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## Adaptive reuse: a critical review

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# Adaptive reuse: a critical review

Buildings have always been reused for both pragmatic and symbolic reasons. However, out of the turbulence of the mid-twentieth century, stimulated by reactions against modern 'clean-sweep' planning, a new field of policy and practice emerged in the 1970s to respond to the burgeoning conservation movement and growing environmental awareness, which came to be termed 'adaptive reuse'. The last decade in particular has seen a flourishing of interest in adaptive reuse both on the ground and in scholarship. Today, the practice is witnessed across the architectural spectrum, from starchitects to the most modest community-generated projects. Adaptive reuse is ideologically supported through heritage and carbon reduction campaigning, and is evident in policy and education. In this paper, we critically review the rise of adaptive reuse scholarship and the emergent epistemology it represents, with a focus on the past twenty years and more recent monographs in the field. What we discern in these texts is a recent shift in the debate toward a more theoretical approach to the subject. While the debate on adaptive reuse has been continuously developing since the 1970s, it did so mostly with a focus on mapping and depicting an architectural phenomenon, and identifying tools and strategies to instruct practitioners and designers. However, more recent works on adaptive reuse are increasingly seeking to go beyond a pragmatic and practice-focused approach, and to investigate adaptive reuse in a more conceptual way. In doing so, they might open up the debate to new disciplinary contributions beyond the domain of architecture and design. This paper aims to outline and contribute to this shift.

## Introduction: the emergence of adaptive reuse

Buildings have always been reused for both pragmatic and symbolic reasons. Throughout the known history of architecture, the sheer cost and effort of construction has meant that practicality most often dictates the repurposing of edifices for new functional needs or to reflect new architectural fashionabilities, rather than start afresh. Equally, there are prominent examples of building reuse having an overt symbolic dimension, such as when associated with changes of political or religious control. The Modern Movement of the twentieth century heralded new architecture and planning throughout western countries that combine the promise of industrial production and cheap

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energy. In this new era of city-shaping, constructions were made based on the starting point of a *tabula rasa* and far fewer buildings were to be reused. However, this was proven to be a relatively brief historical moment. Out of the turbulence of the mid-twentieth century, stimulated by reactions against such 'clean-sweep' planning, a new field of policy and practice focused on reusing rather than replacing answered to the blooming conservation and environmental movements, rapidly rising energy costs. These emergent architectural praxis since the 1970s are saving as well as transforming pre-existing old buildings.<sup>1</sup> This came to be named 'adaptive reuse'<sup>2</sup> which became common in those years when, in parallel to projects on the ground, a new literature advocating and chronicling adaptive reuse began to develop.<sup>3</sup>

Thus, the idea of adaptive reuse as a field of study and practice, rooted in and linked to, but distinct from the longer history of building conservation, has been with us now for around half a century. However, the last decade or so has seen a new rise of interest in adaptive reuse both on the ground and in scholarship. The practice today is witnessed across the architectural spectrum, from starchitects to the most modest community-generated projects. Adaptive reuse is a flourishing and varied practice activity, supported by a rising fashion for its associated aesthetics with clients and the wider public. Its perceived potential has captured attention within the architectural and conservation communities, and beyond. While the architectural world has embraced it as a key, growing, and creative design practice with a steady rise in the number and variety of projects worldwide, adaptive reuse is nowadays widely regarded to play a key role in strategic intervention in urban settings to address the increasingly urgent questions, as well as cultural and economic challenges, of how to deal with redundant building stock that is growing and heterogeneous? Policy advocating adaptive reuse was once confined to heritage protection, but is now found more widely.<sup>4</sup> For example, the European Union is developing policy in this area, as well as funding research and innovation projects under its Horizon 2020 programme. Carbon reduction campaigning, prompted by the climate emergency, has given further impetus to adaptive reuse as a preferable strategy to demolish and replace; the *Architects Journal's* #RetroFirst campaign is a prominent example in the UK. Adaptive reuse has also begun to find a greater place in architectural education, with some schools specialising in this area.<sup>5</sup>

Hence, since the early 2000s, the debate on adaptive reuse has developed momentum and has become an increasingly relevant, recurrent, and a mainstream topic. Most of the authors who have been writing about adaptive reuse in the past ten years advocate its crucial role in responding to many of the challenges posed by the contemporary world. Furthermore, as Sally Stone points out, the very concept of 're-use' reflects a cultural attitude proper to our time. 'Reduce, Reuse, Recycle', says Stone, 'is a slogan or statement that epitomises the twenty-first century post-industrial society's need for everything to be useful, to have a purpose and be interesting, to be authentic or real.'<sup>6</sup>

In this context, it is not surprising that a burgeoning literature concerned with adaptive reuse has been developing in recent years. This paper follows earlier literature reviews on adaptive reuse.<sup>7</sup> Our aim is to both update these reviews, given the volume of new work that has emerged, but also to bring a sharpened and extended focus on the most recent theory-oriented scholarly contributions in the field, and to extend discussion beyond solely architecture-related and design-oriented considerations. Due to the sheer number of publications, we primarily concentrate on books, with only passing reference to shorter works. We classify books into three categories: 'atlases of examples', 'handbooks', and 'theoretical monographs', although these are not neat divisions, with many of the books encompassed and detailed elements that belong to two or all three of our categories. 'Atlases of examples' mostly seek to describe and map practices according to a variety of criteria; 'handbooks' have more of a 'how to do' emphasis; and 'theoretical monographs' are characterised by an attempt to unfold and conceptualise ideas of adaptive reuse. In drawing this literature overview, our goal is to critically review the rise of adaptive reuse scholarship, and the emergent epistemology it represents, setting the framework for a reflection on adaptive reuse not only as practice but also as a conceptual framework, extending beyond a historical focus on design.

### **Adaptive reuse: a literature overview**

Initially, the term adaptive reuse was mostly associated with literature advocating an approach to planning and architecture that was conservation-orientated, in a decisive break with ideas of 'clean-sweep' planning, common (although never ubiquitous) in the 1950s and 1960s. At that point, adaptive reuse publications can be linked with a particular strand of the conservation movement, which was moving beyond the monumental focus of its antecedents to engage with a wider urbanism. As such, adaptive reuse was seen as part of making 'a good city' as much as protecting an important cultural inheritance. In this respect, its epistemology developed from key writers about the city as much as the seers of heritage practice. For example, Jane Jacobs wrote about the importance of old buildings as a flexible, low-rent resource critical for dynamic urbanism.<sup>8</sup>

A strong focus in 1970s writings was first and foremost to demonstrate that adaptive reuse is practical, achievable, and economic, and to posit it as an architectural intervention as much as building anew. The artistic and creative possibilities of adaptive reuse had been highlighted by an emergent architectural praxis; the work of Carlo Scarpa and projects such as Castelveccchio Museum became talismanic in this process. Throughout the 1980s and 1990s, there was a steady accumulation of further literature, drawing together the conservation focus, the creative possibilities, and issues of practicality, with something of a shift in emphasis towards demonstrating excellence, both in terms of reflections on, on the one hand, conservation principles and, on the other, the quality of new design used as part of often quite radical interventions in

changing use. Thematically, there was a notable and enduring emphasis on the legacies of industrialism and re-using redundant industrial buildings and structures.<sup>9</sup>

In the past twenty years, publications devoted to adaptive reuse have been proliferating so rapidly that it is hard to keep up with the flow of literature generated. Writings are wide in number and heterogeneous in their focus and scope, with contributions by academics, practitioners, and journalists, but often with little cross-reference between them. Such publications encompass scholarly studies, including papers in international academic journals, monographs, edited volumes, conference proceedings, doctoral theses, research reports, and didactic materials, as well as articles in architectural magazines and a number of popular publications, such as books and periodicals aimed at the non-specialist public.

