abstracts

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The Role of Veneto Region in European Programmes

In accordance with the 2030 Agenda for Sustainable Development adopted by the United Nations and with the European Union policy on sustainability development, Veneto Region, during the last few years, has been financing initiatives aimed at enhancing social innovation and sustainable development, improving the promotion of the territory and of the local business heritage and enhancing an innovation market by supporting companies in moving towards high research and innovative products and services.

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iWRECKS Research Project

A huge amount of industrial estates in Veneto region demands for new uses. Economical, social and environmental issues make the consumption of agricultural soil meant to build new industrial sheds no longer sustainable. For these reasons, the reuse of the existing built asset is always more frequently the only possible path to devise future scenarios in our territory. ESF ROP 'Veneto' 2014-2020 iWRECKS project aims to provide innovative visions and operational tools to professionals, entrepreneurs, investors and citizens involved in the production industry for the reuse, enhancement and acknowledgment of abandoned, decommissioned and dismissed industrial sheds.

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Casting Visions to Steer Decisions

The governance of urban transformations – following a deterministic and deductive logic – is usually managed according to consequential phases starting from urban planning and ending with architectural design as a final step. When the whole process jams because it can no longer cope with the complexity of urban dynamics, research through design overturns the usual process and puts architectural design first. Thus, enlightening visions can be cast, in order to break through impasses and turn wasted industrial wrecks into valuable urban resources.

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Productive Estates in the Italian North-East

The recent economic and financial crisis has driven attention upon industrial estates (even if it could fit better the definition of "productive areas", because of the different activities developed there) which are great in number and spread all over Veneto region. That's formerly for their economic decay and progressive abandon, then for their degraded and derelict condition, and now – with a dynamic growth – for the need of improvement or new development to attract innovative activities and enterprises.
Productive areas, therefore, ask for two main kind of intervention: recovery and rehabilitation of existing industrial estates for the improvement of infrastructures and the construction of new facilities' equipments. Then, the development of new productive districts to attract advanced enterprises, mostly high-tech-based, knowledge-based, IoT-dependent, automation-driven, marked by a very high environmental quality.
These propositions imply the integration of different uses in a sort of "hybridization" that totally refuses zoning rules. But it is important as well to outline the relations between productive areas and the surrounding contexts and landscapes, looking for innovative "visions", policies, plans and projects implementing principles of sustainability and resilience and supporting economic growth. Those have been the main goals of DATA and iWRECKS research projects, attempting to develop a new approach in planning and design able to face the needs of the contemporary society.

Bruno Barel
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Urban Regeneration and Creative Razing

Social and economic changes in the last decades have deeply altered the values that used to be at the base of estate development and urban planning. Several urban areas have become obsolete and have lost their function and links with the urban community.

Real estate assets have no longer value in themselves, their value being connected to their use and their intangible value and relational potentiality.
In this context, razing shall not be deemed as a merely destructive operation, as it allows to create new value by freeing occupied soil, by creating new urban spaces and by allowing the construction of new buildings, best suited to contemporary needs.

Claudio Bertorelli
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Strategies for Urban and Productive Communities

From the alphabet city to the network city, from urban planning to the landscape approach, the way of interpreting the city entirety and the reuse of its abandoned industrial districts puts us in front of a fundamental turning point: either to commit the application of inefficient planning tools or to undertake a new re-establishing path. The choice is uncertain; we are worried, nostalgic, and untrained to think towards the Future.
The essay is divided into chapters which confront three essential topics by using bullet point and case studies: how Culture becomes moderator of a community that begins again to rethink its own living place; how public authorities and private stakeholders deal with the mutual sharing approach; which new public realm constructed space can support the repair process of the urban fabric.

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The Interruption of Use and the Re-signification of Industrial Wrecks

Archaeological remains and industrial ones, although so different, share some conditions. Among them, the interruption of use, which determines their suspension in time and space until they become part of a new system of relationships. Starting from this common condition, when dealing with industrial wrecks, we can adopt some design methodologies, which were developed for archaeological sites and imply a re-signification of remains. This perspective makes it possible to redeem industrial "wrecks" from the negative values that are generally stuck to them.

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On the Operative Reading of Industrial Fragments or the Experimental Practice of Analogy

Faced with obsolete industrial urban fabrics, abandoned but of high potential for reuse, the contemporary city embraces a huge challenge in thinking about these wrecks; what is their role in future? Can they be reconverted? The article seeks a line of thought to

overcome the crisis about these landscapes. With these aims, the reading of the industrial fragments is based in a morphological analysis of the urban context. The elemental decomposition and delayering, but also the comparation of case studies are the conceptual support for an experimental exercise of typological analogy. Whose aim is structuring an operative reading that defines future lines of interventions to be developed, having been identified in sequence three processes of action - fragmentation, monumentalization and ruin.

