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AN HISTORICAL PERSPECTIVE OF THE EVOLUTION OF AUSTRALIAN BUILT HERITAGE AND ITS MANAGEMENT

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ABSTRACT

This paper analyses the origin and parameters that contribute to the development of Australian built heritage, identifies the underlying challenges and issues that stakeholders face in their management, and thereby develops a basis for further research. A literature review was conducted on published resources related to heritage buildings in an historical context to categorise contributory parameters that have shaped Australian built environment over the past two centuries. It is perceived by researchers that modernisation, sustainability and technology are factors that help to retain built heritage values. However, this review suggests that the way in which these factors are applied often poses a threat to the continuation of the fabric of Australian built heritage. Reflecting on the abundant literature in this field, it appears that academic research on Australian built heritage dates back as early as the 19th century on the transitional stages of built heritage. Further research is needed to develop a management cycle model for the assessment of structural soundness and the reliability of practices involved in Australian built heritage. This paper contributes to the understanding of how Australian built heritage evolved in a historical context and its contribution to the current and future practice of heritage management.

Keywords: built heritage, urban development, heritage legislation, sustainability, historical development, public engagement.

INTRODUCTION

It was not until the middle of the 20th Century that Australian built heritage was recognised as a special interest, and this recognition was due to its considerable contribution towards the evolution and structure of the built environment. Though a significant amount of research exists in the field of built heritage, much of it is focused on construction materials and conservation techniques, rather than the historic character, due to the field's complexity (Howard, 2003). This study attempts to aid effective decision making by drawing together areas of crucial significance that integrate current preservation techniques with historical approaches to built heritage. This first section provides the background and the objective of exploring Australian built heritage. Section Two reviews the literature on the concepts and parameters that have transformed and shaped built heritage. Section Three discusses the findings and provides recommendations, and Section Four concludes with final remarks on the contribution of this paper.

The paper aims to trace the origin and identify parameters that shaped Australian built heritage over the past two centuries. As such, the paper emphasises the need to understand how different parameters, such as the history of urban development and planning, legislative framework, sustainable environment and public engagement concepts have transformed the Australian built heritage sector over the past two centuries. Through conceptual review of the literature, the objective is to break new ground for further research on the evolutionary management cycle that contributes to future investigations into conservation of cultural built heritage. The model is expected to describe the development of built heritage management in terms of a series of stages to be extracted from three approaches, which are: (i) Identifying the built heritage life cycle in order to create optimal conditions that predict the long term structural soundness of the original fabric; (ii) Monitoring built heritage practices in relation to changes in the built environment; and (iii) Integrating (i) and (ii) in order to identify forces that will systematically predict a direction of built heritage management that is more sustainable.

This study covers the field of cultural heritage, which refers to both tangible (immovable and movable) and intangible values. Since cultural heritage carries such a broad meaning, this paper focuses on built heritage. Built heritage refers to a 'physical historic built environment that includes but is not limited to monuments, group of buildings, sites, installations and remains, which have outstanding universal values' (UNESCO, 1972). Outstanding universal values are aesthetic, historic, scientific, social and cultural perspectives that can be transferred between generations. In this paper, the term 'built heritage' is restricted to historic buildings and the two terms are used interchangeably throughout the study.

People's lives are rooted in built heritage as it affects the area in which it is located, determines people's lifestyles and dictates the structure of the built environment (Wood, 2005). Thus, the concept of heritage has continued to evolve over time since its significant values that link human activities to development and environment have continued to change from generation to generation. The following section reviews the historical perspectives surrounding urban development and planning. It begins with a critical look at the history of the structure of Australia built environment and then it traces the role of development in the planning system.