Therefore, the selection of the works to be discussed in this literature review required careful thought and filtering criteria. First, the array of publications discussed includes only scientific and scholarly works, chiefly monographs, straightforwardly relating to the concept of 'adaptive reuse' (that is where the authors overtly use the term, or equivalent, to define the scope of their work), and with a principal focus on those published within the past twenty or so years, i.e. from the turn of the millennium onward to the early months of 2020. Our selection has been further limited to texts written in English. This Anglophone literature, mostly originating in North America and Western Europe can be hypothesised as representing particular building cultures and geographies of approach. This is a limitation; research has shown how adaptive reuse even across Europe is a highly variable practice, conditioned by a range of factors including governance and regulation, resources and social attitudes.<sup>10</sup> Finally, it needs to be noted that almost all of the texts considered fall within the architectural and design spheres. This is not because of any intentional disciplinary or thematic filtering, but because publications dealing with adaptive reuse beyond design-related fields are, to the authors' knowledge, very few — a consideration that will become relevant in the conclusions of this article.<sup>11</sup>

### *Journal articles*

Peer-reviewed articles focused on adaptive reuse, with a few exceptions, are mostly subject-specific works, using detailed case study analysis.<sup>12</sup> Broadly speaking, we can identify two main types of papers. The first comprises texts aimed at discussing specific problem-oriented design approaches and technical solutions for adaptive reuse interventions such as construction, engineering, restoration and architectural preservation techniques, models for assessing adaptive reuse interventions as part of the building life cycle, decision-making, sustainability, or the evaluation of adaptive reuse potential. The second — typically those published in architectural design journals and magazines — focuses on cases of reuse intervention, usually recent ones, which are described and analysed with the support of numerous images and drawings, mostly focused on the design aspects.

Within this general framework, the journal *IntLAR (Interventions and Adaptive Reuse)*, a yearly publication by the Department of Interior Architecture of Rhode Island School of Design (RISD), is an unusual case. The RISD runs bachelor and master's courses on interior design and adaptive reuse, and the *IntLAR* journal reflects this focus, with each issue gathering contributions around a specific theme. Relatively short papers generally revolve around the analysis of one case study, usually complemented by a plentiful supply of images and drawings. Thus, whilst *IntLAR* is the only journal solely devoted to adaptive reuse, it also has a very particular position in terms of its disciplinary scope and rationale; thus, it adopts a format that makes it a hybrid publication in-between a scholarly journal and an architectural edited volume.

### *Monographs*

We have counted over thirty books devoted to adaptive reuse published in English in the past twenty years, including scholarly publications and more broad-target publications. Aware of the limits and the potential reductive nature of any taxonomy, we have organised our discussion by means of three categories mentioned — 'atlases of examples', 'handbooks' and 'theoretical monographs' — in a broad typology of publication that should not be understood as defining closed categories, but as a means to illustrate different approaches. Space precludes us from considering edited volumes and conference proceedings.<sup>13</sup> Although the heterogeneity of the contributions included in these publications reflects and represents the rich variety of the possible approaches, points of view, and research practices unfolding around adaptive reuse, it also implies that edited volumes cannot be bracketed under a single overarching working hypothesis and each chapter should be analysed on its own.

*Aatlases of examples — illustrating adaptive reuse.* 'Atlas of examples' of reuse interventions are based on a collection of case studies and have a chiefly illustrative purpose. They predominantly revolve around the relevance of adaptive reuse practices toward one or a set of specific contemporary architectural and planning issues and challenges — most commonly the reuse of former industrial buildings and former industrial areas — and use a large number of examples to illustrate the book's thesis. They frequently adopt a common structure consisting of one or more introductory chapters presenting the book's overarching topic and framing adaptive reuse within this, before introducing the case studies and their selection criteria. This first part is followed by the case studies, which constitute the core of the book. The examples are selected in relation to the book's overarching topic, presented one-by-one through a rich repertoire of images and sometimes design drawings, and by a short commentary text that describes each case, with a focus on its architectural, spatial, and material features. The examples are usually ordered following typological (in relation either to the original function of the building or its new given use), chronological, and/or geographical criteria, and in some cases, by adopting additional or alternative analytical criteria commonly conceptualised as

'strategies of intervention'. Most atlases lack a conclusive section pulling together the book's introduction and the presentation of the case studies.

One of the first such atlases was Sherban Cantacuzino's *New Uses for Old Buildings* (1975). Cantacuzino's aim was to demonstrate the potential relevance of adaptive reuse toward a series of urban challenges of the time — notably urban deindustrialisation, the uncontrolled, low-quality growth of cities' outskirts, and city centre depopulation. In the introduction, he presents adaptive reuse as an architectural practice that can counterstrike such phenomena by avoiding large-scale demolition and support more thoughtful urban planning and urban intervention. The book draws on a series of articles published in the journal *Architectural Review* in 1972 and presents seventy-three case studies. These are used to support the author's wish to 'make people aware of the value of industrial buildings [...], and underline the urgent need to find new uses in order to avert irreparable loss through demolition'.<sup>14</sup>

More recent examples of atlases include publications by authors from diverse backgrounds, many of which can be positioned as in-between architectural and broad-targeted publications. By way of illustration, the volume *Build On* (2009) is a 240-page, largely photographic volume, collecting 84 mainly western European projects standing for different modes of interventions on pre-existing buildings, compiled by Robert Klanteen and Lukas Feireiss, authors of similar books on different subjects.<sup>15</sup> Other examples include the volume by Chris van Uffelen *Re-Use Architecture* (2011),<sup>16</sup> including one hundred examples organised typologically according to their new function; Pierre Thiebaut's *Old Buildings Looking for New Use* (2007),<sup>17</sup> with sixty-one European case studies grouped by the original function of the pre-existing building; and the two publications by Antonia Edwards, founder of the blog *Upcyclist*.<sup>18</sup>

Some atlases are more precisely targeted at designers and architects. These usually include many examples illustrated not only by images but also drawings, typically as plans and elevations, interviews with architects and designers, and with longer and more articulated introductory sections, including contributions aimed at providing a general theoretical framework of the whole book. For example, *Architecture Reborn* (1999) by Kenneth Powell<sup>19</sup> includes over forty examples of adaptive reuse projects designed by major architectural firms in Europe and the US in the previous decade, organised according to new function and presented within the overarching author's thesis that adaptive reuse is an act of creation beyond the conservation of architectural spaces. Other examples of atlases chiefly targeted at designers include the edited volumes by Christian Schittich, *Building in Existing Fabrics* (2003),<sup>20</sup> and *The City as a Loft* (2012)<sup>21</sup> by Martina Baum and Kees Christiaanse, and the books *Adaptations* (1989)<sup>22</sup> by Philippe Robert, and *Old & New* (2010)<sup>23</sup> by Frank Peter Jager.

Even though most such atlases have a chiefly illustrative approach and descriptive scope, some involve a thoughtful selection of projects, accurate archival and field research, and, in some cases, include insightful argumentation. For example, Francesco Cherchi's introductory chapter of his book *Typological Shift: Adaptive Reuse of Abandoned Historic Hospitals in Europe* (2016)



on the reuse of disused historic hospitals in Europe proposes an interpretation of adaptive reuse as a process of 're-signification of form in the absence of the original function'.<sup>24</sup> Adaptive reuse is considered as a transformative process that starts with a moment of disuse and 'neglect'. In Cherchi's interpretation, disuse is not abandonment, a gap in the building life span, or an end, nor merely the condition preliminary to a reuse action, but it is rather a necessary moment of 'functional suspension', a phase of a process of 'typological shift', i.e. an evolution of what already exists into a new asset.<sup>25</sup> Cherchi does not further develop this idea but, as we discuss in our conclusion, conceiving adaptive reuse as a 'shift', and addressing building disuse and neglect within such process, have the potential to open up the debate in new directions.

