The role of attributes defining intervention concepts in international doctrinal documents on built heritage

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Abstract

Purpose – Attributes conveying cultural significance play a key role in heritage management, as well as in differentiating interventions in built heritage. However, seldom the relation between interventions and attributes, either tangible or intangible, has been researched systematically. How do both tangible and intangible attributes and interventions relate? What attributes make interventions on built heritage differ?

Design/methodology/approach – This paper conducts a systematic content analysis of forty-one international doctrinal documents—mainly adopted by the Council of Europe, UNESCO and ICOMOS, between 1877 and 2021. The main aim is to reveal and compare the selected eight intervention concepts, namely—restoration (C1), preservation (C2), conservation (C3), adaptation (C4), rehabilitation (C5), relocation (C6), reconstruction (C7) and renewal (C8)—and their definitions, in relation to attributes, both tangible and intangible. The intensity of the relationship between intervention concepts and attributes is determined based on the frequency of the mentioned attributes per intervention.

Findings – There were three key findings. First, although the attention to intangible attributes has increased in the last decades, the relationship between interventions and tangible attributes remains stronger. The highest frequency of referencing the tangible attributes was identified in "relocation" and "preservation," while the lowest was in "rehabilitation." Second, certain attributes play contradictory roles, e.g. "material," "use" and "process," which creates inconsistent definitions between documents. Third, as attributes often include one another in building layers, they trigger the intervention concepts in hierarchical patterns.

Originality/value – This paper explores and discusses the results of a novel comparative analysis between different intervention concepts and definitions, with a particular focus on the attributes. The results can support further research and practice, clarifying the identified differences and similarities.

Keywords Intervention, Intervention concepts, Attributes, Cultural significance, International doctrinal documents, Built heritage, Conservation, Preservation, Restoration, Rehabilitation, Adaptation, Renewal, Reconstruction, Relocation

Paper type Research paper

1. Introduction

To ensure heritage is well-managed and appreciated by the society of present and future generations, international governmental and nongovernmental organizations such as The United Nations Educational, Scientific and Cultural Organization (UNESCO), Council of

Europe (CoE), and International Council on Monuments and Structures (ICOMOS) have been developing international doctrines for over half a century. These documents play a pivotal role by providing statements or principles and guidelines for the conservation and management of places of cultural significance, thereby establishing a professional ethics role in guiding the conduct of heritage conservation practice (Taylor, 2004; Lin *et al.*, 2023).

These documents, however, are not meant to be perfect or tailored to a specific context, given their need to bridge all countries, cultures and priorities (from the experts) involved in their drafting. Consequently, the concepts and policies guiding built heritage interventions are subject to continuous evolution over time (Jokilehto, 2007). In supporting the definition of intervention concepts, during the last decades, although international doctrinal documents have defined intervention concepts with different levels, scales and activities (ICOMOS Canada, 1983), their definitions and categories are often nonaligned and omitted between documents and organizations (Lin *et al.*, 2023).

Moreover, cultural significance is expected to influence the selected category/level of intervention on built heritage (ICOMOS Canada, 1983). Cultural significance is decoded by the conveyed values (Pereira Roders, 2007) and attributes (Veldpaus, 2015). Values justify why heritage is listed, and the attributes characterize the resources (tangible and intangible) that convey such values (Veldpaus and Roders, 2013). Unlike values, attributes follow "a more hierarchical pattern of including and overlapping each other, while the values exist in parallel to each other, although they are usually ranked in importance, whenever set concerning each other, to support decision-making" (Veldpaus, 2015).

Even if research highlighting the key role of attributes of cultural significance in the processes of decision-making in heritage planning and management is growing (De la Torre, 2002; Bond and Worthing, 2016; Junyong *et al.*, 2008; Throsby, 2002; Teutonico, 2019; Avrami *et al.*, 2019; Havinga *et al.*, 2020; Olimpio *et al.*, 2021; 西和彦 *et al.*, 2021), theorizing the relation between intervention concepts on built heritage, e.g. conservation, restoration, reconstruction, adaptation (Henket, 1998; Pereira Roders, 2007; Douglas, 2006; Shahi *et al.*, 2020), seldom the relation to their attributes was researched, nor compared over time and place systematically.

Furthermore, as the range of attribute categories expanded (Sullivan, 2004; Jokilehto, 2006; Landorf, 2009; Vecco, 2010; Araoz, 2011; Labadi, 2013; Veldpaus, 2015), the heritage paradigm shifted from tangible to intangible aspects in recent decades (Ruggles and Silverman, 2009; Silva, 2020); scholars have highlighted the object of preservation remains in a tangible and physical approach (Ruggles and Silverman, 2009). Ongoing debates also focusing on whether certain intervention concepts are in favor of tangible or intangible attributes, such as restoration, renewal or reconstruction, especially in different cultural contexts (Mastero, 2006; Mansfield, 2008; Kwanda, 2009; Park, 2014; Okahashi, 2018; Sharma, 2019). This underscores the idea that as the meanings of the significance and attributes changed between cultures (ICOMOS, 1994) and over time (ICOMOS Australia, revised 2013; Bond and Worthing, 2016; De la Torre, 2002), our intervention will impact how future generations perceive the conserved heritage and engage new interventions, including the use of new digital technologies and artificial intelligence (Ceccarelli, 2017). In this dynamic context, the focus should be not on preventing change but on finding alternative ways to enact change without compromising significance (Bond and Worthing, 2016, p. 162).

Therefore, understanding the relationship between interventions and attributes, as well as further contribute to the definition process of intervention concepts, becomes essential. This paper aims to address the following questions: First, what is the overall distribution of attributes per intervention concept? Second, what aspects of attributes trigger specific intervention concepts? Third, which attributes lead to these differ from other interventions? Using a qualitative approach and systematic content analysis, the intensity of the relationship is determined based on the frequency of the mentioned attributes per intervention.

2. Research methodology

2.1 International doctrinal documents

This paper conducted a systematic content analysis of international doctrinal documents. This mixed-method approach combines qualitative and quantitative statistics, enabling the systematic collection, analysis and presentation of the narratives that embedded intervention concepts in international doctrinal documents. This methodology has been applied to identify the role of values in defining intervention concepts (Lin *et al.*, 2023).

This research selected the concept "intervention," as the general concept to address all the variations in man-made activities applied to built heritage, in order to ensure its survival over time, against the natural process of degradation (Pereira Roders, 2007), e.g. conservation, restoration and rehabilitation. A larger sample of 519 international doctrinal documents was selected due to their reference to cultural heritage. They were examined by searching the keywords "intervention," and "intervention concepts"—"conservation," "preservation," "restoration," "adaptation," "reconstruction," "rehabilitation," "relocation," "renew" and "attributes" as well as attribute-related contents in the glossary and terminology sections. If those sections were unavailable, the definitions of the intervention concepts were deduced by the content analysis of the integral documents.

After the examination, this research selected and analyzed nearly seventy international doctrinal documents, adopted during 1877–2021, revealing a broad geographical spread by their origin, ranging from Europe to Asia and the Pan-Pacific (Table 1). Out of these, forty-one documents have been identified with relationships between intervention concepts and attributes. They are, respectively, four (10%) international doctrinal documents adopted by the UNESCO, twenty-four (58%) by ICOMOS and nine (22%) by the CoE. Two documents considered as ICOMOS have been also prepared with other organizations, as, e.g. The International Committee for the Conservation of the Industrial Heritage (TICCHI). Four documents (9%) were adopted by other organizations—as the Society for the Protection of Ancient Buildings (SPAB), ICOM Architecture and Architect's Council of Europe. They were considered the first international doctrinal documents on cultural heritage before or at the beginning of the establishment of these international organizations.

2.2 Intervention concepts

Interventions and intervention concepts are used as synonyms in this paper. Eight intervention concepts—restoration (C1), preservation (C2), conservation (C3), adaptation (C4), rehabilitation (C5), relocation (C6), reconstruction (C7) and renewal (C8)—were selected for the present analysis, based on their highest frequency of mentioning in the selected international doctrinal documents adopted by UNESCO, ICOMOS and CoE (Lin *et al.*, 2023).