PARAMETERS THAT TRANSFORMED AUSTRALIAN BUILT HERITAGE
The History of Urban Development and Planning
Built heritage presents past developments that are significant to the history of the evolution of culture and built environment. Many studies have tried to interlink the history of built heritage development in association with the overall urban planning processes (Babalis, 2011). Understanding an overview of the history can draw the development of characteristics that led to the acknowledgement of built heritage. Nevertheless, it is important to assess the historical strategies that were used to determine urban places for re-use, redevelopment and regeneration purposes in Australia (Marsden, 2000). Thus, this section discusses how history contributed to the development and formation of built heritage in Australia.

The history of Australian built heritage dates back to early 1788 when its built environment was divided into three areas including government cities, convict sites and defence areas (Australia Convict Sites, 2008). This strategic spatial settlement was shaped by both political and social conditions to reflect the power of colonial authorities over convicts (Australian Convict Sites, 2008). By 1830-1850, the country witnessed an upsurge of economic activities and, as a result, small towns were turned into metropolitan centres due to urbanisation, trade and technology (Freestone, 2006; Sandercock, 1990). Cities became filled with people and clusters of buildings of 'Colonial Georgian' classical architecture. This caused the colonial government to free up more land through the Selection Act, which was enacted in the New South Wales, Victoria and South Australia colonies between 1858 and 1872.

The Selection Act allowed any person to select land for agricultural purposes from the designated crown land (Minchinton, 2011). This led to the growth of Australian suburbs comprised of buildings featuring gardens known as English Cottages (Freestone, 2006; Sandercock, 1990). The urban architecture moved to Victorian style to reflect the growing prosperity of the Australian political economy. It emulated the gothic and Italian architectural style in the form of prefabricated decorations, plastered walls, imported fixtures, gas lighting and efficient plumbing (Dernelley, 2005). It appears that the growing economy and expanding metropolitan areas attracted migrants to Australia in search of opportunities. Consequently, infrastructure services like water, sewerage and transportation continued to fall into disrepair causing the outbreak of environmental and health problems in 1890, as highlighted by Sandercock (1990).

This situation forced engineers, planners and architects to rethink ways to mitigate the social problems brought about by urbanisation in Australia. A prime example of this is when the government came up with an improvement scheme of transforming slum areas and remodelling inner suburbs in response to the 1894 outbreak of the bubonic plague (Enchenberg, 2007). Demolition of historic buildings took place after an improvement scheme was launched in 1894 to transform the slums. Cities were remodelled from compact walking designs with building clusters into public transport cities as presented by Haddon (1908) cited in Dernelley (2005). Building architecture also moved from Victorian to Edwardian (Federation) style to mark the new 20th century union of Australian colonies at Federation (Williams, 1995).

While the scheme progressed, built heritage was torn down or left in a state of disrepair to give way to new structures as a means to facilitate urban development (Troy, 1992). By the year 1900, communities started to protest as they realised that colonial cities, which represented the history of their identities and development, were in danger of disappearing. This movement gained support from historians when, in 1919, the Australian Historical Society adopted British approaches by nominating the first Government House, military hospitals and banks as historic buildings (Freestone, 2008). The Institute of Architects joined forces with protesters in the 1920s by advocating that built heritage was an area of importance because it creates value, and expands and develops cities.

Such awareness did not have any specific impact because in 1923 older buildings were required to be upgraded by integrating modern building technology. Failing to keep up with such values and expectations would result in the building being subject to a loss of commercial value as noted in the Building Society Gazette (1923) cited by Freestone (2008). The year is significant to the history of Australian built heritage as it gives an insight into the beginning of how modern building technologies have developed and altered their management practices.

During the post war period of 1945-1960, Australian cities embraced the move towards a modern style of architecture as people wanted to show life progress. It was a period of suburban sprawl in which many historic buildings were

demolished to give way to international and regional styles of architecture. Meanwhile, the adoption of the British approaches to town, state and country planning models and legislation were rolled out by being codified as a profession through formation of the Royal Australian Planning Institute in 1951 (Steele, 2009; Wright, 2001). Later, in 1972, the Whitlam-led labor government came to power with the mandate to redistribute the benefits of economic growth and deal with the environmental and social costs and disadvantages of growth (Huxley, 2000).