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Recovery and Reuse of Abandoned Industrial Buildings for Vertical Farming

Decommissioned industrial, commercial, agricultural buildings and warehouses constitute a significant part of the building heritage both in Italy and abroad. Although these buildings, in an advanced state of decay, have very different structural and typological characteristics, they can be recovered to play a strategic role for the sustainable transformation of cities, and become key assets for socio-economic development. Rethinking a transformation of abandoned buildings into urban sustainable food production structures is a strategic goal. Vertical Farming opens up fascinating opportunities for growing quality fresh food in cities, through the installment of technologically advanced plant equipment in existing buildings. Creating Vertical Farms in abandoned industrial areas helps to feed a constantly growing population, with a healthy, "zero km food", that is to say food produced, sold, and eaten locally.

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Industrial Recovery and Circular Economy

Welcoming the most recent messages emerging from the World Economic Forum at Davos in 2014 and the UN conference on Climate Change in Paris in 2015, the EU Circular Economy Package (EU, 2018) aims to solve the most urgent issues related to the climatic change and material exploitation. Waste recycling, full utilisation of the materials and conservation of natural resources are the principal actions to be pursued through a strong partnership with industries. Concerning the urban context, the soil use due to the expansion or the densification of the city is a critical issue that must be considered for the fulfilment of the sustainability and that must drive the future urban planning. The "Urban mining" concept based on the riutilisation/reuse of any resources available in the urban space, is the appropiate tool for promoting new destination of use and construction material reutilisation of the abandoned and degradated areas, thanks to the availability of those spaces and materials.

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BIM Modelling for the Representation and the Regeneration of Decommisioned Industrial Estates

The current policies for the reconversion of abandoned industrial areas and their re-connection to the urban fabric of the city, considering the complex nature of the topic, are based on a multidisciplinary approach that involves multiple skills and professions, where the Representation plays a strategic role, in its more contemporary meaning. The application of the representation techniques, in fact, from the urban scale and related to the production area, up to the smaller one, related to the single building, encourages the interpretation of the problems of reuse and redevelopment. It becomes evident how the implementation of modern digital techniques from Digital Survey to BIM – Building Information Modeling – allows better acquisition, organization and management of data relating to existing buildings. BIM methodology is very useful in order to contemplate and verify different re-use scenarios and, during their implementation, to structure itself as an executive tool already populated with that information necessary for the initial analysis. Furthermore, its implementation in the processes of the last phase of a building's life cycle reduces the environmental impact of demolition activities.

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Strengthening Interventions on Precast Reinforced Concrete Industrial Buildings

The recent earthquake that hit Emilia-Romagna region in 2012 has highlighted how industrial structures may have high seismic vulnerability, evidencing peculiar failures of their structural elements. Indeed, that seismic sequence hit a wide region where many medium-to-small industrial zones were located, and that were mainly comprised by precast reinforced concrete (RC) buildings, with a single-story structure, and made of a series of simple portal frames. The great majority of those structures were built without following seismic design rules, having only friction-based connectors. Typical damage were due to the peculiar structural scheme of such buildings: main beams were simply supported on the column tops, and precast slab members were simply supported on the main girders too. This contribution aims to show main intervention types that can be carried out to improve the behavior of reinforced concrete industrial buildings against seismic action mainly, starting from the lessons learned after the Emilia seismic event, and from the knowledge of the typical deficiencies displayed by the hit structures.

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Industrial Areas in Lisbon: Trajectories of (Trans)Formation

The industrialization process of Lisbon metropolitan region, since it began in the middle of the XIX century, has been deeply influenced by its infrastructural condition. Focal points (such as intersections, stations, docks) and infrastructural corridors concurred to define nodes and axes of development for the productive fabric. Sometimes, the former organization and parcelling of the territory survived, shaping and framing the development, generating interesting relations between the new areas and the surroundings. In other cases, the creation of big industrial settlements led to a "tabula rasa" of the previous conditions and to a whole new urban fabric. Today, modifications of the previous urban arrangement and new strategies of development that no longer consider industry as a main asset for the region are deeply modifying the vocation of those areas. New urban voids are being created, while other areas undergo rapid processes of transformation and urban development, with new functions and new inhabitants finding place inside them. The trajectories of transformation for those areas reflect the morphogenetic and infrastructural variety of the Lisbon region. The study of the ways in which those contexts respond to different approaches of transformation could be a way to better understand processes and projects, making those areas laboratories of experimentation, learning and innovation in an urban and regional perspective.