2.3 Cultural attributes

On the one hand, despite the previous development of the Nara Grid by Van Balen (2008) for assessing the chosen case study, this paper has revealed that the complexity of the attributes cannot be comprehensively assessed through these categorizations. This limitation stems from identifying some categories that exhibit overlapping or implicit characters. On the other hand, an attributes taxonomy theoretical framework was created by Veldpaus (2015) to enhance the understanding of the attributes and to facilitate the identification process. However, considering the specific focus of this research on built heritage, it became evident that Veldpaus (2015)'s framework which primarily targeted an urban scale did not adequately address the attributes pertinent to built heritage. Among the five overarching categories of tangible attributes, only two main categories were found applicable to built heritage: "building elements" and "urban elements" under objects. Another was the "group of buildings" and "building(s) + context" under "ensemble/complex." Recognizing the inadequacy of suitable attribute categories of built

Doc.	Year	Short reference	Full reference	Org.
1	1877	The Manifesto	The SPAB Manifesto	SPAB
2	1931	The Athens Charter	The Athens Charter for the Restoration of Historic Monuments	IMO
3	1933	Charter of Athens	The Charter of Athens	CIAM
4	1964	The Venice Charter	International Charter for the Conservation and Restoration of Monuments and Sites	ICOMOS
5	1967	The Norms of Quito	Final Report of the Meeting on the Preservation and Utilization of Monuments and Sites of Artistic and Historic Value	OAS
6	1968	Res (68) 12 (b)	Resolution (68) 12 On the Active Maintenance of Monuments, Groups and Areas of Buildings of Historical or Artistic Interest within the Context of Regional Planning	CoE
7	1975	The Declaration of Amsterdam (b)	The Declaration of Amsterdam	CoE
8	1976	Res (76) 28	Resolution (76) 28: Concerning the Adaptation of Laws and Regulations to the Requirements of Integrated Conservation of the Architectural Heritage, Council of Europe (1976)	CoE
9	1981	The Florence Charter	The Florence Charter on the Protection of Historic Gardens	ICOMOS
10	1983	The Appleton Charter	The Appleton Charter on the Protection and Enhancement of the Built Environment	ICOMOS
11	1985	Convention	Convention for the Protection of the Architectural Heritage of Europe	CoE
12	1987	Washington Charter	Charter for the Conservation of Historic Town and Urban Areas	ICOMOS
13	1991	No. R (91) 6 (A)	Recommendation No. R (91) 6 Of The Committee of Ministers to Member States on Measures Likely to Promote the Funding of The Conservation of the Architectural Heritage	CoE
14	1992	Convention	European Convention on the Protection of the Archaeological Heritage	CoE
15	1993	Guideline	Guidelines on Education and Training in the Conservation of Monuments, Ensembles and Sites	ICOMOS
16	1995	No. R (95) 9	Recommendation No. R (95) 9 of The Committee Of Ministers to Member States on The Integrated Conservation of Cultural Landscape Areas as Part of Landscape Policies	CoE
17	1996	Principle (a)	Principles for the Recording of Monuments, Groups of Buildings and Sites	ICOMOS
18	1996	Declaration	Fourth European Conference of Ministers responsible for the Cultural Heritage	CoE
19	1996	The Declaration of San Antonio (b)	The Declaration of San Antonio	ICOMOS
20	1998	Suzhou Declaration	Suzhou Declaration on International Co-operation for Safeguarding and Development of Historic Cities	UNESCO
21	1999	Charter (a)	Charter on the Built Vernacular Heritage	ICOMOS
22	1999	Cultural tourism charter (b)	International Cultural Tourism Charter Managing Tourism at Places of Heritage Significance	ICOMOS
23	1999	Principle (c)	Principle for the Preservation of Historic Timber Structures	ICOMOS
24	2001	Resolution	Fifth European Conference of Ministers responsible for the Cultural Heritage	CoE

Table 1.
Sixty-nine international doctrinal documents

(*continued*)

Doc.	Year	Short reference	Full reference	Org.
25	2003	Principle of Wall Painting (a)	Principles for the Preservation and Conservation/Restoration of Wall Painting	ICOMOS
26	2003	Zimbabwe Charter (b)	Principles for the Analysis, Conservation and Structural Restoration of Architectural Heritage	ICOMOS
27	2003	Nizhny Tagil Charter (d)	The Nizhny Tagil Charter for the Safeguard of Industrial Heritage	ICOMOS
28	2005	Vienna Memorandum	Vienna Memorandum on "World Heritage and Contemporary Architecture – Managing the Historic Urban Landscape"	UNESCO
29	2008	Québec Declaration (c)	Québec Declaration on the Preservation on the Spirit of Place	ICOMOS
30	2009	Hoi An Protocols	Hoi An Protocols for Best Conservation Practice in Asia: Professional Guidelines for Assuring and Preserving the Authenticity of Heritage Sites in the Context of the Cultures of Asia	UNESCO
31	2010	New Zealand Charter (revised 2010)	New Zealand Charter for the Conservation of Places of Cultural Heritage Values	ICOMOS
32	2011	Madrid Document (a)	Approaches for the Conservation of Twentieth-century Architectural Heritage	ICOMOS
33	2011	HUL	Recommendation on the Historic Urban Landscape	UNESCO
34	2011	The Dublin Principles (b)	Principles for the Conservation of Historic Industrial Sites, Structures, Areas and Landscapes	ICOMOS
35	2011	The Valletta Principles (c)	The Valletta Principles for the Safeguarding and Management of Historic Cities, Towns and Urban Areas	ICOMOS
36	2011	The Paris Declaration (d)	The Paris Declaration on Heritage as a Driver of Development	ICOMOS
37	2013	The Burra Charter (revised 2013)	The Burra Charter: the Australia ICOMOS Charter for Places of Significance	ICOMOS
38	2015	China principle	Principles for the Conservation of Heritage Sites in China	ICOMOS
39	2017	Document (a)	Document on Historic Urban Public Parks	ICOMOS
40	2017	Principle (b)	Principles for the Conservation of Wooden Built Heritage	ICOMOS
41	2021	Guidelines	Guidelines on Fortifications and Military Heritage	ICOMOS

Source(s): This table was created by Mi Lin

Table 1.

heritage during the analysis, this paper proposes an attributes theoretical framework with two categories: tangible and intangible attributes (Table 2 and Table 3). Each category comprises subcategories, with eight subcategories falling under tangible attributes and six under intangible attributes. These subcategories were referenced from the prior framework by Veldpaus and Pereira Roders (2013), Veldpaus (2015), The Nara Document (ICOMOS, 1994), The New Zealand Charter (ICOMOS New Zealand, revised 2010), The Burra Charter (ICOMOS Australia, revised 2013) and Operational Guidelines (UNESCO, revised 2021).

The method included three steps:

(1) The author extracted the sentences which involved the terminology of intervention concepts and attributes, including contents implying their explanations, interpretation, and definition from the international doctrinal documents.

(2) The extracted contents were structured and classified in pre-coding according to the attributes theoretical framework (Table 2 and Table 3). When some of the descriptions

No.	Tangible attributes	Contents
1	Setting	Including Visual Setting (Focal Point, View Cone, Distance Panorama), Spatial Setting (Spatial Volume and Void and Others, Configuration, Topography)
2	Location	Siting, Lot, Footing, Layout
3	Form	Scale, Size, Height, Mass, Dimension, Proportion, Density, Rhythm
4	Style	Including Decoration, Appearance, Character of The Period
5	Surface (Specifically Building Elements)	Patina, Color, Signage, Hidden Marks; Natural Elements, Vertical Vegetation
6	Structure	Principle Structure
7	Materials	Color, Texture, Material Pattern
8	Fixtures And Fittings	Furniture, Lighting, Facilities for Services, Non-Structural Elements

Source(s): Adapted from ICOMOS (1994), Veldpaus and Pereira Roders (2013), ICOMOS New Zealand (revised 2010), ICOMOS Australia (revised 2013), Veldpaus (2015), UNESCO (revised 2021)
This table was created by Mi Lin

Table 2.
Attributes theoretical framework – tangible attributes in built heritage

No.	Intangible attributes	Contents
1	Use And Functions	Services, Circulation, Practices, Activities, Ritual, or Other Representation of Living Tradition
2	Design	Design
3	Craftsmanship and Techniques	Craftsmanship, Technology, Workmanship, Manual Skills
4	Manage System	The Process of Managing, Type of Strategies, Approach
5	Process (Development and Evolution)	The Process of Layering, Development or Evolution (Instead of the Result)
6	Relation	Other Senses or Associations (not physically and visually related to the user, such as sounds, smells, and feelings, may compose part of the Setting)

Source(s): Adapted from ICOMOS (1994), UNESCO (2005), Veldpaus and Pereira Roders (2013), ICOMOS New Zealand (revised 2010), ICOMOS, Australia (revised 2013), Veldpaus (2015)
This table was created by Mi Lin

Table 3.
Attributes theoretical framework – intangible tangible attributes in built heritage

may include more than one subcategory or in both tangible and intangible simultaneously, the authors classify them both during the identification process.