Another example is *Architectural Voices* (2007) by David Littlefield and Saskia Lewis which revolves around the idea that buildings have a 'voice'.<sup>26</sup> Through examples and interviews, the authors explore how architects and designers attend to the pre-existing building by listening and attuning to it, to apprehend its affordances to be subsequently transformed by design intervention. Each intervention is discussed in an essay-like chapter, involving site visits, historical research, interviews, and personal, almost autoethnographic and sensory, observations, and in doing so offering an example of a possible different approach to the case-study-based analysis that characterises atlases.

Finally, 'research books' are another distinct form of atlas, collecting case studies analysed as part of a wider research project, often involving fieldwork supported by research questions and a theoretical background, linking to our category of 'theoretical monographs' below. Examples of this kind of publication are the volumes *Re-cycle* (2012),<sup>27</sup> *Reduce Reuse Recycle* (2012),<sup>28</sup> and *Re-cycle Italy* (2017),<sup>29</sup> which all frame reuse through the concept of recycling, and conclude with a manifesto positing reuse as an environmentally aware as well as economic and socially sustainable architectural intervention in the built environment.

**Handbooks — instructing adaptive reuse.** Most 'handbooks' (and some of the texts we classify as 'theoretical monographs') use the case study format found with atlases. Usually targeted at practitioners and architecture and design students, handbooks use case studies to expound strategies and methodologies of adaptive reuse, rather than to illustrate practices and trends. The purpose of handbooks is thus to identify and define approaches, sets of informed process-oriented design strategies, and methods for adaptive reuse interventions, which are exemplified by selected projects.

Handbooks also have their origins in the 1970s. *Industrial Rehabilitation* (1984) by Peter Eley and John Worthington was developed from a series of articles published by the authors from 1978 to 1979 in the *Architect's Journal*.<sup>30</sup> Including a selection of 23 examples of former industrial buildings refurbished for new uses, the volume provides a step-by-step methodology for the development of adaptive reuse interventions, with an emphasis on financial viability. There are more recent volumes similarly focusing on key tech-

nical, architectural, legal, and financial principles of building adaptation, include the books by David Highfield *Refurbishment and Upgrading of Buildings* (2000),<sup>31</sup> the two volumes by Derek Latham *Creative Reuse of Buildings* (2000),<sup>32</sup> and the publication by James Douglas *Building Adaptation* (2002).<sup>33</sup>

Other non-Anglo-Saxon recent examples of handbooks include *RE-USA* (2017) by the Italian scholar Matteo Robiglio.<sup>34</sup> The book is intended as a 'toolkit'; focusing on the re-functionalisation of former industrial buildings, Robiglio uses the analyses of twenty American examples to propose an eight-step method for the reuse of former factories, presented by the author as a key strategic architectural and urban design approach to the challenges posed by contemporary post-industrial cities and their industrial legacy. *Reuse, Redevelop and Design* (2020),<sup>35</sup> led by Paul Meurs and Marinke Steenhuis, focuses specifically on promoting adaptive reuse as a 'heritage solution' in the Netherlands, with five essays encompassing partnership working, funding and design, followed by twenty examples primarily but not exclusively from the Netherlands. *Architecture in Existing Fabric* (2007)<sup>36</sup> by Johannes Cramer and Stefan Breitling, German practitioners trained in the field of architecture and archaeology, describe their intention as 'to provide orientation, make connections and explain approaches'.<sup>37</sup> Similar to other handbooks, their volume adopts a manual like structure, with each chapter addressing different practical design issues involved in a reuse intervention. They focus on practical and technical aspects, starting from the planning process and preliminary surveys, through to the detailed design stage, including discussion of possible design strategies.

The identification of design strategies is a recurrent approach in many publications focusing on adaptive reuse, handbooks in particular. Worthy of special mention are works by Graeme Brooker and Sally Stone.<sup>38</sup> Brooker and Stone have been writing, researching, and publishing on adaptive reuse since the early 2000s. In 2004 they wrote one of the best-known monographs on adaptive reuse, *Rereadings*, recently followed by a second volume *Rereadings 2* (2020), is not a step-by-step manual-like text nor a theoretical text as such. *Rereadings* is an attempt to grasp and describe an emerging architectural phenomenon 'based on an understanding of the theoretical method of the interpretation and adaptation employed by the architect or designer'.<sup>39</sup> Brooker and Stone put forward a three-stage process for adaptive reuse interventions — Analysis, Strategy, and Tactics<sup>40</sup> — each of which is broken down into different tasks and illustrated by a large collection of examples.<sup>41</sup> The authors ground their approach to adaptive reuse as 're-reading' on Rodolfo Machado's 1976 idea of 'remodelling', to propose an approach to the reuse design process focused on the relation between the new intervention and the existing building.<sup>42</sup> Their work intersects the two categories so far described: it adopts an 'atlas' format largely relying on case studies and pursues a methodological and design-centred scope associated here with 'handbooks'. With its refined analytical and critical approach, Brooker and Stone's work transcends these categories and steps towards the texts we characterise as 'theoretical monographs'.

*Theoretical monographs — thinking adaptive reuse.* ‘Theoretical monographs’ can be distinguished from the publications discussed so far by their overt intention to develop a reflection on adaptive reuse from a theoretical point of view.<sup>43</sup> In this section, we focus briefly on three recently published theoretical monographs on adaptive reuse, as well as one earlier work. Each articulates and unfolds an interpretation of adaptive reuse not only as a design practice but also as an approach to architecture and the built environment.

Bie Plevoets and Koenraad Van Cleempoel’s *Adaptive Reuse of the Built Heritage* (2019) builds on a series of journal articles jointly published by the authors and Plevoets’s doctoral dissertation, which altogether have played a significant role in chronicling the development of adaptive reuse literature. The book’s aim is ‘to identify the opportunities and address the problems related to the adaptive reuse of buildings and sites in a theoretical manner’.<sup>44</sup> In its first part, the volume offers an overview on the state of the art of the debate on adaptive reuse, presenting its historical underpinnings, setting definitions, and outlining key approaches and core issues. In the second part, following an atlas format, these reflections are complemented by twenty brief case studies that span from ancient to vernacular and spontaneous examples of adaptive reuse, passing through post-1945 interventions, to more recent contemporary projects including museums and housing projects, as well as urban rehabilitations. The book as a whole offers interesting insights into different aspects of adaptive reuse, touching upon issues related with the relationship between adaptive reuse interventions and urban regeneration, ideas of heritage, ruins and ruin aesthetic, meaning and memory. Of the texts considered in this section, this book can be most clearly located in a conservation-orientated tradition of writing about reuse. Following a foreword by Sally Stone that focuses on ideas of authenticity, Plevoets and Van Cleempoel settle on the concept of *genius loci*, or sense of place, as an organising framework for intervention. It is considered as a generative rather than a revealed concept, and therefore better able to respond to the future-orientated practice of adapting and reusing. Ultimately the book aims to set the framework of the debate on adaptive reuse and demonstrate the relevance of reuse toward contemporary issues related to architectural interventions into the built environment. This is an argument about the disciplinary autonomy of adaptive reuse, which, say the authors — has a ‘complexity and specificity’ — that ‘make it a discipline in its own right, intersecting architecture, interior design, planning, engineering, and conservation’.<sup>45</sup>