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Nostalgia, Progress, Obsolescence. A Survey Across the Industrialized Italian North-East

One of the most distinctive features of Veneto region is the strong presence of industrial buildings distributed throughout the whole territory. This presence, which today has an influence on the space of the "sprawled city", is the product of a complex evolution, which over the years has heavily modified landscape and society. *Nostalgia*, *progress* and *obsolescence* are key words of this landscape change, which together explain, on the one hand, the contradictions of the industrialization, on the other, the potential that the industrial building abandonment offers in terms of transformation of the city.

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Working on the Form as an Antidote to Obsolescence

If compared to the programmatic obsolescence of technological devices, the obsolescence of urban built environment is a more complex phenomenon to manage, since it concerns

large objects, vast areas, and even whole neighbourhoods or districts. While facing the big economic crises of the beginning of the millennium, public administrators, urban planners and architects have been trying to regenerate urban districts and industrial wrecks, following a sort of benchmarking approach, especially based on figures and parameters. It's time to place visions alongside the positivist world of figures, and to start casting a different glance on existent unacknowledged built areas, thus following an approach that goes beyond urban amnesia – i.e. the benchmarked and stereotyped solution – and beyond the *former* syndrome – i.e. the functional programme of a building – to produce new transformation scenarios.

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GIS and Urban Analysis for Dismissed Industrial Areas

The Digital era led to a massive development of spatial data production and online diffusion, on geoportals and other web platforms. Nevertheless, in urban planning and urban geography there is still need for field research to obtain updated and detailed information useful for local analysis. Geotools like mobile GIS can help researchers to collect ready-for-processing field data.
Two multi-disciplinary projects in Padova tested innovative methodologies involving GIS-based field research and data elaboration, aiming to support the elaboration urban regeneration projects and transformation hypothesis.

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BIM Models in Demolition Waste Managing

Construction and demolition waste (C&DW) represent one of the main amount of waste produced each year in Europe. They are produced by activities that are not environmental-friendly; the construction sector is responsible for an intensive depletion of natural resources and usually the waste coming from the demolition sector are still mainly disposed in landfills. At the same time, C&DW have very high recovery potentials. Through a proper quantification and characterization of waste, a successfully waste management can be implemented with minimization of waste production and maximization of material recovery.
This research focuses the attention on an innovative method applied on industrial abandoned or underused buildings, to quantify and characterize materials coming from demolitions: a BIM-based system has been developed in order to produce models based on international classification Omniclass and openBIM standard IFC, that contains information on materials related to their future classification as waste (after demolition activities). The results showed that applying this method, it is possible to have highly detailed

information about quantity and quality of C&DW in pre-demolition phase, with many resulting advantages in technical and economic terms. Waste have been classified on the base of the European waste Catalogue (EWR).

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Structural Typologies of Industrial Buildings in Italy after World War II

In Italy, there are about 800.000 buildings classified as industrial structures. Unfortunately, a significative part of these structures is now abandoned. For this reason, a significant effort is recently born with the aim of studying intervention strategies that allow their reuse. Among the multiple variables that influence the development of the most adequate intervention for a given structure, information regarding the type of structural system of the studied building is crucial. In this section, a brief summary of the most common structural typologies found on existing industrial buildings constructed in Italy after the World War II are presented. In particular, three direct examples are here considered to represent the most typical industrial structures and compare them regarding their knowledge level and their reliability from the seismic point of view.
Approximately 80% of the Italian reinforced concrete industrial buildings are precast ones. Reinforced concrete buildings require instead a more complex structural campaign to investigate in their constructive details, being this kind of structures not so standardized than precast ones. Moreover, most of these structures were built considering only gravitational loads and precast structures, in particular, are often characterized by lack of adequate connections between columns and beams.

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Trajectories and Perspectives for the Transformation of Industrial Estates

This book presents some of the outputs that the iWRECKS research team and its network partners have developed on the transformation of decommissioned industrial estate ("industrial wrecks") and some high-impact contributions by invited scholars and experts. The diversity of the papers witnesses the multi-faceted nature of this research project, which has involved a wide range of subjects, entrepreneurs, planners, public administrators, and stakeholders, and has been fostered by their different points of view that have been embedded into a multidisciplinary framework. Since we are facing a growing scarcity of resources, the traditional and rigid approach is no longer effective, thus it is necessary to explore innovative strategies (also supported by advanced technology as GIS, BIM, FEM), to develop visions, and to evaluate different scenarios for the transformation of industrial estates.