

# Adaptive Reuse and the Heritage Construction Workforce: A Practitioner Informed Analysis of Sustainable Urban Regeneration

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## Abstract

Adaptive reuse, the repurposing of existing buildings for new functions, is widely promoted as a strategy for sustainable urban regeneration, yet the practice faces persistent obstacles relating to retrofit cost, gentrification risk, and a heritage construction workforce that is ageing, under trained, and poorly served by existing career pathways. This study combines a systematic review of the adaptive reuse and heritage retrofit literature with two complementary qualitative strands: informal practitioner interviews and site observations within the heritage construction sector, and a netnographic thematic analysis of publicly available, anonymised discourse drawn from architecture and urban planning online communities concerning adaptive reuse practice and career entry. The study is underpinned by an integrated theoretical framework combining Circular Economy theory (Ellen MacArthur Foundation, 2013), Rogers' (2003) Diffusion of Innovation theory, and Human Capital Theory (Becker, 1964), used respectively to interpret adaptive reuse as a materials and value retention strategy, to explain uneven adoption of reuse over demolition, and to frame the workforce development obstacles identified in the sector. Thematic analysis of the combined practitioner and discourse corpus produced six themes: the material and regulatory friction of retrofit relative to new build; contested and highly subjective criteria for what counts as worth preserving; gentrification and displacement as an underexamined cost of regeneration; the absence of formal, accessible training pathways into heritage construction; non-standard, non-linear career entry routes as both an opportunity and a source of market uncertainty; and adaptive reuse as a genuine, if precarious, professional niche. These findings substantiate and extend the practitioner-derived conclusions of the original fieldwork, indicating strong convergence between formal literature, direct practitioner testimony, and independent online discourse regarding both the sustainability case for adaptive reuse and the structural weaknesses of the workforce pipeline that services it. The paper concludes with a revised conceptual model and policy and industry recommendations addressing training accessibility, career pathway formalisation, and gentrification mitigation.

**Keywords:** adaptive reuse, heritage construction, circular economy, diffusion of innovation, human capital theory, workforce development, urban regeneration

## **Introduction**

Historic buildings represent more than physical structures; they embody the history, artistry, and identity of the communities that produced them (Gebler Tooth Architects, 2022; Historic England, n.d.; SPAB, n.d.; Wessex Restoration, n.d.). Yet many such buildings face deterioration or demolition as cities expand and modernise, with older structures frequently overlooked in favour of new development perceived as better suited to contemporary demand. Adaptive reuse, the repurposing of existing structures for new functions while retaining their architectural and historical character, has emerged as an alternative to demolition that aligns heritage conservation with sustainability goals, reducing the material and energy costs associated with new construction while contributing to urban revitalisation (Gebler Tooth Architects, 2022; Orbasli & Barch, 2009).

Despite this apparent alignment of interests, the practice remains constrained by high retrofit costs, complex planning regulation, the technical difficulty of meeting modern safety and accessibility standards in older fabric, and a persistent risk that regeneration precipitates gentrification and the displacement of existing communities (Mengüşoğlu, 2013; Tokede et al., 2018). Compounding these structural obstacles, the workforce capable of executing heritage-sensitive construction and retrofit work is reported, on the basis of practitioner testimony, to be ageing, to have limited access to formal training, and to lack clearly defined career pathways, a combination of pressures that threatens the long-term supply of the specialist skills adaptive reuse requires.

This paper extends an initial mixed-methods investigation of these issues, comprising a literature review alongside informal practitioner interviews and site observations, through the addition of a systematic netnographic thematic analysis of publicly available online discourse concerning adaptive reuse practice, historic preservation debates, and career entry into the field. This addition allows the practitioner-derived findings, necessarily limited in scale, to be triangulated against a substantially larger and independently generated body of professional and public opinion, thereby strengthening the evidential basis for the conclusions drawn and situating them within an explicit theoretical framework rather than presenting them as an atheoretical list of observed obstacles and benefits.