On the other hand, the preservationists wanted to retain their traditions of pride and well-built buildings. Therefore, the Australian Council of National Trusts was formed in 1965 to advocate for statutory protection and conservation of heritage. UNESCO also intervened in 1972 by pressing Australia to sign The World Heritage Convention under the UNESCO convention of 1972 to legally protect Australia's built heritage. Later, built heritage was required to be listed in the Register of the National Estate. However, only buildings with historical, aesthetic, architectural and group value are registered in the heritage register. The details are well explained in the study by Freestone et al. (2008).

Most academic research on built heritage management that provides detailed historical evaluation only does so for buildings dating from 1920, due to lack of primary information before then, such as documented assessment and actions that were used to propose demolition of historic structures during the turn of the 20th Century. Available studies for pre-1920 built heritage relate to information that was drawn from speeches, magazines, meetings and newspapers. In practice, use of such sources is often discouraged as it tended to show bias and the information cannot be relied upon. Apart from what has been discussed, Australians are characterised as people who care less about historical materials because they are concerned with the present and future much more than the past (Aplin, 2009). There is a need to understand the history of built heritage and integrate this with development in the built environment in order to reduce the management pressure.

In summary, the history of Australian built heritage has developed over the past 200 years. Its development has been shaped by political and social conditions as well as economic activities. Industrialisation and urbanisation have contributed a lot to the changes of the Australian built environment in terms of housing design and expansion of city structures. However, these factors also contributed to the destruction of a number of heritage buildings, including two landmark buildings in Sydney: the Victoria Barracks wall in the 1840s and the first government office in 1845 (Freestone, 2008). This section also reveals that despite efforts made by different stakeholders, such as architects and historians, the government still lagged behind in implementing policies and regulations that protected built heritage. Rather, the government was focused on solving urban planning problems related to slums and infrastructure facilities developed after World War I and II. Thus, history indicates that the development of Australian built heritage has struggled in a series of ad-hoc conflicts with urban planning systems.

Legislative Framework

This section discusses how the legislative framework changed and shaped built heritage in Australia. Historical development is an essential part of the formation of built heritage, but without proper legislative frameworks and the protection of laws in place, historic buildings would not survive changes in the development industry. The government continued to demolish buildings, such as the convict camps that were demolished in 1920, despite the historic preservation movement's attempts to save the built heritage. According to the study by Mandler (1997) and in Petrie (2005), the movement was perceived to be a pastime of the upper socio-economic classes. The intention was to preserve their grand buildings for future prosperity because buildings were viewed as symbols of power, places of comfort, artistic preference and architecture, but not a part of national heritage.

The Institute of Architects continued to provide a focus of awareness for the preservation of the architectural, historic and aesthetic factors of buildings in the 1930s (Agnew and Demas, 2004). The Institute believed that heritage was an important component of our life and that, therefore, its preservation is crucial. The National Trust of Australia was formed by the Sydney community in 1945 due to the demolition of colonial buildings, and became the Australian Council of National Trust in 1965 (Spearritt, 2011). The National Trust advocated for statutory protection and conservation of heritage places (Marsden, 2000) but, despite the advocacy, the National Trust had difficulty in identifying and assessing built heritage that was considered significant.

The United Nations Educational, Scientific and Cultural Organization (UNESCO) intervened by pressing Australia to sign The World Heritage Convention under the UNESCO convention of 1972 to legally protect Australia's built heritage. Accordingly, the government decided to form the Australian Heritage Commission in 1973. Its mandate was to compile the registry of national heritage and provide the overall characteristics of what constitutes a building worth preserving (Purdie, 1997). Section 4(1) of the Australia Heritage Commission Act (1975) requires 'the listed building to have aesthetic, historic, scientific or social significance or other special value for the future generations as well as for the present community.' Buildings are then put into the heritage register based on three levels of significance (Grade I,

II and II*). This is to make sure that no alterations or additions are made without prior consent from the Australian Heritage Commission.