Also laying claim to adaptive reuse as a distinct field, Liliang Wong’s book *Adaptive Reuse* (2017) has the aim to ‘to understand and convey the approaches of adaptive reuse through the examination of its place in history, its relationship to adjacent fields, its place within shifting norms of art, culture and society and its typological differences, so as to illuminate a neglected subject in its own light’.<sup>46</sup> Architectural practice has been underpinned by principles that have been explored, discussed, and theorised for millennia — from, for example, Vitruvius, Le Corbusier, to Koolhaas — the same principle, claims Wong, should be applied to adaptive reuse, as a rela-

tively recent but distinct architectural process. Her book unfolds around a central question: what determines the success of an adaptive reuse intervention? To answer this question, Wong discusses the tension between erasure and continuation, between preserving and building anew, and the inherent dual nature of any adaptive reuse intervention. She focuses on the 'host' building and suggests that it has a 'unique DNA'<sup>47</sup> and that a project of adaptive reuse is distinguished from a simple change of function by 'the presence of soul, the essence of the host building'.<sup>48</sup> When an equilibrium between the host and the intervention is not reached, the result is a subversion of the built structure of the existing building, with the adapted building affected by a 'Frankenstein Syndrome', due to the introduction of a new and incompatible order.<sup>49</sup> With this concept at the core of her work, she discusses adaptive reuse in relation to the historical debate on preservation and restoration, before focusing on the architectural features of pre-existing buildings and their role in the reuse design process. This leads her to introduce different possible approaches to reuse, and outline strategies of interventions exemplified through selected examples, finishing by suggesting that adaptive reuse interventions are analogous to the second violins in an orchestra, with the host building the first. Building on her own expertise as a practising architect, her teaching and research experience at the Rhode Island School of Design, and insights gathered from being one of the editors of the *IntJAR* Journal, Wong gives a wide interpretation of what adaptive reuse is by understanding it as an (interior) architectural practice.

A quite different approach is taken by Fred Scott. His book, *On Altering Architecture* (2008), is the oldest of our selected theoretical monographs on adaptive reuse, pre-empting the others by almost ten years.<sup>50</sup> Its aim is 'to confer on the process of alteration a certain consciousness, for the purpose of supporting a radical intelligence with regard to the work' and it is 'intended to lay out a geography of a discrete topic within the general realm of the discipline of the built environment'.<sup>51</sup> The book moves from the standpoint that 'alteration', including but extending beyond adaptive reuse, is a practice that is not the prerogative of any specific design discipline, teaching, or professional realm. Alteration is explored in comparison and in contrast with 'pure architecture' and architectural preservation. Scott is the only one of the authors considered here to thoroughly relate his discussion to more mainstream architectural theory including, for example, modernists such as Cedric Price, who opposed building reuse. The book does not follow the typical model of theoretical chapters followed by cases studies. In Scott's case, each chapter is a stand-alone reflection in relation to a specific issue, making it difficult to effectively summarise. However, a principal idea running through the book understands adaptive reuse as 'alteration', an 'agent of re-occupation', and as a design practice peer to, but distinguished from, other architectural practices.<sup>52</sup> In an adaptive reuse intervention, Scott argues, the disjunction between the function and the form (also discussed by Cherchi) involves reflections on values and meaning, as well as aesthetic, formal, and architectural choices; this makes alteration a complex design practice, distinguished from

pure architecture, and an alternative to preservation and demolition. Like Wong, he uses a musical performance analogy, with alteration 'more like a duet than a solo'.<sup>53</sup> Alteration, Scott points out, is to be understood as an 'act of transition or translation, from the past into the present, with logically also a consideration for the future of the host building'. Otherwise, he says, an adaptive reuse intervention would be 'doubly destructive' because, on the one hand, it would alter the host building in a deep and radical way, removing any possibility of conservation traditionally understood, and, on the other hand, it would lose 'the hope of a new building'.<sup>54</sup>

Sally Stone proposes the same metaphor of adaptive reuse as an act of 'translation' in her book *Undoing Buildings* (2020), where the 'the architect or the designer can uncover the meaning within a place, activate, and therefore use it to instigate and liberate a new future'.<sup>55</sup> As with Scott, the idea of adaptive reuse as translation implies a process of reading and understanding a building, 'uncovering meanings', selecting and interpreting them, and creating connections from the past in the present for the future.<sup>56</sup> Stone develops her reflections on adaptive reuse through critically exploring different practices, methods, and architectural approaches to reuse. Each chapter deals with a different issue pertaining to the process of 'undoing buildings', a concept that challenges the building as a singular, stable structure with a single meaning. Topics covered include the role of arts, urban planning, temporary actions, conservation, sustainable design, and digital technologies, before eventually focusing on two main design strategies that she names 'taking away' and 'making additions.'

Two more books warrant brief mention here due to their different approaches to adaptive reuse. The first is by Graham Moon, Robin Kearns, and Alun Joseph, *The Afterlives of Psychiatric Asylums* (2015).<sup>57</sup> It is not a book about adaptive reuse as such, but about the recycling of redundant asylum buildings in relation to their continuing associated meaning and memories, with examples from Canada, New Zealand, and the United Kingdom. What makes this book particularly noteworthy is that, unlike the others considered so far, the authors are not architects. Julia Hegewald and Subrata Mitra's *Re-use: The Art and Politics of Integration and Anxiety* (2012) is another unusual example of a book on adaptive reuse developed from a non-architectural perspective as a collection of fourteen essays with contributions from the field of humanities and social sciences, exploring reuse practices of different kinds in art, architecture, and literature in the past and present within the region of south Asia.<sup>58</sup> Moon, Kearns, and Joseph are human and socio-cultural geographers; Hegewald and Mitra are respectively an art historian and a political scientist. Little referenced in the dominant architecture and design discourse, these books present new ideas and perspectives on adaptive reuse. For example, the concept of 'strategic forgetting and selective remembrance' developed by Moon, Kearns, and Joseph<sup>59</sup> was deployed and further articulated by John Pendlebury, Yi-Wen Wang, and Andrew Law in their paper on the adaptive reuse of 'uncomfortable heritage' (2017).<sup>60</sup> Equally, however, it should be noted that neither Moon, Kearns, and Joseph nor Hege-

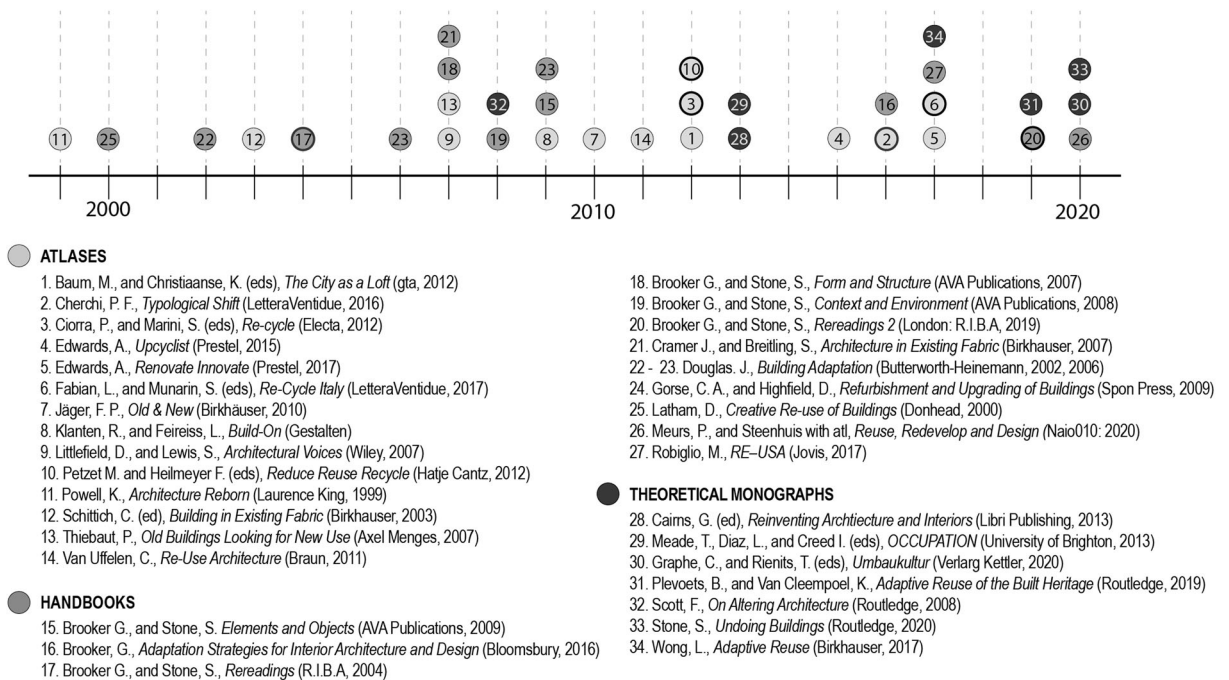
wald and Mitra make any reference to the large corpus of architectural studies in the field of adaptive reuse discussed above.