### **Statement of the Problem**

In the face of increasing urbanisation and demand for modern space, historic buildings in the United Kingdom are often regarded as obstacles to progress, requiring substantial investment to maintain structural integrity, and are frequently left to decay or demolished to make way for new development. Despite the demonstrated environmental, economic, and cultural benefits of adaptive reuse, the practice remains hindered by high cost, regulatory complexity, and the technical challenge of reconciling heritage fabric with modern performance standards. Concurrently, the workforce required to deliver heritage-sensitive construction faces its own distinct set of structural obstacles, limited formal training access, an ageing labour pool, and unclear professional pathways, which have not previously been examined in relation to the broader sustainability case for adaptive reuse within a single, theoretically integrated study.

### **Significance of the Study**

This study contributes to three overlapping literatures: research on the environmental and economic case for adaptive reuse, research on the diffusion of sustainable construction practices, and the comparatively under-theorised literature on workforce development within heritage construction specifically. By triangulating practitioner testimony against a substantially larger, independently generated corpus of professional discourse, and by

interpreting both through an explicit theoretical framework, this study offers policymakers, training providers, and industry bodies a more robust evidential basis than either data source could provide in isolation for interventions intended to secure the long-term sustainability of the heritage construction workforce.

### **Objectives**

1. To review the literature on the environmental, economic, and cultural benefits of adaptive reuse, and the barriers to achieving energy efficiency in heritage properties.
2. To examine, through practitioner interviews, site observation, and thematic analysis of independent online discourse, the workforce development obstacles facing the heritage construction sector.
3. To interpret these findings through an integrated framework combining Circular Economy theory, Diffusion of Innovation theory, and Human Capital Theory.
4. To propose policy and industry recommendations addressing training accessibility, career pathway formalisation, and the mitigation of gentrification risk.

### **Theoretical Framework**

#### **Circular Economy Theory and the Value Case for Adaptive Reuse**

Circular Economy theory (Ellen MacArthur Foundation, 2013) frames sustainability not merely in terms of reduced resource consumption but as the retention of value within existing material and structural stock for as long as possible, in preference to disposal and replacement. Applied to the built environment, this framework positions adaptive reuse not as a niche conservation practice but as a direct application of circular economy principles: an existing building represents embodied energy, embedded material value, and structural capital that demolition destroys and new construction must replicate at further environmental cost. This framework provides a theoretical account of why the environmental and economic benefits of adaptive reuse documented in the literature (Munarim & Ghisi, 2016; Orbasli & Barch, 2009) are not incidental but follow directly from treating the existing building stock as a resource to be circulated rather than a liability to be cleared.

#### **Diffusion of Innovation Theory and Uneven Adoption**

Rogers' (2003) Diffusion of Innovation theory identifies relative advantage, compatibility, complexity, trialability, and observability as the principal determinants of the rate at which a new practice is adopted. Although adaptive reuse is, in an important sense, not a new practice but a return to using what already exists, it functions within the contemporary development sector as an innovation relative to the entrenched default of demolition and new build, and its adoption can usefully be analysed using the same framework. Relative advantage is well documented in the literature (reduced material waste, retained embodied energy, cultural value), but complexity (retrofit's technical and regulatory difficulty) and compatibility (with existing labour market structures and training pipelines) remain significant barriers, offering a theoretical account of why adaptive reuse, despite its demonstrated advantages, has not displaced demolition and new build as the sector default.

#### **Human Capital Theory and Workforce Development**

Human Capital Theory (Becker, 1964) frames skills and training as a form of investment, made by individuals, employers, or the state, that yields returns in the form of productivity and earnings. Applied to the heritage construction workforce, this framework predicts that where the returns to specialist heritage skills training are perceived as uncertain, whether because of low relative wages, unclear career progression, or employer reluctance to fund

qualifications that may not be retained within the firm, both individual and employer investment in that training will be suppressed, regardless of the sector's underlying demand for the skills in question. This provides a theoretical account of the practitioner-reported pattern of informal, on-the-job learning substituting for formal qualification, and of the ageing workforce profile reported in the original fieldwork.

### **Integrated Model**

These three frameworks operate at complementary levels: Circular Economy theory explains why adaptive reuse constitutes genuine sustainable value creation; Diffusion of Innovation theory explains why this value creation has not translated into widespread adoption relative to demolition and new build; and Human Capital Theory explains why the specialist workforce required to execute adaptive reuse at scale remains structurally under-supplied. This tripartite structure is used in Sections 5 and 6 to interpret the combined practitioner and discourse corpus.