(3) Analysis and comparison of the structured data to reveal (1) the frequency of mentioning the attributes within the selected documents and (2) comparing the relationships between attributes and the selected intervention concepts from different international doctrinal documents and organizations.

3. Findings: the relationship between attributes and intervention concepts
3.1 Overall attributes across eight intervention concepts
Concerning the focus ranging between the tangible and intangible attributes, results (Figure 1) revealed that only "rehabilitation"(C5) exhibited a predominant focus on intangible attributes, with only a minor reference to tangible attributes (8%). Conversely, "relocation" (C6) (88%) and "preservation" (C2) (81%) both primarily emphasized tangible attributes, with references to tangible attributes being seven to three times more frequent than those to intangible attributes.
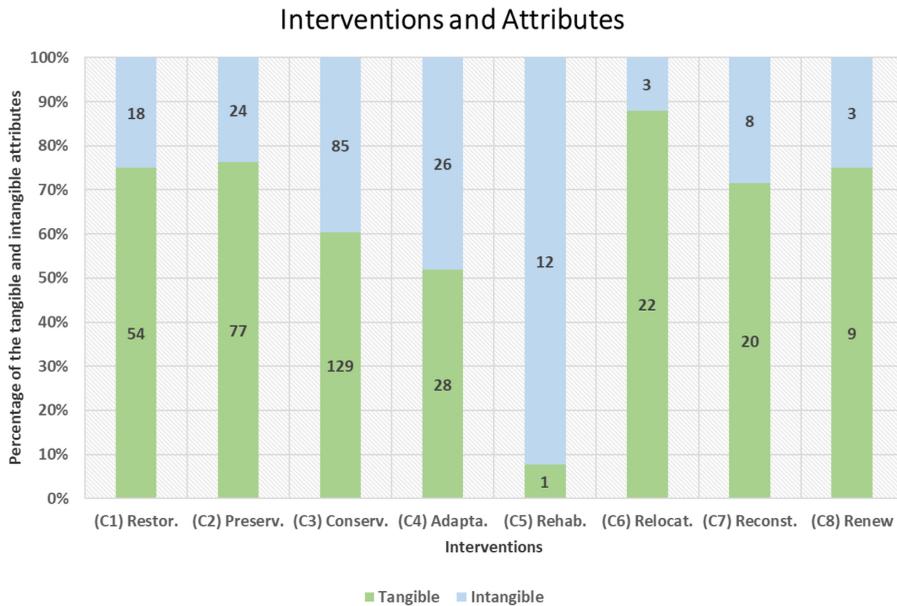
Source(s): This figure was created by Mi Lin

Instead of sharing similar percentage patterns between "preservation"(C2) and 'conservation"(C3), "conservation" presents more focus on the intangible attributes, especially in "use and function" and "craftsmanship and techniques" (Figure 2).

Comparable percentage distributions emerged in "restoration" (C1), "preservation" (C2), "reconstruction" (C7) and "renewal" (C8). However, "renewal" references relatively fewer categories, such as "location," "material," "surface," "form" and "craftsmanship and techniques," while the other three intervention concepts shared a common and broader array of categories encompassing both tangible and intangible aspects.

While both "rehabilitation" (C5) and "adaptation" (C4) displayed strong relations to "use and function," "adaptation" maintained a more equitable distribution between tangible and intangible attributes. It incorporated a wider range of categories, including "material," "settings," and others (see Table 4).

In the following sections, the subcategories will be delineated within each intervention concept to elucidate the attributes that wield substantial influence on the intervention concepts.

3.2 Restoration (C1)
Among the selected forty-one documents, seventeen (41%) were identified with attribute-related contents in "restoration."

The majority of these (twelve) documents (SPAB, 1877; IMO, 1931; ICOMOS, 1964; ICOMOS Canada, 1983; UNESCO, 1998; ICOMOS, 1999c; 2003a; UNESCO Bangkok, 2009; ICOMOS New Zealand, revised 2010; ICOMOS, 2011d; ICOMOS Australia, revised 2013; ICOMOS China, 2015) detailed the role of restoration towards the attribute "material," either "modern" (SPAB, 1877; IMO, 1931), "original" (ICOMOS, 1964), "earlier" (ICOMOS Canada, 1983), "traditional construction" (UNESCO, 1998), "new" (ICOMOS, 2003a; ICOMOS New

Figure 2.
The eight intervention concepts and their proportional references to the fourteen subcategories (tangible and intangible attributes)
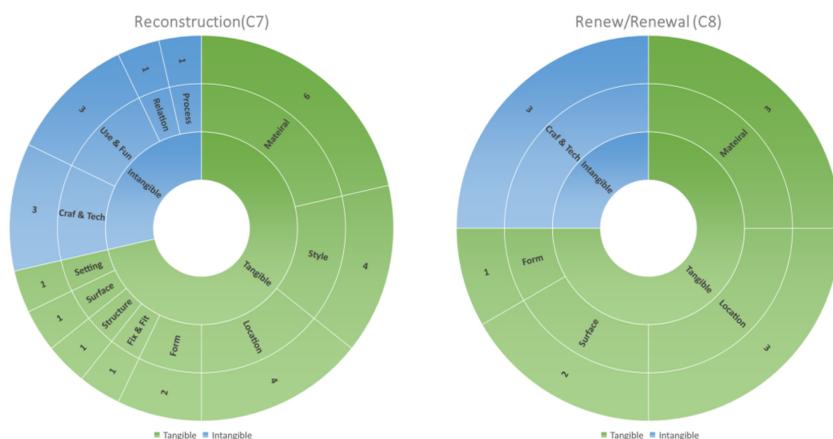
Figure 2

Source(s): This figure was created by Mi Lin

Zealand, revised 2010), "existing" (ICOMOS, 2003a) and "recycled" (ICOMOS New Zealand,
revised 2010). A significant portion of the documents (nine) (SPAB, 1877; CoE, 1975; ICOMOS,
1999a, c, 2003a; UNESCO Bangkok, 2009; ICOMOS, 2011d; ICOMOS China, 2015; ICOMOS,
2017b) predominantly emphasized the restoration of the building's "structure."

Additionally, seven documents (SPAB, 1877; IMO, 1931; ICOMOS, 1964, 1999a, 2011d,
2015, 2017b) addressed the restoration of "crafts and techniques" as a crucial attribute. This
was articulated through "technology" (SPAB, 1877; ICOMOS China, 2015), "technical
features" (ICOMOS, 1964), techniques (ICOMOS China, 2015), "modern techniques" (SPAB,
1877), "craft skills" (ICOMOS, 1999a), "craftmanship" (ICOMOS China, 2015) and "traditional
building system" (ICOMOS, 1999a).

Furthermore, two documents related "restoration" to the building "process" (ICOMOS,
1981, 1999a). This encompassed "successive stages of evolution" (ICOMOS, 1981),
particularly in the context of historic gardens and "traditional building system" (ICOMOS,
1999a) concerning vernacular architecture.

3.3 Preservation (C2)

Thirteen documents (31%) exhibited content related to attributes in "preservation" (C2).

A majority of these documents (seven) (IMO, 1931; ICOMOS, 1981, 1987; UNESCO
Bangkok, 2009; ICOMOS, 2011c, 2017a, 2021) featured the attribute "setting," which
encompassed "neighborhood of ancient monuments" (IMO, 1931), "surroundings" (ICOMOS,
1981), "surrounding setting, both natural and man-made" (ICOMOS, 1987), "relationships
between buildings and green and open spaces" (ICOMOS, 1987) and "spatial relationships"
(ICOMOS, 2017a, 2021). Further elaborations were identified, particularly in documents about
historic public parks, where aspects like "views, focal points, and viewpoints, distant
panoramas, sight-lines, vistas and views, views and vistas, microclimate (sun/shade/wind),
Natural light, sunshine, and shade, night lighting, movement" (ICOMOS, 2017a) were
detailed. Additionally, in the context of historic gardens, "water, running or still, reflecting the
sky" (ICOMOS, 1981) was notably associated.