### **Discussion: tracing the evolution of the debate**

Our first goal with this paper is to provide a critical literature review on adaptive reuse, tracing the evolution of the debate. In this section, we discuss observations drawn from the literature presented to identify possible criticalities and limits in the current discourse. In doing so our aim is to contribute to this debate and especially to the recent and ongoing shift toward a more speculative approach to the subject; to that end in the subsequent conclusions, we outline possible directions for further development.

First, if we chart the texts discussed in this paper on a timeline (Fig. 1), we can observe that while the majority were initially pursuing a practice-oriented scope, works deploying a more theoretical and speculative approach have subsequently emerged. Many of the earlier publications adopt the atlas and/or handbook models and were aimed at mapping and depicting an emerging phenomenon, illustrating its potential relevance, claiming for adaptive reuse's potential as a sphere of creative design, and identifying tools, strategies and approaches to instruct practitioners. More recent publications, principally but not solely those that we have classed as theoretical monographs, are characterised, however, by a theoretical will and are increasingly seeking to go beyond a pragmatic and practice-focused approach, and to investigate adaptive reuse in a more conceptual way. Despite their different approaches and ideas on adaptive reuse, these publications enquire into principles and epistemologies for adaptive reuse. In doing so, we argue, they put forward new interpretative strands worthy of further development and, crucially, the possibility of opening up debates on adaptive reuse to new and beneficial interdisciplinary contributions beyond the domain of architecture and design.

Second, as discussed, the majority of the publications on adaptive reuse reviewed have been written by practising architects and/or architectural scholars; this has contributed to making adaptive reuse a subject matter primarily of design disciplinary debate so far. However, notwithstanding the relatively small arena this represents, and the substantial quantity of publications released on the topic in the past twenty years, we found little cross-fertilisation and synergies among these works. This is evident even with theoretical monographs, which whilst referencing recurrent mainstream texts, draw little on each other's ideas, be it to confute or incrementally develop them. Equally, until recently this literature has rarely engaged with contributions, ideas, and theories from other disciplines. Thus, although the debate on adaptive reuse have been incorporating new issues emerging in wider architectural debate since the 1970s, it mostly developed within a disciplinary continuity, both in terms of its core topics and argumentative approaches.



This is evident in the recurrent common structure of books on adaptive reuse, largely based on an atlas model, as well as in their dominant leitmotiv metaphors. Stemming from Machado's 1976 essay, this is most obvious with the use of palimpsest to describe an adapted building, but metaphors are a recurrent feature of the literature; the works we have outlined relate adaptive reuse to types of performance (e.g. music) and literary process (e.g. (re)writing, (re)reading, and translation).<sup>61</sup> There are also inescapable references to Ledoux, Ruskin, and Morris, and to post-1945 talismanic projects such as Scarpa's Castelvecchio, which has been repositioned from a project of critical restoration, inherently tangled with the peculiar post-Second World War Italian cultural and architectural context, to a foundational example of adaptive reuse (referenced extensively in the books we discuss by Scott and Stone, but also found in many others).

Above all, this continuity is evident in a focus on design strategies of intervention, revolving around two key issues; first, the definition and relevance of adaptive reuse as a designerly deed, an architectural practice distinct from but equal to 'pure architecture' and, second, the dichotomous relationship between the pre-existing building to be reused and the new intervention. Hereafter we discuss the implications and limits of this and, in our conclusions, the identification of some lines of enquiry, which in our opinion are worth further study, for their potential to advance debate, including from a more interdisciplinary perspective.

Figure 1.  
Timeline of the publications discussed in the paper, organised by analytical categories: 'atlases of examples', 'handbooks', and 'theoretical monographs', compiled by authors Lanz and Pendlebury, 2020

Perhaps not surprisingly, within the wealth of writing on adaptive reuse, there is no common and shared agreement on what adaptive reuse precisely is and what it entails. The literature documents a vast number of projects that show that the idea of adaptive reuse is freely interpreted in a multitude of ways. Whilst initially there was a focus on the architecturally led conservation and reuse of heritage buildings, with a preponderance of examples of former industrial buildings, adaptive reuse today can involve any type of architectural asset, regardless of size, prior or new function, single edifices, big architectural complexes and infrastructures, as well as open spaces, gardens, squares, urban interstices, and much more. Interventions presented in these publications are also hugely diverse in their outcome and in the undertaking they imply, spanning prestigious high-profile commissions by so-called architects, to step-by-step crowdfunded projects, and from conservative architectural preservation interventions to projects involving significant demolition, new construction, and addition, to more modest, ephemeral, and temporary projects, reversible interventions, and art-based actions.

Similarly, scouring these texts for a definition, we find quite different interpretations about what adaptive reuse is. First, the range of terms used to name the process of 'adaptive reuse' is extremely wide, including remodeling, rewriting, rereading, undoing, adaptation, recycling, alteration, upcycling, and reactivation. Along with these terms introduced into the discourse during recent decades, we also came across other more commonly used terms in wider architectural scholarship and practice, such as renovation, restoration, preservation, conservation, repair, renewal, refurbishment, conversion, modernisation, retrofitting, rehabilitation, and maintenance. Their use is anything but consistent; sometimes they are used as synonyms of adaptive reuse, elsewhere to name distinct elements of the adaptive reuse process itself. Whilst this can be seen as an ongoing attempt to define critical analytical categories and positions for the study and practice of a still-emerging field, the plethora of different terms results in disparate definitions that weakens the ability to establish a common ground for debate. Not by chance, several authors dealing with adaptive reuse included chapters or sections aimed at clarifying terminology, and in the attempt to fix definitions.<sup>62</sup>

More conceptually, the way adaptive reuse is understood also varies significantly, not least because different authors, while sharing a background in the field of architecture, have disciplinary positions, traditions, and agendas. There are common threads of, on the one hand, demonstrating the relevance of adaptive reuse as part of the world of architectural design and, on the other, to posit adaptive reuse as an architectural practice distinct from but equal to building from scratch (with a degree of ambiguity about the relationship between these two positions). Some authors identify adaptive reuse as the practice of intervening on the built environment at large. Plevoets and Van Cleempoel, for example, define it as 'working with existing buildings'.<sup>63</sup> Wong describes it as the act of 'transforming an unused or underused building into one that serves a new use', including 'not only the reuse of existing structures but also the reuse of materials, transformative interventions, continuation



of cultural phenomena through built infrastructure, connections across the fabric of time and space and preservation of memory'.<sup>64</sup> These authors, by proposing a wide definition of adaptive reuse, aim to demonstrate the potential and richness of adaptive reuse as a field of research, practice, and teaching, and to eventually posit it, more or less overtly, as a discipline in its own right. Some other scholars, conversely, look at adaptive reuse as a very specific practice within a specific disciplinary realm and as a branch and a prerogative of a specific teaching research and practice field. Above all, this is evident with the field of interior architecture.<sup>65</sup>

## Conclusions

As a first consideration, we can conclude that the search for a definition or consensual description of what adaptive reuse is remains unresolved and is perhaps eventually pointless. What emerges from the corpus of literature on the topic, and the projects there featured, is that the practice of adaptive reuse does not depend on the type of architectural asset involved, nor on its size, nature, former function, and heritage status. An adaptive reuse project is not defined either by particular design methods or approaches. However, this broadness of field brings complications. While understanding adaptive reuse as a synonym of intervening in the built environment at large, as some authors propose, might be effective in demonstrating its richness, this interpretation risks widening the scope of the debate to the extent that the very idea of adaptive reuse may lose traction. Equally, a definition of adaptive reuse from too rigid a disciplinary position maybe too limited in scope and lack relationality, and thus fail in accounting for the complexities of a reuse intervention. Above all, seeking a definition by looking at adaptive reuse solely as a design-related matter, and with a chief attention to the identification of design strategies, may preclude interdisciplinary connections, both from a practical and theoretical point of view, and limit possible contributions to the debate from different disciplines within and beyond the architectural and design domain. While the theoretical monographs discussed do draw from wider literatures — most commonly in the creative arts — they generally do so in service of the dominant design paradigm as there is little sense of opening up productive dialogue with other disciplines. Most obviously, connections can and should be made in the social sciences with critical heritage and memory studies and cultural geography, but with potential from other disciplines including literature and language studies.

