



Threads of Conservation

Social fabric • Fabric and place • Conserving fabric

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Grave-to-Cradle: Rethinking the way we conserve heritage through 3D laser scanning

Paper Abstract

Within a context of tightening public funding, increasing visitation numbers, and expanding community expectations, historically significant sites are under pressure to develop into self-sustaining operations. This complex situation was interrogated in the 2006 Productivity Commission inquiry into the conservation of Australia's historic built heritage. The Commission found that a reliance on regulation as the primary heritage protection mechanism had resulted in 'insufficient account being taken of the costs of conserving heritage places when selecting places for listing and insufficient incentives for their active conservation'. The Commission also recommended that heritage lists be regularly updated, including 'the deletion of inappropriate entries'. Harrison (2013) has recently argued this later point suggesting a 'crisis of accumulation', with implications for the longer-term sustainability of heritage.

The Burra Charter defines conservation as 'all the processes of looking after a place so as to retain its cultural significance'. Given this changing context, is it time to re-think what we conserve and how with a view towards a more sustainable future? A growing community of architectural historians, archaeologists, heritage managers and related disciplines are using 3D laser scanning to record and analyse historic sites. However, few have used hand-held mobile devices that capture whole structures and their contexts, or small-scale scanners that capture objects and interior spaces. This paper initially describes new mobile 3-dimensional (3D) scanning technology, the Australian invention *Zebedee*, and the benefits and limitations of this technology for the management of fragile historic environments, based on case studies of scanning and archiving heritage sites in Queensland. The paper then examines the accuracy, longevity and heritage applications of 3D scan data, and discusses the value of archiving 3D data while allowing the physical environment to decay naturally over time, a grave-to-cradle approach.