Six documents (ICOMOS, 1981; ICOMOS Canada, 1983; ICOMOS, 1987; UNESCO
Bangkok, 2009; ICOMOS, 2011c; ICOMOS, 2017a) elucidated the role of "form" related to
"preservation." Besides being mentioned more directly as "form" (ICOMOS Canada, 1983),

Doc	Year	Short Reference	Org.	Setting	Location	Form	Style	Surface	Structure	Material	Fix & Fit	Use & Fun	Craft & Tech	Design	Manage	Process	Relation
				Tangible Attributes								Intangible Attributes					
D01	1877	The Manifesto	SPAB		C2		C1		C1	C1			C1				
D02	1931	The Athens Charter	IMO	C2				C2		C1			C1				
D03	1933	Charter of Athens	CIAM							C3							
D06	1964	The Venice Charter	ICOMOS		C3	C1, C3, C7	C3	C2, C3		C1, C3, C7		C3	C1, C3				
D09	1967	The Norms of Quito	OAS		C8												
D11	1968	Res (68) 12 (b	CoE														C5
D15	1975	The Declar. of Amsterdam (b	CoE			C3			C1, C3			C3	C3				
D18	1976	Res (76) 28	CoE									C3, C5					
D19	1981	The Florence Charter	ICOMOS	C2	C2			C2, C8	C2	C2	C2	C2		C1		C1	C2
D22	1983	The Appleton Charter	ICOMOS		C1, C2	C1, C2				C1, C2		C5			C5		
D23	1985	Convention	CoE	C3					C3		C3	C4					
D24	1987	Washington Charter	ICOMOS		C4	C4					C4	C4					
D29	1991	No. R (91) 6 (a	CoE				C3		C3	C3			C3				
D31	1992	Convention	CoE	C3	C3												
D32	1993	Guideline	CoE	C3						C3		C3	C3				
D34	1995	No. R (95) 9	CoE									C3				C3	
D35	1996	Principle (a	ICOMOS			C3				C3							
D36	1996	Declaration	CoE							C3		C3					
D37	1996	The Declar. of San Antonio (b	ICOMOS		C1, C3, C7		C7			C3		C4	C3, C4, C7			C4	C3
D40	1998	Suzhou Declaration	UNESCO							C1							C5
D41	1999	Charter (a	ICOMOS		C3	C3, C4			C1, C3, C4				C1		C1, C4	C1	C3
D42	1999	Cultural tourism Ch. (b	ICOMOS									C7					
D43	1999	Principle (c	ICOMOS					C8	C1	C1, C8		C1	C8	C1			
D45	2001	Resolution	CoE							C3		C3	C3				
D46	2003	Prin. of Wall Painting (a	ICOMOS				C7	C7		C7, C8	C7		C7, C8				
D48	2003	Zimbabwe Charter (b	ICOMOS			C3	C3		C1, C3	C1, C3							
D50	2003	Nizhny Tagil Charter (d	ICOMOS		C3	C3				C4	C3	C3, C4				C3, C4	
D53	2005	Vienna Memorandum	UNESCO		C8	C8									C4		
D56	2008	Québec Declaration (c	ICOMOS									C3, C7	C8			C7	C3, C7
D57	2009	Hoi An Protocols	UNESCO		C1, C6	C6, C7	C6		C1, C3, C5	C1, C3, C7		C3, C4, C5, C6		C1	C5		C3
D58	2010	New Zealand Charter	ICOMOS	C3, C6, C7	C1, C6	C1			C3, C6, C7	C1, C3, C7		C3					C3, C6
D59	2011	Madrid Document (a	ICOMOS			C7											
D60	2011	HUL	UNESCO	C3, C4	C3	C3						C3			C3		C3, C4
D61	2011	The Dublin Principles (b	ICOMOS		C4				C4	C4	C4	C4				C4	C4
D62	2011	The Valletta Principles (c	ICOMOS	C2, C4	C4	C2, C4	C2		C2, C4	C2, C4	C2	C2	C2				
D63	2011	The Paris Declaration (d	ICOMOS						C1	C1, C3		C1, C3					
D64	2013	The Burra Charter	ICOMOS	C3, C6	C6, C7		C6			C1, C3, C7	C2	C2, C3, C4, C7	C3	C6			C3
D65	2015	China principle	ICOMOS	C1, C3, C4	C1, C2, C3, C7	C1	C1, C7	C1, C3	C1, C3	C1, C3	C4	C1, C2, C3, C7	C2, C3, C4	C4			C1, C2
D66	2017	Document (a	ICOMOS	C2		C2		C2		C2			C2				C2
D67	2017	Principle (b	ICOMOS		C3				C3	C1, C3		C3	C1, C3				
D69	2021	Guidelines	ICOMOS	C2, C3	C3				C3	C3		C3	C2, C3				C3
In total: 41 documents / Concepts mentioned in each sub-category				C1, C2, C3, C4, C6, C7	C1, C2, C3, C4, C6, C7, C8	C1, C2, C3, C4, C6, C7	C1, C2, C3, C6, C7	C1, C2, C3, C7, C8	C1, C2, C3, C4, C5, C6, C7	C1, C2, C3, C4, C7, C8	C2, C3, C4, C7	C2, C3, C4, C5, C6, C7	C1, C2, C3, C4, C7, C8	C1, C4, C6	C1, C3, C4, C5	C1, C3, C4, C5, C7	C1, C2, C3, C4, C5, C6, C7
Number of Documents identified with attributes				12	21	17	10	9	16	27	10	24	17	8	6	8	13

Table 4.
The overall attributes identified in eight intervention concepts within international doctrinal documents

Source(s): This table was created by Mi Lin

"existing form" (UNESCO Bangkok, 2009) and "historic form" (UNESCO Bangkok, 2009), more extensive descriptions were encountered, such as, "the form and appearance, interior and exterior, of buildings as defined by their structure, volume, style, scale, . . ." (ICOMOS, 2011c) and "scale, height, massing" (ICOMOS, 2017a). Notably, in the context of historic garden, "vegetation, including its species, proportions, color schemes, spacing and respective heights" (ICOMOS, 1981) were also categorized.

Another set of six documents (ICOMOS, 1981; ICOMOS Canada, 1983; ICOMOS, 1987; UNESCO Bangkok, 2009; ICOMOS, 2011c; 2017a) correlated "materials" with "preservation," including "color" (ICOMOS, 1987; UNESCO Bangkok, 2009; ICOMOS, 2017a) and "color schemes" (ICOMOS, 1981).

Five documents (SPAB, 1877; ICOMOS, 1981; ICOMOS Canada, 1983; ICOMOS, 1996c; ICOMOS China, 2015) underscored the role of "location" in "preservation" with more specific

descriptions such as "plan and its topography" (ICOMOS, 1981), "site" (ICOMOS Canada, 1983), "*in situ*" (ICOMOS, 1996c) and "layout" (ICOMOS China, 2015).

Finally, four documents (IMO, 1931; ICOMOS, 1981; 1964; 1987) associated "surface" with "preservation." These included "ornamental vegetation" (IMO, 1931), "vegetation, including its species, . . . color schemes" (ICOMOS, 1981), "sculpture, painting or decoration" (ICOMOS, 1964), "decoration" (ICOMOS, 1987) and "shade of the vegetation" (ICOMOS, 1981).

3.4 Conservation (C3)

Within the pool of forty-one documents, twenty-five (61%) were found with attribute-related content related to "conservation". Notably, "conservation" is the only concept that references to all attribute categories.

A large proportion (thirteen documents) (CIAM, 1933; ICOMOS, 1964; CoE, 1975b, 1991; ICOMOS, 1993, 1996a, b, c; CoE, 2001; ICOMOS, 2003a; UNESCO Bangkok, 2009; ICOMOS New Zealand, revised 2010; ICOMOS, 2011d) were focused on the role of "materials" in "conservation." While certain documents introduced contents such as "traditional materials" (CoE, 1975b; COE, 2001; ICOMOS Australia, revised 2013) and "original material" (ICOMOS China, 2015), an exceptional instance involved the mention of "new material" (CIAM, 1933) in "conservation", particularly when relating to "anastylosis." Additionally, "modern material" (ICOMOS Australia, revised 2013) was highlighted as an appropriate addition when providing "conservation."