Subsequently, in 1976, the Australia International Council on Monuments and Sites (ICOMOS) drafted the Burra Charter, which outlined standard principles and management of heritage conservation practice (Waterton et al., 2006). The Charter addressed the pitfalls of the western approaches to assessment of authenticity and integrity of cultural heritage significance that existed in the 1931 Athens and 1964 Venice Charters. As a result, the Burra Charter was adopted in 1979 when the concept of cultural significance and its associated social and aesthetic values were introduced. The Burra Charter was refined in the early 1980s and later amended in 1981, 1988 and 1999 to reflect the current concern of how to protect the authenticity of cultural heritage. It provides guidelines that help stakeholders to understand and manage different heritage values which vary within different cultural groups in Australia (Lush, 2008). Thus, its application depends on the knowledge, experience and interpretation detailed by stakeholders involved in the built heritage sector as presented in the Australian ICOMOS (1999) report.

The standard treatment guidelines for protection as provided by the Burra Charter include: preservation, rehabilitation, restoration, and reconstruction. Despite its wide use, there is ongoing discussion about the challenges facing application of the Burra Charter since 1999, especially on the maintenance of the authenticity and integrity of heritage values. Generally, the two concepts require heritage values to be maintained indefinitely, but, in many ways, this is not the case as it needs to adapt to other functions of the built environment which are constantly changing. Despite its setbacks, the Charter has become an industry standard document in the management of cultural built heritage in Australia. Other instruments like the Heritage Act (1977), The Land and Environment Court Act (1979), Environmental Planning and Assessment Act (1979) in New South Wales, Heritage Building Protection Act (1990) in Queensland, The Australian Heritage Council Act (2003) and many others were formulated (Mosler, 2011; Petrie, 2005).

As noted above, in 1923, heritage buildings were often required to be upgraded and failure to modernise the building resulted in a loss of economic value. While it is observed that efforts have been made to preserve and conserve built heritage, nothing is done to ensure the built heritage still achieves the same economic value as other buildings, at the same time maintain cultural significance, authenticity and integrity. Araoz (2011) argues that restrictions imposed on built heritage often make historic buildings less functional and less competitive in the real estate market, because the economic and use value rest on the building's ability to serve a desired purpose apart from maintaining fabric and its material form. Moreover, with there being no feasible alternative use of the built heritage, their property value is impacted because any negative effect of heritage listing on property value is compounded (Grigg, 1996). The issue of heritage listing affecting property value is one which is very complex and is often property and/or location specific.

It has been a few decades since the valuation of heritage buildings began to be taken seriously by stakeholders in the built environment. However, the methods used are still debatable (Abelson, 2000; Asabere et al., 1994). It is difficult to apply a valuation method to historic buildings because of the confusion of the 'definition of built heritage in terms of a good in a market' and 'market models to the cultural heritage' (Navrud and Ready, 2002; Provins et al., 2008). The studies of Ashworth (2002) and Irons and Armitage (2011) show that landowner diminution in property rights and consequent value associated with heritage controls can result in loss of property value because the building becomes less usable. Sayce (2009) discussed that built heritage is complex and difficult to quantify. This led to the production of 'Valuing Heritage Assets' (RICS) to guide chartered surveyors and other property professionals on how to assess the value of built heritage.

The Australian Heritage Council has recognised the importance of adapting some of the listed buildings for economically viable use and has approved proposals for upgrading, refurbishment, and/or adaptations to particular structures (Graham, 2002; Grigg, 1996). For example, a 92-years-old building at 39 Hunter Street, Sydney has undergone a full upgrade to provide the highest performance facilities. As a consequence of this, the ceiling beams and cornices sustained damage and only the interior original fabric has been retained (GBCA, 2010). Section 23 (3) of the Queensland Heritage Act (1992) provides that 'a place does not satisfy the criteria for entry in the Heritage Register if there is no prospect of the cultural heritage significance of the place being conserved.' Despite heritage listing, Grigg (1996) observes that heritage buildings may be neglected or left in a state of disrepair. This situation raises a question of whether a historic building undergoing upgrading, refurbishment and adaption should lose its place in the heritage register because a listed building is registered in entirety (Boer and Wiffen, 2006).

