

Resilience and Vulnerability of Historical Centres: the case of the district of Camerino in the Marche Region

E. Petrucci*, L. Barchetta[†] and D. Lapucci[†]

* University of Camerino, School of Architecture and Design
Viale della Rimambranza, 63100 Ascoli Piceno, Italy
e-mail: enrica.petrucci@unicam.it

[†] University of Camerino, School of Architecture and Design
Viale della Rimembranza, 63100 Ascoli Piceno, Italy
e-mail: lucia.barchetta@unicam.it

[†] University of Camerino, School of Architecture and Design
Viale della Rimembranza, 63100 Ascoli Piceno, Italy
e-mail: diana.lapucci@unicam.it

ABSTRACT

The seismic events that hit central Italy in 2016, causing extensive damage to cultural heritage and the loss of entire villages, showed the extreme fragility of the Marche territorial system with strong repercussions on the economic and social development. In the historical centres, the high inherent seismic vulnerability of the building makes it difficult to apply regulations oriented to the protection and preservation of historical and cultural values: strategies for the recovery of the buildings seem very complex.

The historical building is generally characterized by a high building density, a scarceness of urban voids and an articulated accessibility system. The aggregates are the result of several transformation phases that make necessary a thorough knowledge of the historical dynamics and of the local construction techniques.

In recent years, the Marche region has developed, due to the intensification of earthquakes, a particular susceptibility to seismic risk. The historical centres have been affected by complex problems and have shown a reduced capacity to face the events and adapt to the changes, and also difficulties in hypothesizing new scenarios after the damage.

In this context, the paper illustrates a method of analysis for the systemic vulnerability of historical centres, considering the vulnerability as a result of a complex interaction of structural units, aggregates and urban spaces. The aim is to compare this vulnerability with the effects that the earthquake really had on the urban centres: the knowledge of the real behavior will guide the research towards the definition of a set of actions. These actions are addressed to mitigation of the seismic risk, through the reduction of intrinsic vulnerabilities, to implementation of the skills and to develop a “new resilience”.

The district of Camerino was taken as case study; it is a territorial hub of services and activities as well as being one of the largest inhabited centres affected by the 2016 earthquake, and it's still today, (3 years after the seismic events), a red zone, forbidden to the circulation of citizens. Its historic centre has a high historical-architectural value and, moreover, in its territory there are other interesting minor historical centres. Therefore, the district of Camerino offers the opportunity to expand the research, considering a time frame of around 50 years, during which the behaviors towards the earthquake have profoundly changed.

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