"Conservation" also demonstrated a noteworthy frequency of references to intangible attributes, especially on "use and functions," across fourteen documents (ICOMOS, 1964; CoE, 1975b; 1976; ICOMOS, 1993; COE, 1995; CoE, 1996, 2001; ICOMOS, 2003b; ICOMOS, 2008a; UNESCO Bangkok, 2009; ICOMOS New Zealand, revised 2010; UNESCO, 2011; ICOMOS Australia, revised 2013; ICOMOS, 2021). These documents underscored their relations, providing nuanced descriptions such as "purpose" (ICOMOS, 1964), "service" (UNESCO, 2011), "activity" (UNESCO Bangkok, 2009; ICOMOS New Zealand, revised 2010) and "events" (ICOMOS China, 2015). Notably, some documents acknowledged the potential introduction of "modern function" (CoE, 1976) in the context of "integrated conservation," and the possibility of introducing "new use" (ICOMOS New Zealand, revised 2010) when it does not compromise heritage values.

Ten documents (ICOMOS, 1964; CoE, 1975b, 1991; ICOMOS, 1993; CoE, 2001; ICOMOS, 2003a; 2011d; ICOMOS Australia, revised 2013; ICOMOS China, 2015; ICOMOS, 2017b; 2021) emphasized on the role of "craftsmanship and techniques" in "conservation." One document (CoE, 1991) specifically addressed the "method of construction" in "physical conservation." Other documents echoed with more elaborate insights, such as "manual skills" (ICOMOS, 1993), "traditional craft" (ICOMOS, 1993), "traditional techniques" (COE, 2001; ICOMOS Australia, revised 2013) and "traditional tools" in conjunction with "traditional building skills" (ICOMOS, 2011d). Notably, some documents acknowledged the appropriateness of "modern techniques" (ICOMOS Australia, revised 2013) when they substantially contribute to "conservation." Also, "new techniques" (ICOMOS, 1964) can be used when "traditional techniques" is proved not adequate (ICOMOS, 1964). It is important to highlight that the removal of the "inner structure" representing "specific building technology" (ICOMOS, 2003a) of its time was regarded as façadism, distinct from "conservation."

Nine documents (ICOMOS, 1964; 1996b; 1999a; 2008a; UNESCO Bangkok, 2009; ICOMOS New Zealand, revised 2010; UNESCO, 2011; ICOMOS Australia, revised 2013; ICOMOS, 2021) centered on "relations" when mentioning "conservation," including "connection" (UNESCO, 2011), "relationship" and "association" (ICOMOS Australia, revised 2013). Especially, "intangible associations" (ICOMOS, 1999a) was emphasized, extending beyond physical form when concerning vernacular architecture.

Two documents (UNESCO, 2011; ICOMOS, 2021) focused on the role of the "management system" in "conservation." This not only included the "traditional and customary systems" (UNESCO, 2011) but also the "system" which treated the military heritage "network as a whole" (ICOMOS, 2021).

Two additional documents (CoE, 1995; ICOMOS, 2003c) associated "conservation" with "process." For instance, "evolution" (CoE, 1995) was highlighted, particularly in the context of cultural landscape and "industrial processes" (ICOMOS, 2003c) within industrial heritage.

3.5 Adaptation (C4)

Thirteen dataset documents (31%) were found to contain content related to attributes in "adaptation" (C4).

Although a majority of the documents (nine) (ICOMOS, 1996b; ICOMOS, 2003c; UNESCO Bangkok, 2009; ICOMOS, 2011b; 2011d; ICOMOS Australia, revised 2013; ICOMOS China, 2015) mentioned "use," subtle variations emerged. These ranged from the "former use" (ICOMOS, 2003c), "original or principal use" (ICOMOS, 2003c), "existing use" (ICOMOS Australia, revised 2013; UNESCO Bangkok, 2009) to "proposed use" (ICOMOS Australia, revised 2013; UNESCO Bangkok, 2009), "new use" (CoE, 1985; ICOMOS, 2003c; 2011d; ICOMOS Australia, revised 2013), "modern use" (ICOMOS China, 2015) and "communal use" (ICOMOS, 1996b). Notably, when mentioned "new use" (ICOMOS Australia, revised 2013), the Burra Charter was also referring to another concept, "adaptive reuse."

Besides referring to "use" in "adaptation," other documents also mentioned "functions" (ICOMOS, 2011d), "functioning" (ICOMOS, 2011b), "activities" (ICOMOS, 1987; ICOMOS, 2003c), "new functions" (ICOMOS, 1987), "new services" (ICOMOS Australia, revised 2013; ICOMOS China, 2015) and "human need" (ICOMOS, 1996b).

Three documents (ICOMOS, 1999a; UNESCO, 2005; ICOMOS, 2011d) placed a spotlight on the role of "manage system" in influencing "adaptation." This included the "technical standards" (UNESCO, 2005), "acceptable standard of living" (ICOMOS, 1999a), "code of ethics" (ICOMOS, 1999a) and "modern living standard" (ICOMOS, 2011d).

While the attention to tangible and intangible attributes was nearly balanced, certain attributes such as "style," "surface," as well as "craftsmanship and technology" were absent from "adaptation."

3.6 Rehabilitation (C5)

Five documents have been identified with attribute-related contents pertinent to "rehabilitation". Notably, the emphasis in these documents varied between tangible and intangible attributes. Among the five documents, only one document (UNESCO Bangkok, 2009) mentioned the aspect of tangible attributes. Specifically, it mentioned the importance of keeping the "historic character of the structure" during the "rehabilitation" process.

On the contrary, the majority (four) documents (CoE, 1968b, 1976; ICOMOS Canada, 1983; CoE, 1987; UNESCO, 1998) focused primarily on intangible attributes when discussing "rehabilitation". Especially, three of these documents (CoE, 1976; ICOMOS Canada, 1983; UNESCO Bangkok, 2009) showed a strong connection to "use and function." While one document (CoE, 1976) presented a broader definition—for "habitation," the other documents provided more detailed information about adhering to "manage system." This included meeting "contemporary functional standards" (ICOMOS Canada, 1983) as well as "functional requirements" (UNESCO Bangkok, 2009) encompassing "safety," "property protection," and "access" in "rehabilitation." Simultaneously, two other interventions—"adaptation" (ICOMOS Canada, 1983) and "adaptive reuse" (UNESCO Bangkok, 2009) —were mentioned while relating to "use and function."

3.7 Relocation (C6)
Four documents (9%) have been identified with attribute-related content. "Relocation" is an intervention concept often regarded as the last resort (ICOMOS Canada, 1983; UNESCO Bangkok, 2009; ICOMOS New Zealand, revised 2010) or as "the sole means of ensuring its (heritage's) survival" (ICOMOS Australia, revised 2013), particularly when the heritage is deemed "difficult to conserve *in situ*" (ICOMOS China, 2015).

One common attribute found in all (four) documents (UNESCO Bangkok, 2009; ICOMOS New Zealand, revised 2010; ICOMOS Australia, revised 2013; ICOMOS China, 2015) was "location," encompassing the "site" and conservation "*in situ.*"

Two documents (ICOMOS New Zealand, revised 2010; ICOMOS China, 2015) mentioned "setting" in "relocation." Particularly, "relocation" is considered as a viable option when natural disasters or changes destroy the "natural setting" (ICOMOS China, 2015) of the heritage site.

Two documents addressed the attribute of "relation," highlighting the importance of the "ongoing association" (ICOMOS New Zealand, revised 2010) and "significant links" (ICOMOS Australia, revised 2013) between the sites and structures. Notably, the Burra Charter (ICOMOS Australia, revised 2013) extends its concern to buildings, works or elements specifically "designed ready to be removable" or that "already have a history of relocation," a perspective not mentioned in other documents.

Additionally, two documents emphasized the role of "use and function" (UNESCO Bangkok, 2009; ICOMOS Australia, revised 2013). The Hoi An Protocol (UNESCO Bangkok, 2009) emphasized that the new location should contain a sympathetic environment of "building . . . function." This perspective aligns with the "appropriate use" outlined in the Burra charter (ICOMOS Australia, revised 2013).

3.8 Reconstruction (C7)
A total of ten documents (24%) were identified with attribute-related contents in "reconstruction."