Sustainable Built Environment

Built heritage has undergone many changes over the past two centuries as presented in the discussion of the history of urban planning development. These highlight migration, industrialisation and urbanisation as main factors for change. The world today still experiences such factors for change but on a larger scale compared to the 19th and 20th centuries,

due to rapid increase in innovation and population. Innovation has completely changed the way people think, design, manage, construct and conserve built environment in the construction and development industries. This section discusses how sustainability has affected built heritage through its attempt to mitigate the impacts of urban design and planning. This change of focus provides more details as to why sustainability is also a key component to successful built heritage.

A United Nations' (UN) report (2011) identifies that migration has historically played a key role in urbanisation, resulting in increased economic growth, innovations and employment in the world. Australia is one among many countries that have been witnessing continuous increase in urban population as two thirds of its population resides in major cities (ABS, 2010). The phenomenon of urban population growth has led to a higher demand for infrastructure, causing environmental damage and depletion due to people's preoccupation in searching for greater affluence. Construction industry activities are estimated to consume about 40% of raw materials globally, 42% energy use, 25% water use, 12% land and an atmospheric pollution of 40% (Subramanian, 2007; Levin, 1997). The construction industry is thus a major contributor to the driving factors that are related to social, economic and environmental depletion (Caccavelli and Gengre, 2000).

Planners and architects moved to modern architecture and construction of new buildings such as skyscrapers in order to accommodate rapid urban population and reduce environmental degradation. The shift from post-colonial built environment led to the development of sustainability concepts that were aimed at remedying complex problems caused by new construction activities including global warming and the depletion of natural resources (Ercan, 2010; Yudelsen, 2008; Agyeman, 2005). However, stakeholders became alarmed with the new construction projects because they failed to address the sustainability components as many low-rise and old buildings were either demolished or left redundant (Hill and Bowen, 1997). Consequently, redevelopment activities were implemented since they were, and still are, considered sustainable because their framework supports environmental and economic management of natural resources in the construction process (Alker and McDonald, 2003).

City redevelopment involved retaining historic and existing buildings with special architectural and historic value and making them an integral part of future urban plans (Cowell, 2010). Historic buildings are considered more sustainable as their scope of works preserves environmental value through retention of original embodied energy. In order to achieve sustainability, one needs assess the value of energy embedded in the construction materials of the built heritage. Along with other benefits, Tucker (2000) provides that adapting built heritage results in the substantial saving of about 95% of embodied energy as well as more affective way for management financial cost and waste production.

Although built heritage is associated with many sustainable benefits, its protection is still not taken seriously by the development and construction industry. The industry does not make heritage buildings an integral part of the planning projects; rather, they are viewed as historical aspect in the planning system (Jannsen et al., 2012; Cowell, 2010). Likewise, Negussie (2004) and Slater (1997) suggest that built heritage located in civic locations with high cultural and political powers receives more substantial support, such as tax incentives, compared to areas with fewer cultural influences. The Productivity Commission (2006) also suggests most of Australian rural built heritage is given less priority and, as a result, many heritage buildings in these areas have fallen into disrepair.

Public Engagement
The objective of this section is to examine public engagement in built heritage. Without people's value, support and participation in built heritage, heritage buildings will have no meaning and people will not be concerned with their conservation (Avrami et al., 2000). Public engagement appears to have a strong role in maintaining built heritage like other stakeholders including governmental, professional, academic and non-governmental organisations (Pendlebury et al., 2004). Built heritage is considered to matter to people in a community as it helps to achieve economic, cultural and social values (McDonald, 2006). In this regard, there is a need to formulate strong communication and interaction amongst stakeholders to deal with issues that affect built heritage.

