds, with the aim of ensuring greater efficiency of development processes and enhancement of real estate assets owned by local authorities and of other public bodies. The use of this tool combines the managerial techniques applied to the maximization of efficient portfolios returns with the typical property and facility management activities. The "CASA MIRANDA" case refers to the redevelopment of a historic building of architectural merit, dating back to the 1930s, which is currently in disuse. The proposed concept is to create a hybrid reception facility in the style of the "The Student Hotel" brand. It is a renovated student residence with services for co-working and co-living to meet the needs of new lifestyles, typical of the emerging liquid society in which we live. A functional innovation linked to the heterogeneity of the users, composed of different generations and cultures united by the desire for movement, openness, tolerance and creativity.

ID 215

The Future of Representation: parametric modeling in the HBim environment

Giuliana CHIERCHIELLO

University of Campania "Luigi Vanvitelli", Italy

The issue of representation, always strong in the field of restitution of the already done and to do, takes on further meanings today. The modern information technologies, the complexity of the built and the fundamental role of maintenance of the artifact, have created the basis for an evolution of the discipline such as to make the design, or model, no longer a simple communicator but a container of information resulting from knowledge and skills of the researcher/ designer / inquirer. The paper focuses on the experience of the representation of the existing and the subtle relationship between the potential of the software and those of the researcher / modeler by showing the parametric model example of a low archeddouble-shutter window belonging to the seventeenth-century module of the monastery of San Lorenzo ad Septimum of Aversa, home of the current Department of Architecture of the University of Campania. The survey and representation project was carried out with Professor Carmine Gambardella UNESCO CHAIR on Landscape, Cultural Heritage and Territorial Governance at Research Center BENECON.

ID 226

Designing the resilience. A masterplan for the Opportunity Area of Bromley

Giovanni BELLO

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The borough of Bromley located in the south-east of central London is one of the thirty-seven Opportunity Areas that the London Plan of 2011 identifies as the new places for urban planning. The territorial development strategy proposed by the plan aims to recompose the urban fabric through the design and the construction of new public spaces. A systematic and careful urban planning of these places was the starting point for the design choices and allowed to identify the key elements for the definition of the masterplan for the Bromley Borough. The urban design proposed aims to promote a landscape project that can be both innovative and replicable and that, through the configuration of a "green district", gives the possibility to increase the values of natural biodiversity within the urban space recovering and regenerating empty and abandoned places and creating a network of relationships between the green, blue and red infrastructures and the complex system of public spaces. A city drawing/design aimed at the achievement of the principle of urban resilience, whose ecological and anthropogenic components are essential and interconnected between them.

ID 230

The measurement of the territory at Km 0

Luciana ABATE

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Competitive scenarios are changing very quickly and force companies to abandon defensive strategies to become effective protagonists of global markets. The challenge no longer lies in improving the results compared to one's past, as in knowing and comparing oneself with the best competition. The recovery of competitiveness must be placed at the center of the country's attention, in the awareness that being competitive is a value of the community and benefits everyone. Universities and companies have the role of vector for development, while the country system must implement reforms to support this. In short, we need a leap in quality equal to the extent of the changes we are experiencing. Knowledge is at the basis of the contemporary technological revolutions of information and communication, with all the potential of the Internet network yet to be expressed in terms of enlargement of markets and rapprochement between producers and consumers. It therefore seems inevitable that in a country that has the highest rate of entrepreneurship but the lowest number of large companies, it must be reorganized with respect to the integration market. The small and medium-sized company usually has a profound competence of the product and its production process, and the direct knowledge of potential buyers is also significant, rather than the dynamics of demand and competition.

