

Digital documentation and 3D modelling in the restoration of the First Ancient Theatre of Larissa, Greece

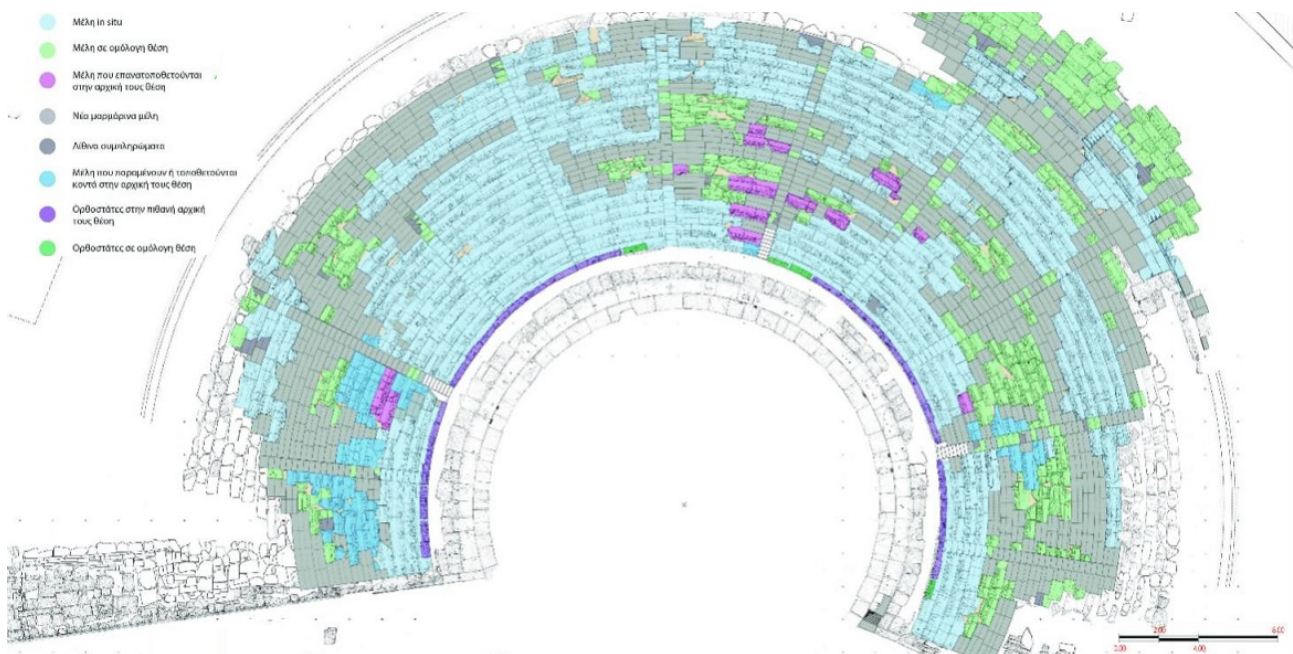
Dimitrios Karagkounis^{1*}, Sofia Tsanaksidou^{2*}

¹Department of Archaeological Projects and Studies
Ephorate of Antiquities of Larissa, Ministry of Culture and Sports
Diachronic Museum Of Larissa, Mezourlo, 41500, Larissa (Greece)
karagdk@gmail.com

²Ancient Theatre of Larissa
Ephorate of Antiquities of Larissa, Ministry of Culture and Sports
Ancient Theatre of Larissa, 10-12 Mitropolitou Arseniou, Larissa, 41223, Larissa (Greece)
stsanakt@gmail.com

ABSTRACT

Digital documentation and 3D modelling find a wide application in the protection, preservation and restoration of Cultural Heritage Monuments. In the current paper, the use of these technologies is demonstrated in the case of the First Ancient Theatre of Larissa, one of the largest and most important theatres in Greece, the restoration of which has been ongoing for more than 20 years. In the NSRF 2014-2020 funded project “Restoration of the first Ancient Theatre of Larissa – Phase E”, part of the koilon (cavea) is restored by repositioning 300 ancient marble seats, “edolia”, to their original or corresponding positions, and by the addition of 240 new “edolia”, according to the approved restoration study. The koilon is documented through 3d laser scanning and photogrammetry methods to produce a three dimensional reconstructed model. Then, an as-designed model of the koilon is created, depicting the curvature, elevation and the new position of both ancient and new “edolia”. Separate 3d models are created for each new “edolio” that incorporate all the information needed to produce them on a CNC machine, ensuring the best fit. The paper also presents the implementation of digital documentation in the project’s execution where modern technology meets ancient techniques.



Plan view of the suggested positions of ancient and new "edolia" as per the approved study