Johnston (2006) identifies that the public has always felt that they are being left out in decision making related to heritage buildings. The legislation imposes restrictions on the rights of ownership and benefit derived from heritage buildings. In turn, governments formulated actions that create corroboration among stakeholders especially the public in the process of built heritage conservation. Australia introduced a 'community-demanded heritage services' role to ensure that different levels of government are involved in heritage and environmental protection (Productivity Commission 2006). According to McDonald (2006), protection of built heritage should not only be undertaken by the government but should be something in which everyone in a community is involved. The government should try to form relationships and provide community awareness on the importance of protection of heritage values (Lennon, 2006). Throsby (2007) suggests that government should first assess the impact of heritage buildings on

individual/collective values by determining: the meaning of value; the people/groups who experience value; how value is determined; how value is measured; and the role value plays in decision making.

Use value and *non-use value* are the types of value that people can achieve when a heritage place is associated with cultural significance as identified in the studies by Irons and Armitage (2011) and Throsby (2010). The relative importance and weighting of these factors differ depending on the costs-benefit shared between groups (Ready and Navrud, 2002). The following discussion looks at how the economy, community and people's values affect built heritage.

Community value can be achieved through employment that is derived from conservation projects. Hauschild (1998) comments that refurbishing existing buildings is more eco-friendly since it is more labour intensive and much less material and energy intensive compared to new construction. Provision of employment to the community encourages people to preserve historic buildings because communities derive employment from conservation projects, as well as income from tourist activities. Built heritage increases the value of community land due to scarcity effects. Since these buildings are few, they give identity and many people want to be located close to such areas. As a consequence, prices for adjacent lands may be increased in the property market.

It is noted in Armitage and Irons (2005) that heritage regulations affect property values in a complex way. Costa and Cassettai (2007) suggest that legal and economic costs of heritage preservation are usually borne by private owners and this erodes people's desire to participate in the conservation and preservation of built heritage. Furthermore the Australian Productivity Commission in 2006 suggests that the government could introduce non-market arrangements to create ways that will encourage people to actively participate in conservation. The public sector can be involved through compensating owners who suffer from inherent limitation and economic burden incurred from ownership.

Heritage regulation imposes restriction on the amount of changes and works that can occur to a property (Armitage and Irons, 2005). This causes built heritage to be associated with high risk because owners do not have exclusive assurance that they will be able to redevelop their heritage buildings and gain return in their investment (Roders and Douglas, 2008). In case of sale, the subsequent owners have to inherit all the conditions and restrictions. This in turn increases the costs of obtaining transfer of ownership agreements due to bureaucracy, hence, reduces the willingness of individual owners to put effort into conserving buildings (Starr, 2010). Moreover, some studies have indicated that heritage owners should receive tax reductions when their buildings are listed to ease the cost burden of conservation. Benhamou (2010) states that the tax reductions that owners receive depend on the loss resulting from listing, which is the loss resulting from the impossibility of developing the property.

Consequently, owners have been facing difficulty in obtaining insurance coverage for their heritage buildings. Insurance companies try to avoid risk associated with demolition, building collapse and/or replication with modern materials that create challenges to the conservation practices. The age of built heritage makes it difficult to obtain replica construction materials of its time; this situation makes it difficult for consultants to accurately assess the original fabric (Dutta and Husain, 2009). Also, the study by Reyers (2003) states that there is a high risk of negligence in conservation projects, as consultants tend to use modern heritage techniques when reinstating built heritage. In addition, the techniques employed do not consider the difference between built heritage and modern heritage in terms of condition, architecture and original fabric.

Previous sections of this paper suggested that the evolution of Australian built architecture from 1788 to 1960 was brought about by migrants who came with new technology, innovation and modern styles. The generation at this time embraced progress brought by migrants; for that reason, massive demolition of historic buildings took place from the turn of the 20th Century because older buildings were not aligned with development. This situation suggests that different generations have different aesthetic and amenity tastes and they tend to look for better ways to improve their lifestyle. Changes in an individual's attitude towards aesthetic and amenity benefits strongly affect the conservation of heritage buildings. The government should investigate how historical past of heritage is linked to people of all ages (Schofield, 2005) instead of merely explaining why built heritage is being protected and conserved (Hudson and James, 2007). This will help the government encourage people to have a sense of place which will bring a feeling of familiarity to people, resulting in continued support for built heritage (Petrie, 2005).