Six documents (ICOMOS, 1964, 1996b, 2003b; UNESCO Bangkok, 2009; ICOMOS New Zealand, revised 2010; ICOMOS Australia, revised 2013) were found referencing "material" in "reconstruction." Notably, two documents (ICOMOS New Zealand, revised 2010; ICOMOS Australia, revised 2013) emphasized the use of "new material" as a distinguishing factor between "reconstruction" from "restoration." In contrast, the "traditional material" (ICOMOS, 2003b) is encouraged for use in wall painting, which contradicts the perspective presented in the aforementioned documents (ICOMOS New Zealand, revised 2010; ICOMOS Australia, revised 2013. Also, the Declaration of San Antonio (ICOMOS, 1996b) highlighted the misuse of "reconstruction" in the context of archaeological sites when it involved the introduction of "new materials" and led to alternations in the site's "appearance."

Instead of distinguishing new or traditional material, the Venice Charter (ICOMOS, 1964) mentioned only "recognizable material and form" when explaining the other two concepts— "anastylosis" and "reinstatement"—within "reconstruction."

Four documents (ICOMOS, 1996b, 2011a; ICOMOS Australia, revised 2013; ICOMOS China, 2015) addressed "location" relating to "reconstruction." Besides "sites" (ICOMOS, 2011a; ICOMOS China, 2015), more detailed information was found, especially in the China Principle (ICOMOS China, 2015), such as "lost sites," "footings," "ruins or ruins of the footings" concerning human or natural disasters.

Three documents (ICOMOS, 1999b, 2008a; ICOMOS Australia, revised 2013) focused on "use and function" when mentioning "reconstruction." Besides directly pointing out "use" and "function" (ICOMOS Australia, revised 2013), "practice" (ICOMOS, 1999b; ICOMOS Australia, revised 2013) and "activities" (ICOMOS, 1999b) were also mentioned. Interestingly, the Burra

Charter (ICOMOS Australia, revised 2013) indicates that "reconstruction" may be seen as part of the "use" and "practice" itself in some cases.

Two documents (ICOMOS, 2003b; ICOMOS China, 2015) were found to be related to "craftsmanship and techniques" in "reconstruction." "Traditional techniques" (ICOMOS, 2003b) were endorsed, particularly wall painting. Although "reconstruction" for presentation and interpretation was generally discouraged, the China Principle (ICOMOS China, 2015), mentioned the potential use of "modern technology" (ICOMOS China, 2015), such as "drawings, photos and sketches, and models, or "virtual reality presentations" based on accurate archaeological and documentary evidence.

Additionally, unique subcategories were identified. Only one document (ICOMOS New Zealand, revised 2010) mentioned that the "setting" can be reconstructed. Another document (ICOMOS, 2008a), introduced "process" and "relations" in "reconstruction", addressing both tangible and intangible aspect by noting that "the spirit of place is a continuously reconstructed process, which responds to the needs for change and continuity of communities . . ." (ICOMOS, 2008a).

3.9 Renew/Renewal (C8)

Six documents (14%) were identified with the relationships between attributes and "renew/renewal."

Three documents (ICOMOS, 1999c, 2003b, 2008b) made reference to "craftsmanship and techniques" in "renew/renewal." These documents endorsed the use of "traditional techniques," considering them integral to the "traditions of renewal" and "practices of artists and craftsman" (ICOMOS, 2003b), particularly concerning wall painting. Furthermore, "modern techniques" concerning the conservation of the spirit of place (ICOMOS, 2008c) enhanced diversity and played a crucial role in the constant renewal of the documentation related to the spirit of place.

In addition to "craftsmanship and techniques," the concept of "renew/renewal" displayed diverse and equitable relations with other attributes, such as "location," "surface" and "material." Notably, two documents (ICOMOS, 1981, 1999c) provided more detailed insights into the subcategory of "surfaces." One document (ICOMOS, 1981) mentioned activities, such as cleaning "fallings" and replanting plantation "mature specimens," while the other (ICOMOS, 1999c) emphasized the duplication of "surface finishes" to the greatest extent possible during the renewal process.

4. Discussion

The discussion of the findings regarding the relationship between interventions and attributes in international doctrinal documents is as follows:

Dominance of Tangible Attributes. Although the attention to intangible attributes has increased in the last decades since the Nara Document (1994) (西和彦 *et al.*, 2021), the relationship between interventions and tangible attributes remains higher—seven to three times—more than the intangible attributes, especially in "preservation" and "relocation." Only "rehabilitation" was the only concept referencing more intangible than tangible attributes among the other seven. This finding reinforces the assertion made by Ruggles and Silverman (2009) that "preservation" remains primarily tangible-driven, indicating that the majority of intervention concepts in these documents prioritize tangible heritage aspects.

Attributes bring differentiation in concepts. Comparing concepts often used interchangeably, this paper found distinctions in their relationships with tangible and intangible attributes. For instance, "conservation" was found closely related to intangible attributes, such as "use and function," "craftsmanship and techniques" and "process."

Conversely, preservation" is strongly associated with tangible attributes, such as "setting," "form" and "material." Similar distinctions are observed between "adaptation" and "rehabilitation." Despite both of the concepts focused on "use and function," the former concentrates more on tangible attributes, such as "material," "structure," "fixtures and fittings" and the latter barely mentioned any. Moreover, even when interventions appear similar in their aim to substitute or alter the existing, the results demonstrate that they focus on different attributes. For example, in "adaptation" and "renewal," the former leans toward "use and function" as well as "manage system," while the latter emphasizes "technology" and "surface."

Attributes trigger interventions in hierarchical patterns. Unlike values that tend to perform dynamic relationships between intervention concepts (Lin *et al.*, 2023), attributes were found easier related to be more than one intervention concept at the same time. This is probably because when attributes are mentioned, they are hierarchical and involve one with the others, such as "material" under "surface" or "structure" under "material." This finding is aligned with the theory of Veldpaus (2015). Also, this hierarchical phenomenon might suggest that interventions may have unforeseen impacts on multibuilding layers when implemented.

Contradictory roles of attributes. Certain attributes play contradictory roles in the same intervention concepts across different documents. For example, "new materials" and "traditional materials" in "reconstruction." While The Manifesto (SPAB, 1877) addressed that modern techniques and materials are acceptable in restoration, it is going against the idea in the Burra Charter (ICOMOS Australia, revised 2013) and New Zealand Charter (ICOMOS New Zealand, revised 2010) of using "traditional material" in restoration. Within these two charters, "new material" is set as a criterion to distinguish between "restoration" and "reconstruction." Moreover, the Burra Charter (ICOMOS Australia, revised 2013) addressed that "reconstruction" may be perceived as part of the "use" and "practice" itself, emphasizing not just the material aspect but also the intangible dimension of continuity and meaning. This finding is aligned with the theory of Kwanda (2009), Park (2014) and Okahashi (2018).

Paradoxical documents. Some documents adopt paradoxical positions referencing multiple international documents rather than creating regional definitions, for instance, the Hoi An Protocol (UNESCO Bangkok, 2009) draws from various documents. Take "reconstruction" for example; while documents—Burra Charter (ICOMOS Australia, revised 2013) and New Zealand Charter (ICOMOS New Zealand, revised 2010)—mention "earlier state" in their definition, another document like the Appleton Charter (ICOMOS Canada, 1983) only mentioned, "vanished or irreversibly deteriorated resources." The problem is that these documents didn't mention "which state" they are returning to and from which criteria they determine "vanished or irreversible." Furthermore, referencing multiple documents may mean including different mindsets simultaneously, leading to misinterpretation. This finding highlights the need for more customized regional documents.

Emerging attributes categories. New categories were found to suggest more attention. For example, "Vegetation" and "lighting" would affect the atmosphere, setting, visual setting and emotional affection; "interior" and "fixtures and fittings" shape the "use"; "movement" and other senses, e.g. sound and smell are also hard to identify in the researched documents. This observation aligns with the theories of Bond and Worthing (2016) and Ceccarelli (2017), suggesting the identification of new attributes in the future may necessitate reevaluations and shifts in definitions.

5. Conclusion
This paper underscores the tangible-centric nature of intervention concepts within international doctrinal documents concerning built heritage, emphasizing the imperative for increased attention to intangible attributes. Different patterns influencing the relationship between

intervention concepts and attributes of cultural significance have been explored. While the role of values brings a dynamic relationship, the role of attributes triggers intervention concepts in hierarchical patterns. This implied that a single intervention concept would impact multibuilding layers, from the setting to the fixture and fitting of the interior, and from the relation to use.