Second, as we have referred to, one of the dominant leitmotifs in the debate on adaptive reuse concerns the relationship between the old and the new. For example, Wong explores this through the metaphor of (avoiding) the 'Frankenstein syndrome'. Beyond the different metaphors used, adaptive reuse has been mainly discussed as a moment of disjunction between form and function, assuming an oppositional duality of the old (the pre-existing building) versus the new (the architectural reuse intervention). However, there are some questionable assumptions here, not often made explicit. Does the 'form' equal the

façade and the 'function' equal the interior? Is the old equal to the building exterior with the possibility of an ever-changing new building interior? Where does the identity and the memory of a building lie? Is it only in its exterior form and style or is it in its lived interiors? From this perspective, the pre-existing building risks becoming a passive host for a new use, a 'shell', suggesting a rift between the container and the content. Such an approach may lead to an understanding of adaptive reuse practice as little more than a well-designed inner wrap-up and sophisticated form of façadism, renouncing an investigation of the deeper entailments of working *within*, i.e. *with*: together and *in*: inside, a pre-existing building. By understanding adaptive reuse solely as a specific design deed limited to the insertion of a new intervention into a pre-existing structure, the focus is inevitably restricted to design strategies and the material and physical aspects of adaptive reuse. By thinking about space as assumed and not produced, such an approach eventually fails to consider the broader and complex transformative agency of adaptive reuse practice. It is our contention, therefore, that an uncritical focus on an oppositional duality between the new and the old — and the architectural intervention of adaptation necessary to overcome it — overlooks the potential of considering adaptive reuse as a *process* may offer. Looked at through this lens of process — rather than as a field of practice, an intervention of design problem-solving, a branch of a discipline or a discipline in its own right — may enable a critical account of reuse choices and their implications beyond a limited architectural perspective.

Therefore, in this final section, it is our intention to emphasise the theoretical potential of moving away from understanding adaptive reuse only as an architectural design *intervention*, to adaptive reuse as a *process*. To do this, we bring together some of the ideas in the literature discussed, which can contribute to developing a more all-encompassing processual approach to adaptive reuse. Whilst an understanding of adaptive reuse as process is not articulated as such in the work we analysed, it is implicit in some cases, especially those proposing concepts like 'shift', 'translation', and 'reoccupation'.

The idea of 'shifts', proposed by Cherchi, involves looking at adaptive reuse as a process of transformation expanded in time.<sup>66</sup> The idea is introduced to address the disjunction between form and function but, interestingly, it leads him to account for the often-overlooked disuse moment in the life span of a building as a phase of reuse and not simply as the practical precondition for it. Similarly, thinking of adaptive reuse as an act of 'translation' implies an understanding of reuse as a complex cultural and architectural process, and again brings a different position to consider the relationship between the old and the new.<sup>67</sup> The very idea of the 'pre-existing' building as opposed to the new intervention can be framed quite differently from this perspective, because translation implies continuity and synchronic coexistence of the new and the old, not rupture. Furthermore, the concept of translation, as Stone points out, opens the debate on adaptive reuse to further reflections on the ethics of uses of the past, beyond the aesthetics of adaptive reuse. Translation, Stone continues,

implies interpretations, selections, and appropriations of the past that necessarily 'align with some readings, but against others'.<sup>68</sup>

The idea of adaptive reuse as 'occupation' and 'reoccupation' is also worth further thought. Terry Meade, in his introduction to the book of abstracts for the 2009 conference 'Occupation: Negotiations with Constructed Space', posits the idea of occupation as a way of describing interventions of reuse and adaptation of any space — not only pre-existing buildings — for it 'encompasses the connection of human life with larger systems of social and technical organisation, as well as the coupling between everyday conduct and spatial context'. The concept of occupation puts a focus on the 'relationship between buildings and users', implies 'questions of space and time', helps understanding relationships between 'people and politics, place and space', and allows an accounting for frictions of different kinds that happen during the occupation of a space.<sup>69</sup>

In the specific context of publications on adaptive reuse the idea of 'occupation' is often used in works focussing on 'neglected' and 'uncomfortable heritages' that prove to be particularly difficult to reuse.<sup>70</sup> In particular, it is used as an alternative to the idea of 'designing' to explore different and less formal or normative ways of reuse, including provocative projects aimed at disturbing, questioning, and challenging the legitimacy of established logics of use and reuse of the built environment. Plevoets and Van Cleempoel, for example, talk about 'informal reuse and vernacular adaptation' in relation to 'ruins reuse' and, when commenting on the case of Kunsthaus Tacheles in Berlin, they assert that 'the space seemed "occupied" rather than "redesigned"'.<sup>71</sup> Graeme Brooker uses the concept of occupation when discussing the adaptive reuse of 'unwanted', 'useless', and 'waste spaces'.<sup>72</sup> For these leftover buildings and places, he says, an effective adaptive reuse strategy is the practice of 'edge-working', i.e. a 'method of reclaiming space through *occupation*, albeit quite often for a short period of time'. In his essay *No Longer, Not Yet*, Edward Hollis talks about 'incomplete occupation', describing a reuse strategy he contributed to developing, consisting of a series of step-by-step interventions designed to stimulate change, foster a re-appropriation of spaces, and further other actions for the reuse of abandoned buildings, resistant to other reuse strategies.<sup>73</sup>

To conclude, an interpretation of adaptive reuse as a process allows for, on the one hand, an expanded understanding of adaptive reuse, considering its implications beyond architectural aspects as well as its different phases in time, including pre- and post-intervention. On the other hand, it gives traction to the very idea of adaptive reuse as a relevant conceptual framework to think through processes of transformation of the built environment as a re-appropriation and resignification deed, involving the reuse and re-valuing of a place — and by extension its associations, memories, and behaviours — which have been inactive or dormant. Such an understanding can expand and enrich the debate on adaptive reuse, opening it up to reflections pertaining to issues of memory and identity, owning and disowning, remembering and forgetting practices, and heritage-making. It enables us to account for the

social, cultural, and political entailments of adaptive reuse interventions that remain inadequately considered in the current debate. These are, in our opinion, promising new lines of enquiry enabled by the recent literature on adaptive reuse and deserve to be further explored and developed, contributing to the evolution of the debate.