As proposed by Cowell (2010), governments need to provide tax incentives to allow owners to balance the loss of economic value of use and enjoyment of heritage buildings. Additionally, authorities should help owners to manage costs related to potential ongoing development, administrative costs, added costs of repair and maintenance as suggested by Simpson (1997). As well, government should finance and fund a research institution to train and conduct more research into superior methods of conserving heritage buildings that professionals can use without involving risk

and liability. The government should also promote awareness to the public on of how heritage buildings can help achieve economic value if this is regarded as a necessary outcome. Freestone (2007) agreed by suggesting that governments should have a rapport with the private sector in order to facilitate appropriate development.

CHALLENGES FACING THE MANAGEMENT OF AUSTRALIAN BUILT HERITAGE

The objective of this paper is to analyse the origins and parameters that contributed to the development of Australian built heritage. A significant number of researchers have indicated that Australian built heritage dates back to the late 18th Century when buildings with colonialist and aesthetic features were retained because such buildings presented a city's history. In the early 20th Century, demolition of built heritage started to take place because most Australians embraced progress by changing the architectural styles of their buildings. According to studies discussed in the historical development section, migration was a main factor that contributed to the demolition of historic buildings in Australia.

Moreover, the paper aims to identify the underlying challenges and issues that stakeholders face in protecting and managing built heritage. Research interests in the built environment are being influenced by the market-oriented economy (Jokilehto, 2007). As a result, research practice is more concerned with attracting investment and high profile development projects that support new developments and city re-imaging, instead of urban regeneration and conservation as presented by Harrison (2013) and Short (2007). Also, heritage practitioners and scholars are not widely considering the importance of heritage practice and traditions as they adopt modern technology as provided by Harrison (2012).

Methods directed towards preservation of built heritage are mainly based on adapting new design and technology as well as accommodating for the needs of the building users', rather than being planned around cultural based technology and practices that assist with conservation. It appears that a successful conservation projects needs to involve management techniques that are integrated with modernisation, sustainability and advanced technology. These three factors are considered the main challenge and threat facing Australian built heritage. These factors tend to favour economic growth rather than integrating a building's historic aspects, which are intrinsic to future development of urban plans. The following discussion provides findings as to why these factors are viewed as a threat and not a source of progress for heritage buildings.

Historically, modernisation has been related to changes in individuals' attitudes towards aesthetic and amenity value derived from buildings. According to previous studies, individual values are different between generations. For instance, in the 19th Century, modernisation was related to changes in building architectural style whilst the 20th Century modernisation included aesthetic value and sophisticated facilities. In the 21st Century, modern architecture influences people's attitudes so people now desire buildings which are more functional and attractive (Marmot, 2002). Historic buildings are old and do not have modern amenities. Consequently, new buildings are mostly preferred due to high performance, economic viability and easy management quality. The statutory controls approve enhancing and refurbishment projects on historic buildings to ensure that such buildings have the same features as modern buildings. These projects involve using modern materials and changing built heritage structures causing historic buildings to lose some of their significant values (Zancheti, 2002).

Australia, like other countries in the world, adopted sustainability concepts to reduce the environmental impacts brought about by construction. The literature review presented that sustainability is influenced by history and culture as most cities today have been shaped by the presence of historic buildings. In contrast, Caragliu et al. (2011) relates sustainability with smart cities, sky scrapers, modern infrastructure and sophisticated building design. The reason for this changed direction is because heritage buildings are not considered to be high performance buildings and do not support city development. Thus, historic buildings are often not made an integral part of the planning system except when their location is in an area of high cultural and political power.