## **Literature Review**

### **Adaptive Reuse and Urban Regeneration**

The repurposing of industrial-era buildings has gained traction in cities worldwide, including the United Kingdom, due to its relevance to urban renewal and sustainability efforts, particularly amid ongoing urban transformation as cities with numerous vacant or underused structures seek effective solutions to revitalise both central and peripheral urban locations. Repurposing industrial buildings provides multiple advantages aligned with urban revitalisation objectives, including combating urban sprawl, rejuvenating city centres, and attracting people, investment, and jobs back into the urban core, although widespread abandonment of buildings that have lost their original industrial function remains a major obstacle to realising these goals. Industrial-era buildings, often characterised by simple, multi-storey designs and ample natural light, are frequently well suited to new uses, and beyond their physical features serve as repositories of collective memory and symbols of cultural identity. Redevelopment of these properties can, however, precipitate gentrification, a risk requiring further investigation and critique (Mengüşoğlu, 2013).

Heritage-led regeneration has become an established approach to the conservation and development of historic areas, with benefits extending beyond cultural preservation to encompass urban regeneration, sustainability, and community development. While not all historic buildings can or should be preserved, their adaptation offers valuable lessons for designing buildings with the flexibility to be repurposed in future, and existing buildings, whether of high historic significance or more modest importance, represent an asset with renewal potential. Growing pressure for land and increased urban density often leads to demolition, with policies prioritising new construction on brownfield sites contributing to this cycle despite the economic, environmental, and cultural advantages of reuse (Orbasli & Barch, 2009), a pattern directly consistent with the Diffusion of Innovation account of complexity and compatibility barriers outlined in Section 2.2.

### **Energy Efficiency and Retrofit in Heritage Buildings**

There is growing agreement that buildings, as major consumers of energy and significant contributors to greenhouse gas emissions, must be central to efforts to address climate change, yet the heritage sector faces particular challenges in achieving energy efficiency improvements comparable to those in non-heritage stock, with most research to date focused on residential rather than non-residential heritage buildings (Akande et al., 2023). Although listed buildings are exempt from certain energy performance requirements, opportunities for

improvement remain, and research is needed to identify effective long-term strategies for meeting national emissions reduction targets. Tokede et al. (2018) examined the potential for retrofitting heritage office buildings in the UK using a Scottish case study and building energy simulation software, finding that energy savings in heritage buildings reached 14.6% annually, compared with 24.6% in non-heritage buildings, on the basis of the ratio of capital to operational costs, and recommended that government and industry stakeholders explore incentives for retrofit investment.

Munarim and Ghisi (2016) similarly demonstrate that rehabilitation offers substantial environmental and economic advantages over demolition and new construction, decreasing energy use and carbon emissions during operation while preserving cultural value and social identity, although rehabilitation projects themselves carry an environmental footprint that must be weighed against the benefits achieved. This body of research provides the empirical substantiation for the Circular Economy account developed in Section 2.1: reuse retains embodied value even where its retrofit-stage environmental costs are non-trivial.

### **Workforce Development in Heritage Construction**

Existing literature on workforce development within heritage construction specifically remains comparatively sparse relative to the substantial literature on the environmental and economic case for adaptive reuse, a gap this study's practitioner interviews and netnographic analysis are intended to help address. The available evidence, largely practitioner-derived, points to structural barriers including limited access to formal training programmes, the financial and geographic inaccessibility of specialist qualification routes, employer reluctance to invest in training that may not be retained, and an absence of clearly defined career pathways, a pattern consistent with the Human Capital Theory account developed in Section 2.3, wherein uncertain returns to investment suppress both individual and employer commitment to formal qualification.

### **Synthesis and Identified Gap**

The reviewed literature demonstrates a well-established and increasingly quantified case for adaptive reuse as a sustainability and urban regeneration strategy (Akanke et al., 2023; Munarim & Ghisi, 2016; Orbasli & Barch, 2009; Tokede et al., 2018), alongside recognition of persistent gentrification risk (Mengüşoğlu, 2013). This literature is not, however, integrated with an explicit account of the workforce constraints that determine whether adaptive reuse can be delivered at the scale its environmental case would justify, nor is it triangulated against the extensive independent professional discourse concerning both adaptive reuse practice and career entry into the field that is readily available in public online communities. This study addresses that gap.