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## Notes and references

1. According to Kenneth Powell, from this moment 'working with "old" buildings became a key element in architectural practice. [...] "Saving" old buildings is no longer enough. The aim is not preservation but transformation.' Kenneth Powell, *Architecture Reborn: The Conversion and Reconstruction of Old Buildings* (London: Laurence King, 1999), p. 10.
2. Liliane Wong states that the term was first noted as being used by the Marriam-Webster Dictionary in 1973. See Liliane Wong, *Adaptive Reuse: Extending the Lives of Buildings* (Basel: Birkhauser, 2017), p. 30. On the origins and emergence of adaptive reuse refer also to literature reviews previously developed (see note 7).
3. For influential early writings on adaptive reuse see, for example, Sherban Cantacuzino, *New Uses for Old Buildings* (London: Architectural Press, 1975); Rodolfo Machado, 'Old Buildings as Palimpsest: Towards a Theory of Remodelling', *Progressive Architecture*, 11 (1976), 46–9; Rodrigo Pérez de Arce, 'Urban Transformations and the Architecture of Additions', *Architectural Design*, 4 (1978), 237–66; Peter Eley and John Worthington, *Industrial Rehabilitation: The Use of Redundant Buildings for Small Enterprises* (London: Architectural Press, 1984).
4. 'Mapping of Current Heritage Re-Use Policies and Regulations in Europe: Complex Policy Overview of Adaptive Heritage Re-Use', *Open Heritage*, December 2019 <<https://openheritage.eu/resources/>> [accessed 12 March 2021].
5. Examples include the international master of interior architecture in 'Adaptive Reuse: Exploring Spatial Potentialities and the Poetics of the Existing' at Hasselt University (BE); the MA and MDES in interior architecture focussing on adaptive reuse at the Rhode Island School of Design RISD (USA); the MA programme 'Continuity in Architecture' at the Manchester School of Architecture (UK); and the BA and MA in interior architecture and design at the University of Lincoln, or the MS programme 'Architecture, Built Environment, Interiors' at Politecnico di Milano (IT). It is worth noting that the authors of many of the principal works selected and discussed in this paper are involved in teaching at these

- institutions, notably Bie Plevoets and Koenraad Van Cleempoel at Hasselt, Liliane Wong at RISD, and Sally Stone in Manchester.
6. Sally Stone, *Undoing Buildings: Adaptive Reuse and Cultural Memory* (London: Routledge, 2020), p. 4.
  7. Previous literature studies have been developed within the disciplines of heritage conservation and architectural design with the overarching objective to identify approaches to the subject that can underpin design strategies, or pinpoint overlooked areas worth further study, including: Bie Plevoets and Koenraad Van Cleempoel, 'Adaptive Reuse as a Strategy Towards Conservation of Cultural Heritage: A Literature Review', in *Structural Studies, Repairs and Maintenance of Heritage Architecture XII*, ed. by C. A. Brebbia and L. Binda (Southampton: WIT Press, 2011), pp. 155–64; and Plevoets and Van Cleempoel, 'Adaptive Reuse as an Emerging Discipline: An Historic Survey', in *Reinventing Architecture and Interiors: A Socio-Political View on Building Adaptation*, ed. by Graham Cairns (London: Libri Publishers, 2013), pp. 13–32. An updated version of this literature review is included in: Plevoets and Van Cleempoel, *Adaptive Reuse of the Built Heritage: Concepts and Cases of an Emerging Discipline* (London: Routledge, 2019), pp. 7–27. A literature review by Elena Vigliocco is included in the book by Matteo Robiglio, *RE-USA: 20 American Stories of Adaptive Reuse: A Toolkit for Post-Industrial Cities* (Berlin: Jovis, 2017).
  8. Jane Jacobs, *The Death and Life of Great American Cities: The Failure of Town Planning* (New York, NY: Random House, 1961).
  9. Cantacuzino, *New Uses for Old Buildings*; Eley and Worthington, *Industrial Rehabilitation*; Walter Kidney, *Working Places: The Adaptive Use of Industrial Buildings* (Pittsburgh: Ober Park Associates, 1976).
  10. 'Mapping of Current Heritage Re-Use Policies', *Open Heritage*.
  11. Further to the books discussed at the end of the paragraph on theoretical monographs, an interesting and unusual example is the volume edited by Elisa Freschi and Philipp Mas, *Adaptive Reuse: Aspects of Creativity in South Asian Cultural History* (Wiesbaden: Harasowitz Verlag, 2017), which explores creativity in South Asian systems of knowledge, literature, and rituals.
  12. Interesting exceptions include: Derek Latham, 'Creative Re-Use: Working with the Building', *Journal of Architectural Conservation*, 5.2 (1999), 7–23; Rafael Luna, 'Life of a Shell and the Collective Memory of a City', *IntAR: Interventions Adaptive Reuse*, 4 (2013), 30–5; Bie Plevoets and Koenraad Van Cleempoel, 'Aemulatio and the Interior Approach of Adaptive Reuse', *Interiors: Design, Architecture, Culture*, 5.1 (2014), 71–88.
  13. These include proceedings of recurrent subject specific conferences such as 'Rehab: International Conference on Preservation, Maintenance and Rehabilitation of Historical Buildings and Structures' (2014, 2015, 2017, 2019) and Docomomo conferences, for example, the Lisbon Conference that focused on Adaptive reuse in 2016. We have also not included books ensuing from conferences, although see note 43.
  14. Cantacuzino, *New Uses for Old Buildings*, p. 6.
  15. Robert Klanten and Lukas Feireiss, *Build-On: Converted Architecture and Transformed Buildings* (Berlin: Gestalten, 2009).
  16. Chris Van Uffelen, *Re-Use Architecture* (Salenstein: Braun, 2011).
  17. Pierre Thiebaut, *Old Buildings Looking for New Use* (Stuttgart and London: Axel Menges, 2007).
  18. Antonia Edwards, *Upcyclist: Reclaimed and Remade Furniture, Lighting and Interiors* (Munich and London: Prestel Verlag, 2015); and Antonia Edwards, *Renovate Innovate: Reclaimed and Upcycled Dwellings* (Munich and London: Prestel Verlag, 2017). See also <<https://www.upcyclist.co.uk/>> [accessed 1 March 2022].
  19. Powell, *Architecture Reborn*.

20. *Building in Existing Fabric Refurbishment, Extensions, New Design*, ed. by Christian Schittich (Basel: Birkhauser Verlag, 2003).
21. *City as Loft: Adaptive Reuse as a Resource for Sustainable Urban Development*, ed. by Martina Baum and Kees Christiaanse (Zurich: gta Verlag, 2012).
22. Phillippe Robert, *Adaptions: New Uses for Old Buildings* (Princeton, NJ: Architectural Press, 1989).
23. Frank Peter Jäger, *Old & New: Design Manual for Revitalizing Existing Buildings* (Basel: Birkhäuser, 2010).
24. Pier Francesco Cherchi, *Typological Shift: Adaptive Reuse of Abandoned Historic Hospitals in Europe* (Syracuse: LetteraVentidue, 2016), p. 25.
25. *Ibid.*, p. 21.
26. David Littlefield and Saskia Lewis, *Architectural Voices Listening to Old Buildings* (Hoboken, NJ: Wiley, 2007).
27. *Re-Cycle: Strategies for the Home, the City and the Planet*, ed. by Pippo Corra and Sara Marini (Milan: Electa, 2012). The book is the catalogue of the major exhibition on adaptive reuse held at MAXXI — National Museum of 21st Century Art, 1 December 2011 – 29 April 2012.
28. *Reduce Reuse Recycle: Architecture as Resource*, ed. by Muck Petzet and Florian Heilmeyer (Ostfildern and Berlin: Hatje Cantz Verlag, 2012). The book is the catalogue accompanying the exhibition 'Reduce Reuse Recycle — Architecture as Resource', German contribution to the 13th 'International Architecture Exhibition La Biennale di Venezia'. See also <<http://www.reduce-reuse-recycle.info>> [accessed 21 November 2021].
29. *Re-Cycle Italy: Atlas*, ed. by Lorenzo Fabian and Stefano Munarin (Syracuse: Lettera Ventidue, 2012). The book is one of the three main outputs of the three-year long national research project 'Re-cycle Italy' (2013–2016) funded by MIUR (Italian Ministry for Research and Education) in 2010 <<https://recycleitaly.net>> [accessed 21 November 2021].
30. Eley and Worthington, *Industrial Rehabilitation*.
31. David Highfield, *The Rehabilitation and Re-Use of Old Buildings* (London and New York: Spon Press, 1987); see also Christopher A. Gorse and David Highfield, *Refurbishment and Upgrading of Buildings*, 2nd edn (London: Spon Press, 2009).
32. Derek Latham, *Creative Re-Use of Buildings* (Shaftesbury: Donhead, 2000).
33. James Douglas, *Building Adaptation* (Oxford: Butterworth-Heinemann, 2002 and 2006).
34. Robiglio, *RE-USA*.
35. Paul Meurs and others, *Reuse, Redevelop and Design: How the Dutch Deal with Heritage* (Rotterdam: nai010, 2020).
36. Johannes Cramer and Stefan Breiting, *Architecture in Existing Fabric: Planning, Design, Building* (Boston, MA: Birkhauser, 2007).
37. *Ibid.*, p. 12.
38. Graeme Brooker and Sally Stone, *Rereadings: Interior Architecture and the Design Principles of Remodelling Existing Buildings* (London: RIBA Publishing, 2004); Brooker and Stone, *Rereadings 2* (London: RIBA Publishing, 2019); Graeme Brooker, *Adaptation Strategies for Interior Architecture and Design* (London: Bloomsbury, 2016).
39. Brooker and Stone, *Rereadings*, p. 13.
40. The same concepts are further investigated by the authors in several other publications: Graeme Brooker and Sally Stone, *Form and Structure: The Organisation of Interior Space* (Lausanne: AVA Publications, 2007); Brooker and Stone, *Context and Environment: Sites and Ideas* (Lausanne: AVA Publications, 2008); and Brooker and Stone, *Elements and Objects: Occupying Space* (Lausanne: AVA Publications, 2009).
41. The tasks include: the analysis and study of the building in relation to its history, architectural structure, context, and the proposed new use; the intervention strategy, defined