Future research can focus on setting up a more detailed attribute category, especially from the new technologies and materials in intangible aspects. As the definitions evolve from time and space, it is necessary to revisit the interventions, their definitions and philosophy at intervals. Future researchers can also compare the relationship between intervention concepts and attributes among stakeholders. However, defining interventions solely based on attributes in not enough. Other aspects such as time layers (earlier/later), actions and aims should also incorporated into the refining process. Last but not least, the attributes of cultural significance and interventions should always look at their context when analyzing.

Identifying the role of "what" is affecting or being affected by "which" interventions can be a chance to provide a fundamental reference for decision-makers and related stakeholders to continue and reform the significance. This paper serves as a foundation for further research and practical applications, elucidating distinctions and commonalities across diverse cultures, places and times.

References

Araoz, G.F. (2011), "Preserving heritage places under a new paradigm", *Journal of Cultural Heritage Management and Sustainable Development*, Vol. 1 No. 1, pp. 55-60.

Avrami, E., Macdonald, S., Mason, R. and Myers, D. (Eds) (2019), *Values in Heritage Management: Emerging Approaches and Research Directions*, Los Angeles.

Bond, S. and Worthing, D. (2016), *Managing Built Heritage: the Role of Cultural Values and Significance*, John Wiley & Sons, West Sussex.

Ceccarelli, P. (2017), "Past is not a frozen concept: considerations about heritage conservation in a fast changing world", *Built Heritage*, Vol. 1, pp. 1-12.

De la Torre, M. (Ed.), *Assessing the Values of Cultural Heritage*, Getty Conservation Institute.

Douglas, J.E.H. (2006), *Building Adaptation*, 2nd ed., Elsevier/Butterworth-Heinemann, Burlington.

Havinga, L., Colenbrander, B. and Schellen, H. (2020), "Heritage significance and the identification of attributes to preserve in a sustainable refurbishment", *Journal of Cultural Heritage*, Vol. 43, pp. 282-293.

Henket, H.-J. (1998), "1 the icon and the ordinary", in Cunnungham, A. (Ed.), *Modern Movement Herutage*, E & FN SPON, London, pp. 13-17.

Jokilehto, J. (2006), "Considerations on authenticity and integrity in world heritage context", *City and Time*, Vol. 2 No. 1, pp. 1-16.

Jokilehto, J. (2007), "International charters on urban conservation: some thoughts on the principles expressed in current international doctrine", *City and Time*, Vol. 3 No. 3, p. 2.

Junyong, L., Mu, Z., Jing, L., Jing, Y. and Lu, L. (2008), "Design of the intangible cultural heritage management information system based on GIS", *2008 International Conference on Information Management, Innovation Management and Industrial Engineering*, Vol. 3, IEEE, pp. 94-99.

Kwanda, T. (2009), "Western conservation theory and the Asian context: the different roots of conservation", *Paper given at international conference on heritage in Asia: converging forces and conflicting values 8-10 January 2009*.

Labadi, S. (2013), "Theoretical perspectives on Outstanding universal value", in Labadi, S. (Ed.), *UNESCO, Cultural Heritage, and Outstanding Universal Value*, AltaMira Press, Plymouth, United Kingdom, pp. 11-25.

Landorf, C. (2009), "Managing for sustainable tourism: a review of six cultural World Heritage Sites", *Journal of Sustainable Tourism*, Vol. 17 No. 1, pp. 53-70.

Lin, M., Pereira Roders, A., Nevzgodin, I. and de Jonge, W. (2023), "Values and interventions: dynamic relationships in international doctrines", *Journal of Cultural Heritage Management and Sustainable Development*.

Mansfield, J.R. (2008), "The ethics of conservation: some dilemmas in cultural built heritage projects in England", *Engineering, Construction and Architectural Management*, Vol. 15, pp. 270-281.

Matero, F.G. (2006), "Loss, compensation and authenticity in architectural conservation", *Journal of Architectural Conservation*, Vol. 12 No. 1, pp. 71-90.

Okahashi, J. (2018), "Identification of 'exceptional circumstances' where reconstruction of cultural heritage is accepted", in *ICOMOS University Forum*, ICOMOS International, Vol. 1, pp. 1-9.

Olimpio, L.C.M., Campos, V.R. and Mesquita, E.F.T. (2021), "Multicriteria decision-making to support preventive maintenance of built heritage in the historic center of Sobral, Brazil", *Journal of Cultural Heritage Management and Sustainable Development*, Vol. ahead-of-print No. ahead-of-print. doi: 10.1108/JCHMSD-01-2021-0011.

Park, T.L. (2014), "Architectural preservation process in Japan: theoretical discourse and its application", Doctoral dissertation, 筑波大学.

Pereira Roders, A.R. (2007), *Re-architecture: Lifespan Rehabilitation of Built Heritage - Basis*, Technische Universiteit Eindhoven, available at: https://doi.org/10.6100/IR751759 (accessed 27 June 2023).

Ruggles, D.F. and Silverman, H. (2009), "From tangible to intangible heritage", *Intangible Heritage Embodied*, pp. 1-14, doi: 10.1007/978-1-4419-0072-2_1.

Shahi, S., Esfahani, M.E., Bachmann, C. and Haas, C. (2020), "A definition framework for building adaptation projects", *Sustainable Cities and Society*, Vol. 63, 102345.

Sharma, T. (2019), "The paradox of valuing the invaluable: managing cultural values in heritage places", in *Values in Heritage Management: Emerging Approaches and Research Directions*, Los Angeles, pp. 186-198.

Silva, A.T. (2020), "The substance of cultural significance on spatial planning policies: the materialization of tangible to tangible heritage on Municipal Master Plans", *Salvaguarda Em Desenvolvimento*, Vol. 18, pp. 18-32.

Sullivan, S. (2004), "Local involvement and traditional practices in the world heritage system", in *World Heritage Papers 13 – Linking Universal and Local Values: Managing a Sustainable Future for World Heritage*, World Heritage Centre, Paris, pp. 49-57.

Taylor, K. (2004), "Cultural heritage management: a possible role for charters and principles in Asia", *International Journal of Heritage Studies*, Vol. 10 No. 5, pp. 417-433, doi: 10.1080/1352725042000299045.

Teutonico, J.M. (2019), "Forword", in *Values in Heritage Management. Emerging Approaches and Research Directions*, 1st ed., Getty Conservation Institute, pp. viii-ix.

Throsby, D. (2002), "Cultural capital and sustainability concepts in the economics of cultural heritage", in *Assessing the Values of Cultural Heritage*, Getty Conservation Institute, pp. 101-117.

Van Balen, K. (2008), "The Nara grid: an evaluation scheme based on the Nara document on authenticity", *APT Bulletin*, Vol. 39 Nos 2/3, pp. 39-45.

Vecco, M. (2010), "A definition of cultural heritage: from the tangible to the intangible", *Journal of Cultural Heritage*, Vol. 11, pp. 321-324.

Veldpaus, L. (2015), "Historic urban landscapes: framing the integration of urban and heritage planning in multilevel governance", [PhD Thesis 1 (Research TU/e / Graduation TU/e), Built Environment]. Technische Universiteit Eindhoven.

Veldpaus, L. and Roders, A.P. (2013), "Historic urban landscapes: an assessment framework part II", *Proceedings of the sustainable architecture for a renewable future (PLEA 2013)*, PLEA-technische Universität München, pp. 1-5, 10-12 September 2013.

西和彦, ニシカズヒコ, 境野飛鳥, サカイノアスカ, 藤澤綾乃 and フジサワアヤノ (2021), "Attributes: A Way of Understanding OUV", Doctoral dissertation, Tokyo National Research Institute for Cultural Properties, available at: 東京文化財研究所刊行物リポジトリ (nii.ac.jp) (accessed 11 September 2023).

International doctrinal documents

CoE (1968b), "Resolution (68) 12 on the active maintenance of monuments, groups and areas of buildings of historical or artistic interest within the context of regional planning", Council of Europe.

CoE (1975a), "The resolutions of bruges: principles governing the rehabilitation of historic towns", Council of Europe.

CoE (1975b), "The declaration of Amsterdam, Amsterdam: congress on the European Architectural Heritage", Amsterdam. Council of Europe.

CoE (1976), "Resolution (76) 28: concerning the adaptation of laws and regulations to the requirements of integrated conservation of the architectural heritage", Council of Europe.