## **Methodology**

### **Design**

This study employed a three-strand qualitative design comprising (a) a systematic review of the adaptive reuse, heritage retrofit, and workforce literature, (b) informal semi-structured interviews and direct site observation conducted with professionals working in the UK heritage construction sector, and (c) a netnographic thematic analysis (Kozinets, 2002, 2015) of publicly available, anonymised discussion threads drawn from architecture and urban planning online communities concerning adaptive reuse practice, preservation criteria, and career entry into the field. The addition of the netnographic strand allows the necessarily limited practitioner interview sample to be triangulated against a substantially larger, independently generated body of professional and public discourse, addressing a

methodological limitation common to small-sample qualitative fieldwork in specialist trades.

### **Practitioner Interviews and Site Observation**

Informal interviews were conducted with professionals in the heritage construction sector to examine workforce development issues, particularly limited access to formal training, the ageing workforce, and the absence of career pathways. Interviews sought practitioner views on the availability and effectiveness of heritage skills training and the effects of these factors on workforce sustainability. Direct observation of heritage construction sites and training programmes supplemented the interviews, focusing on the adequacy of current training resources, worker skill levels, and employer training practices. To preserve anonymity, no identifying detail regarding individual practitioners, employers, or specific sites is reported.

### **Netnographic Corpus and Procedure**

The discourse corpus comprised publicly accessible threads from architecture and urban planning online communities in which participants discussed adaptive reuse project experience, career transition into heritage-focused practice, and the contested question of what buildings merit preservation. Threads were selected for direct relevance to adaptive reuse practice, professional workforce entry, or preservation criteria debates. In accordance with ethical guidelines for research using publicly available online data (British Psychological Society, 2021; Kozinets, 2015), all usernames have been replaced with non-identifying descriptors, and no verbatim text exceeding conventional fair-use limits is reproduced; all reported content is paraphrased and thematically synthesised. Because the platforms concerned are openly accessible without membership approval and no attempt was made to interact with, survey, or identify individual contributors, the analysis is treated as analogous to the study of publicly archived text rather than as direct human-subjects research.

### **Analytic Procedure**

All three data sources were analysed using Braun and Clarke's (2006) six-phase thematic analysis procedure: familiarisation, initial coding, searching for themes, reviewing themes, defining and naming themes, and producing the final analysis. Coding was conducted deductively against the three theoretical constructs specified in Section 2 (circular value retention, diffusion barriers, and human capital investment), while remaining open to inductively emergent themes not fully anticipated by the framework, most notably those relating to contested preservation criteria.

### **Trustworthiness**

Trustworthiness in this study drew on the criteria established by Lincoln and Guba (1985). To establish credibility, findings were triangulated across three sources — the literature review, practitioner interviews, and an independently compiled discourse corpus — and only themes supported by at least two of these three sources were included in the final analysis. Dependability was ensured through the consistent, documented use of Braun and Clarke's (2006) coding procedure. To support confirmability, deductive codes derived from the theoretical framework were kept distinct from codes that emerged inductively from the data. As for transferability, although the non-random, qualitative nature of both the interview sample and discourse corpus imposes some constraints, the diversity of independent professional perspectives captured across the combined dataset strengthens transferability beyond what either source could offer individually.

## Results and Discussion

Thematic analysis of the combined practitioner and discourse corpus produced six themes.

### **Theme 1: The Material and Regulatory Friction of Retrofit Relative to New Build**

Practitioner interviews and site observation indicated that retrofit and adaptive reuse projects are frequently more complex and costly than comparable new build work, a finding corroborated extensively across the discourse corpus, where contributors with direct project experience described adaptive reuse schemes as commonly dependent on dedicated grant and tax credit programmes to remain financially viable, given the substantial additional paperwork, documentation, and historical approvals such projects typically require. Contributors also identified unforeseen structural conditions and environmental hazards, including contaminated soil and legacy materials such as asbestos, as recurrent sources of cost escalation not fully anticipated at project outset. This theme substantiates, with considerably greater practical specificity, the retrofit cost and regulatory complexity barriers identified in the literature (Tokede et al., 2018) and is consistent with the Diffusion of Innovation account of complexity as an adoption barrier (Section 2.2).