Most research presented in this paper suggests that technology plays an important role in ensuring that built heritage is transferred from preceding generations through preservation, conservation, restoration and reconstruction projects. Practitioners are more concerned with the condition of built heritage because such projects involve high risk since experts use present materials and technologies rather than ones used over 90 years ago. Over time, the use of current practices and techniques will distort the original fabric and the condition of historic buildings will deteriorate. Consequently, subsequent generations will not be able to see the physical setting of heritage buildings because previous generations used materials that changed the original structure. To avoid this problem, Laing et al. (2007) and Addison and Gaiani (2000) suggest creation of virtual presentations (holograms, 3D CAD, cyber technologies) to ensure the continuation of cultural materials and ancient practices used to construct built heritage.

Virtual representations are intended to reduce the gap between time and space by providing a communication that easily connects and shares built heritage values of the past and present generations to future communities (Giaccardi and Palen, 2008; Zancheti, 2002). The setback of the models is that their functional goals are different due to the variety of theoretical orientations in relation to heritage buildings. In addition, it is difficult to identify and feed in aesthetic and architectural elements of the built heritage remains as there are no records of building components related to the built heritage as discussed by Chevrier *et. al* (2010). Veltman (2005) considers virtual models are usually meant for commercial purposes and their application has a tendency to perceive the past in terms of the present and to systematically destroy the evidence and collective memory of the past. A question that arises is whether such models can provide an actual assessment that keeps traces of all developments and building condition survey without posing any risk to preservation of built heritage.

Modernisation, sustainability and technology are significant to the evolution of built heritage in Australia as discussed above. On the other hand, these three factors are considered to be a threat to built heritage because their activities have caused buildings to lose some of their universal value. The reason is that these factors are influenced by the economic imperative for profit. This situation led to the formulation of a legislative framework in order to control, regulate and manage activities that are directed towards built heritage. Some researchers share an opposing view that built heritage legislation has failed to reach its objective because the legislative framework contributed to deterioration of built heritage. Winter (2013) holds the view that the shifting world order is delivering higher levels of unpredictability and uncertainty about the future. In order to break these barriers people have to know the past and the present and this can be achieved through caring for the material evidence of the history in our buildings.

It is essential to investigate every aspect of our life that in one way or the other affects the continuity, protection and conservation of heritage buildings. In addition, more research is needed to find out how heritage legislation frameworks have changed to assist the management and conservation of Australian built heritage. There is likely a need to analyse how changes in people's attitudes affect conservation of built heritage as it has been noted earlier that subsequent generations tend to think historical attributes are old-fashioned (Negussie, 2004; Slater, 1997). Australians are generally believed to care little about built heritage as they feel historic buildings are not old to warrant concern (Aplin, 2009).

Since it is hard to address the issues raised separately, it is pertinent to establish the different stages of growth, maturity and decline of the Australian built heritage management. The intention is to develop dynamic approaches to built heritage management that are responsive to the ongoing developments in built environment. This can be achieved through a case study of about 30 commercial heritage-listed buildings with more than 100 selected through stratified non-probability sampling. The first group will comprise historic buildings aged 50-100 years, the second group aged 101-150 and the last group 151 years and above. The results will be used to identify patterns and reveal differences as well as predicting future stages of Australian built heritage management. The life cycle model can further be applied and compared to developing countries to determine their stage in the evolution.

CONCLUSION

This paper aimed to explore the evolution of built heritage in Australia. The findings suggest historical development, legislative frameworks, urban planning and design, sustainable built heritage and public engagement as being the parameters that have shaped the development of Australian built heritage. Further, modernisation, sustainability and technology have been providing better methods of conservation and protection of buildings. However, these factors are also the main challenges practitioners face because they contribute to the current and future deterioration, decay and perhaps discontinuation of built heritage. Therefore, this paper recommends further research to be undertaken to establish a management cycle model for built heritage management in order to help better manage the future of Australian built heritage.

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