CoE (1985), Convention for the protection of the architectural heritage of Europe. (ETS No. 121) Granada, Spain, available at: https://www.coe.int/en/web/conventions/full-list?module=treaty-detail&treatynum=121 (accessed 30 May 2022).

CoE (1987), "Recommendation No. R(87) 24 on European industrial town", Council of Europe.

CoE (1991), "Recommendation No. R(91) 13 on the protection of the twentieth-century architectural heritage", Council of Europe.

CoE. (1995), "Recommendation No. R(95) 9 on the integrated conservation of cultural landscape areas as part of landscape policies".

CoE. (1996), Fourth European Conference of Ministers Responsible for the Cultural Heritage, Helsinki, Council of Europe.

CoE (2001), Fifth European Conference of Ministers Responsible for the Cultural Heritage, Council of Europe, Portorož, Slovenia.

CIAM (1933), "La charte d'Athenes or the athens charter, 1933", Trans J.Tyrwhitt. Congress Internationaux d'Architecture modern. Paris, France: The Library of the Graduate School of Design, Harvard University, 1946.

ICOMOS (1964), "International Charter for the Conservation and Restoration of Monuments and Sites: The Venice Charter", ICOMOS. available at: The Venice Charter - International Council on Monuments and Sites (icomos.org) (accessed 27 June 2023).

ICOMOS Australia (revised 2013), The Australia ICOMOS Charter for the Conservation of Places of Cultural Significance (The Burra Charter): Guidelines to the Burra Charter: Cultural Significance and Conservation Policy, ICOMOS Australia, Sydney, New South Wales.

ICOMOS Canada (1983), Appleton Charter for the Protection and Enhancement of the Built Environment, ICOMOS Canada, Ottawa.

ICOMOS China (revised 2015), "Principles for the conservation of heritage sites in China", Beijing, China: ICOMOS China, available at: Principles for the Conservation of Heritage Sites in China, 2015 (getty.edu) (accessed 27 June 2023).

ICOMOS New Zealand (revised 2010), ICOMOS New Zealand Charter for the Conservation of Places of Cultural Heritage Value, Revised 2010, ICOMOS New Zealand.

ICOMOS (1981), Historic Gardens: the Florence Charter 1981, Prepared by the ICOMOS-IFLA International Committee for Historic Garden, Adopted by ICOMOS in 1982, ICOMOS, Florence.

ICOMOS (1987), Charter for the Conservation of Historic Towns and Urban Areas (Washington Charter 1987), ICOMOS, Washington, DC.

ICOMOS (1993), Guidelines on Education and Training in the Conservation of Monuments, Ensembles and Sites, ICOMOS, Colombo.

ICOMOS (1994), "The nara document on authenticity. Nara, Japan: ICOMOS", available at: The NARA document on authenticity (1994) - International Council on Monuments and Sites (icomos.org) (accessed 27 June 2023).

ICOMOS (1996a), *Principles for the Recording of Monuments, Groups of Buildings and Sites*, ICOMOS, Sofia, Bulgaria.

ICOMOS (1996b), "The declaration of san Antonio", *InterAmerican Symposium on Authenticity in the Conservation and Management of the Cultural Heritage to discuss the meaning of authenticity in preservation in the Americas*, San Antonio, Texas, ICOMOS National Committees of the Americas.

ICOMOS (1996c), *Charter on the Protection and Management of Underwater Cultural Heritage*, ICOMOS, Sofia, Bulgaria.

ICOMOS (1999a), *Charter on the Built Vernacular Heritage*, ICOMOS, Mexico.

ICOMOS (1999b), *The ICOMOS Cultural Tourism Charter, Approved by ICOMOS General Assembly at the 12th General Assembly in Mexico in October*, ICOMOS International Scientific Committee on Cultural Tourism.

ICOMOS (1999c), *Principles for the Preservation of Historic Timber Structures*, ICOMOS, Mexico.

ICOMOS (2003a), *ICOMOS Principles for the Preservation and Conservation-Restoration of Wall Paintings*, ICOMOS, Victoria Falls, Zimbabwe.

ICOMOS (2003b), *The Nizhny Tagil Charter for the Industrial Heritage*, TICCIH, Moscow.

ICOMOS (2003c), *Indonesia Charter for Heritage Conservation*, ICOMOS and Ministry of Culture and Tourism Republic of Indonesia, Ciloto.

ICOMOS (2008b), *The ICOMOS Charter on Cultural Routes*, ICOMOS, Quebec.

ICOMOS (2008a), *Quebec Declaration on the Preservation of the Spirit of Place: Quebec*, ICOMOS.

ICOMOS (2008c), *Quebec Declaration on the Preservation of the Spirit of Place, Adopted at Quebec*, Canada, October 4th, 2008.

ICOMOS (2011a), *Approaches for the Conservation of Twentieth-Century Architectural Heritage, Madrid Document 2011*, International Scientific Committee on Twentieth Century Heritage, Madrid, ISC20C.

ICOMOS (2011b), *The Dublin Principles for the Conservation of Industrial Heritage Sites, Structures, Areas and Landscapes. Joint ICOMOS-TICCIH. Adopted by the 17th ICOMOS General Assembly*, ICOMOS, Paris.

ICOMOS (2011c), *The Valletta Principles for the Safeguarding and Management of Historic Cities*, Towns and Urban Areas, ICOMOS, Paris.

ICOMOS (2011d), *The Paris Declaration on Heritage as a Driver of Development*, ICOMOS, Paris, UNESCO headquarters.

ICOMOS (2017a), *Salalah Guidelines for the Management of Public Archeological Sites*, ICOMOS, New Delhi.

ICOMOS (2017b), *Principles for the Conservation of Wooden Built Heritage*, ICOMOS, New Delhi.

ICOMOS (2021), "ICOMOS guidelines on fortifications and military heritage", available at: AGA_202111_6-1_ICOMOS_Guidelines_Fortifications_MilitaryHeritage_2021_EN.pdf (accessed 27 June 2023).

IMO (1931), The Athens Charter for the Restoration of Historic Monuments, adopted at the 1st International Congress of Architects and Technicians of Historic Monuments, International Museum Office, Athens.

SPAB (1877), "The SPAB manifesto", Short reference used in this paper, originally drafted by Morris, W., & Webb, P. and published in 1877. Society for Protection of Ancient Building (SPAB), London, available at: https://www.spab.org.uk/about-us/spab-manifesto (accessed 27 June 2023).

UNESCO Bangkok (2009), "Hoi an protocols for best conservation practice in Asia", Professional Guidelines for Assuring and Preserving the Authenticity of Heritage Sites in the Context of the Cultures of Asia. Bangkok, Thailand: UNESCO Bangkok.

UNESCO (1998), *Suzhou Declaration on International Co-operation for the Safeguarding and Development of Historic Cities*, Suzhou, available at: https://whc.unesco.org/en/documents/161 (accessed 27 June 2023).

UNESCO (2005), *Vienna Memorandum on 'World Heritage and Contemporary Architecture-Managing the Historic Urban Landscape'*, UNESCO, Vienna.

UNESCO (2011), *Recommendation on the Historic Urban Landscape, Including a Glossary of Definition*, UNESCO, Paris.

UNESCO (revised 2021), "Operational guidelines for the implementation of the world heritage convention", WHC.21/01 2021, available at: UNESCO World Heritage Centre - Document - Operational Guidelines for the Implementation of the World Heritage Convention (WHC.21/01 2021) (accessed 27 June 2023).

Further reading

Bruin, J.A.C., Bennink, R.H.J., Veldpaus, L. and Pereira Roders, A. (2013), "Knowledge is power: monitoring the world heritage site of Amsterdam, a policy analysis", *Proceedings of Built Heritage 2013-Monitoring, Conservation, Management*, pp. 18-20.

Ruskin, J. (1880), *The Seven Lamps of Architecture*, George Allen, Orpington.

Viollet-le-Duc, E.E. (1854-1868), "Dictionnaire raisonne' de l'architecture franc¸aise du XIe au XVe sie'cle", available at: Dictionnaire raisonné de l'architecture française du XIe au XVIe siècle (wikimedia.org) (accessed 27 June 2023).

CoE (1968a), "Resolution (68) 11: on the principles and practice of the active preservation and rehabilitation of groups and areas of buildings of historical or artistic interest", Council of Europe.

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