ID 231

Knowledge and representation between ethics and aesthetics

Rosaria PARENTE

Uni Pegaso, Italy

This paper highlight how important it is to deal the representation with aesthetic morphology; representation must recover value cognitive tracing an integral polysensoriality. The relationship between aesthetics and biology, which links the essential destiny between observer/surveyer and objects, artifacts, nature and living forms, in a sense of ecological aesthetics implies an approach on the value of measurement data. The discipline of Drawing, therefore, that embraces other knowledge such as history for the connotation of the sources and the restoration for the aspects related to the resilience, in dealing with the aspects of the relationships between technology and knowledge can not regardless of a synaesthetic and ethical perception. The indicative paradigm to which I refer in this seat, takes up the need to identify integrated paths in the lives of men. Extending to the Architecture and Design what was affirmed by Elisabetta di Stefano in Art, Nature, Daily Life and New Technologies, that every form of artistic production or construction of artifacts, "without losing the sense of natural laws, recover the foundations ethics of the concept of decorum. This principle has found application several times, particularly in Architecture, constituting a principle of ethical measure, as well as natural, on which to base beauty". The new software of Representation that enter the body of physicality, extending also to the invisible, the point of view of the Researcher requires an ethical responsability in relation to the use of biotechnological technologies. The product of representation must show an ethic of form and beauty takes on the value of the form of knowledge, quoting Baumgarten Beauty is materialized with the perfection of sensible knowledge.

ID 233

Complex Representation of Knowledge

Gilda EMANUELE

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"Luigi Vanvitelli", Italy

The representation in recent years has been changed by technological progress, which has given us the opportunity to measure and represent in an innovative way, both in the phase of measurement; of objects, no longer intended as a simple description of geometric aspects, both in representation; phase, by the possibility of simultaneous description of multiple information. As Carmine Gambardella states, Measuring, as historically already indicated by Luca Pacioli, means to point out in the sense of managing a heritage, which as such must not only be geometrically definable but must be discretized in matches, detected in its multidimensionality, in order to produce a result whose added value can be quantified by the difference between the value of the object, as it is received, and the value achieved for the activity of knowledge and management of the potentials identified and defined as an income statement. And if in an income statement even the intangible values translate into quantifiable resources, it will be useful to identify territory and landscape in a single measurable entity.

ID 270

Representing World Heritage property, cultural landscapes and contemporary architectures: Amsterdam and Rotterdam

Alessandro CIAMBRONE

Uni Pegaso, Italy

The paper aims to briefly represent the main urban regeneration in the principal cities of Netherlands: Amsterdam and Rotterdam. These historic urban settlements changed in the last decades thanks to innovative projects of contemporary architectures, which were integrated in the cultural landscape, improving quality of life and tourism appeal. In the cities great architects and studios like Rietveld, Foster, Piano, Mecanoo, and MVRDV, designed the new shape of the skyline transforming these as capital of the European contemporary architecture. The method for the critical reading for the relationship between historical and modern architectures and landscape is linked to the principles of multi-criteria and multidisciplinary analysis theorized by Carmine Gambardella. 'The defence line of Amsterdam' and 'Seventeenth-Century Canal Ring Area of Amsterdam inside the Singelgracht' are the UNESCO World Heritage properties of Amsterdam. Moreover the city is characerazed by impressing architectures such as the Science Museum by Renzo Piano, WoZoCo by MVRDV, and Borneo-Sporenburg (Masterplan West 8). In this residential neighborhood, it is possible to observe the singular scenery of suburban houses inserted in an urban context, surrounded by water. Rotterdam rebuilt on Foster's masterplan in the Southern part of the city) is a symbol of modern city. It is carachterized by singular and originar architectures like the Cube Houses (Piet Blom, 1984) and the Markthal Rotterdam (MVRDV, 2014).

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During his academic career he has covered various roles including the Pro-Rector of Institutions, Academic Senator, Member of the Board, Director of the Department of Architecture and Industrial Design Luigi Vanvitelli, Dean of the Faculty of Architecture Luigi Vanvitelli, Director of the Department of Culture of the Project, Director of Doctoral School in the Discipline of Architecture, Coordinator of the PhD in Protection, Safety and Representation of the Environment and Structures and Territorial Governance, Coordinator of the PhD Program in Surveying and Representation of Architecture and the Environment, President of the Course Degree in Industrial Design. He has also been scientifically responsible for noteworthy national and international research project. He is author of numerous scientific papers on the important issues of the surveying and representation of the built and natural heritage.

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