according to the relationship of the new project with the former spaces; the spatial and design characteristics of the reuse project, concerning the spatial and material features relating to the intervention.

42. Remodelling is 'a formal intervention upon existing form' where 'the past takes on a greater significance because it, itself, is the material to be altered and reshaped'; see Machado, 'Old Buildings as Palimpsest', pp. 46–9. Machado's seminal article has been extremely influential in the development of the contemporary debate on adaptive reuse, being up to today one of the most referenced and a key resource in scholarly works on the subject.
43. Beyond the scope of this paper to review are the theoretical contributions found in a number of edited books. Interesting examples include Terry Meade, Luis Diaz, and Isobel Creed, *OCCUPATION: Negotiations with Constructed Space* (University of Brighton, 2013); the volume edited by Graham Cairns: *Reinventing Architecture and Interiors; Umbaukultur: The Architecture of Altering*, ed. by Christoph Grafe and others (Dortmund: Verlag Kettler, 2020), where a series of short theoretical essays by different authors are followed by twenty-five 'exemplary projects'.
44. Plevoets and Van Cleempoel, *Adaptive Reuse of the Built Heritage*, p. 2.
45. *Ibid.*, p. 1.
46. Wong, *Adaptive Reuse*, p. 6.
47. *Ibid.*, p. 126.
48. *Ibid.*, p. 64.
49. The idea of Frankenstein and the Monster he created, as she states, owes more to Hollywood than Mary Shelley.
50. Fred Scott, *On Altering Architecture* (Abingdon and New York: Routledge, 2008).
51. *Ibid.*, p. xvii.
52. *Ibid.*, p. 176.
53. *Ibid.*, p. xvii.
54. *Ibid.*, p. 11.
55. Stone, *Undoing Buildings*, p. 19.
56. *Ibid.*, pp. 32–52.
57. Graham Moon, Robin Kearns, and Joseph Alun, *The Afterlives of the Psychiatric Asylum: The Recycling of Concepts, Sites and Memories* (Burlington and Farnham: Ashgate, 2015).
58. Julia A. B. Hegewald and Subrata K. Mitra, *Re-Use: The Art and Politics of Integration and Anxiety* (New Delhi and Thousand Oaks, CA: Sage, 2012).
59. See Joseph Alun, Robin Kearns, and Graham Moon, 'Re-Imagining Psychiatric Asylum Spaces through Residential Redevelopment: Strategic Forgetting and Selective Remembrance', *Housing Studies*, 28.1 (2013), 135–53; and Robin Kearns, Joseph Alun, and Graham Moon, 'Memorialisation and Remembrance: On Strategic Forgetting and the Metamorphosis of Psychiatric Asylums into Sites for Tertiary Educational Provision', *Social & Cultural Geography*, 11.8 (2010), 731–49.
60. John Pendlebury, Yi-Wen Wang, and Andrew Law, 'Re-Using "Uncomfortable Heritage": The Case of the 1933 Building, Shanghai', *International Journal of Heritage Studies*, 24.3 (2018) 211–29.
61. Phillipe Robert also uses the idea of palimpsest in *Adaptions*.
62. See Brooker and Stone, *Rereadings*, p. 11; Wong, *Adaptive Reuse*, pp. 8–28; Plevoets and Van Cleempoel, *Adaptive Reuse of the Built Heritage*, pp. 20–3; Stone, *Undoing Buildings*, pp. 4–5; and Douglas, *Building Adaptation*, pp. 1–9.
63. Plevoets and Van Cleempoel, *Adaptive Reuse of the Built Heritage*, p. 23.
64. Wong, *Adaptive Reuse*, pp. 30–2; see also Markus Berger, Heinrich Hermann, and Liliane Wong, 'Adaptive Reuse Today', *Adaptive Reuse — IntAR Journal*, 1 (2009).

65. Graeme Brooker and Sally Stone, for example, in their book *What is Interior Design* (Mies: Rotovision Publishers, 2010) suggest that working within pre-existing buildings is the distinguishing nature and the specific realm of interior architecture itself: 'Interior architecture, interior design, interior decoration, and building reuse, they say, are very closely linked subjects, all of which deal, in varying degrees, with the transformation of a given space', p. 46; see also: *Occupation*, ed. by Meade, Diaz, and Creed; Plevoets and Van Cleempoel, 'Aemulatio and the Interior Approach of Adaptive Reuse'; and Francesca Lanz, 'Re-Inhabiting: Thoughts on the Contribution of Interior Architecture to Adaptive Intervention', *Journal of Interior Design*, 43.2 (2018), 3–10.
66. Cherchi, *Typological Shift*.
67. The idea of adaptive reuse as translation has been variously proposed by different authors writing on adaptive reuse. In particular among those considered in this paper: Scott, *On Altering Architecture*, pp. 75–91; and Stone, *Undoing Buildings*, pp. 32–52.
68. Stone, *Undoing Buildings*, p. 52.
69. Terry Meade, 'Occupation: Friction, Resistance, Negotiation' in *Occupation*, ed. by Meade, Diaz, and Creed, pp. 8–15 (passim).
70. Pendlebury, Wang, and Law, 'Re-Using "Uncomfortable Heritage"': see also Francesca Lanz, 'The Adaptive Reuse of Neglected Buildings', in *Contested Spaces Concerted Projects: Designs for Vulnerable Memories*, ed. by Cristina F. Colombo and Jacopo Leveratto (Syracuse: Lettera Ventidue, 2021), pp. 68–85.
71. Plevoets and Van Cleempoel, *Adaptive Reuse of the Built Heritage*, pp. 43–5.
72. Graeme Brooker, 'Wastespace', in *Reinventing Architecture and Interiors*, ed. by Cairns, pp. 33–52 (pp. 45–6). Italic added by the authors.
73. Edward Hollis, 'No Longer and Not Yet', in *Reinventing Architecture and Interiors*, ed. by Cairns, pp. 177–94 (p. 189).