### **Theme 2: Contested and Subjective Criteria for What Merits Preservation**

A theme emerging strongly and specifically from the discourse corpus, though not directly anticipated by the practitioner interviews, concerned deep and largely unresolved disagreement over the criteria by which a building's preservation worthiness should be judged. Discussion threads addressing proposed simple, checklist-style criteria (architectural significance, rarity, streetscape contribution, or historical event association) attracted extensive and pointed critique, with numerous contributors arguing that such criteria are so broadly interpretable as to be practically unworkable, and that judgements of historical or cultural value are ultimately subjective, contested between local and national interests, and frequently contingent on factors, such as a building's disused or dilapidated condition despite genuine significance, that simple criteria fail to capture. Several contributors further noted that formal heritage listing provides considerably weaker practical protection against demolition than is commonly assumed, since determined owners can frequently obtain structural reports supporting demolition regardless of a building's designated status. This theme, not addressed in the reviewed literature's treatment of adaptive reuse as an economically and environmentally justified practice, indicates that the diffusion of adaptive reuse as a sector default is constrained not only by cost and complexity but by unresolved, contested valuation criteria upstream of any retrofit decision.

### **Theme 3: Gentrification and Displacement as an Underexamined Cost**

Consistent with the literature's identification of gentrification as a risk associated with adaptive reuse (Mengüşoğlu, 2013), both the practitioner interviews and the discourse corpus identified housing displacement and affordability as a significant, if secondary, concern attending regeneration projects. Discourse corpus contributors situated in jurisdictions experiencing acute housing shortages argued that any additional housing supply, including through adaptive reuse of underused commercial or industrial stock, represents a net public good given prevailing scarcity, while other contributors emphasised that regeneration frequently displaces lower-income residents in favour of higher-value uses, echoing the literature's caution regarding this dynamic. This theme indicates that the sustainability case for adaptive reuse developed through Circular Economy theory (Section 2.1) requires

explicit qualification: value retention at the level of building materials does not guarantee equitable value distribution at the level of the surrounding community.

#### **Theme 4: The Absence of Formal, Accessible Training Pathways**

Practitioner interviews identified limited access to formal training programmes, compounded by financial and geographic barriers, as a central constraint on heritage construction workforce development, with employers frequently relying on informal, on-the-job learning in preference to funding formal qualification. This finding was corroborated, and considerably extended, by the discourse corpus, in which contributors seeking to enter heritage-focused architectural practice from adjacent fields, including career changers from unrelated professions, consistently reported that formal historic preservation and adaptive reuse specialisms require lengthy, expensive postgraduate qualification (with one contributor citing a cost differential of roughly £60,000 to £120,000 GBP equivalent between a full architecture degree and a shorter historic preservation master's route), and that firms specialising in this work remain comparatively few and geographically concentrated. This theme provides direct, independently generated substantiation of the Human Capital Theory account developed in Section 2.3: where formal qualification is costly and firms specialising in the relevant work are scarce, the perceived return on training investment is suppressed for both prospective entrants and employers alike.

#### **Theme 5: Non-Standard Career Entry as Opportunity and Uncertainty**

A related but analytically distinct theme concerned the range of non-linear routes by which practitioners reported entering heritage-focused construction and design work, including transition via general contracting and building facade inspection and maintenance work, via property development rather than licensed architectural practice, and via historic preservation consultancy roles not requiring full architectural licensure. Several contributors explicitly recommended these routes as more accessible and less costly alternatives to formal architectural education, particularly for career changers, while cautioning that historic preservation work in particular offers essentially no independent design authority absent a full architecture licence, and that adaptive reuse work, while offering somewhat more design scope, remains comparatively politicised given the number of stakeholders typically involved. This theme extends Theme 4 by indicating that the absence of a single, standardised training and career pathway functions simultaneously as an accessibility opportunity for non-traditional entrants and as a source of market fragmentation and uncertainty regarding professional standing and design authority.

#### **Theme 6: Adaptive Reuse as a Genuine but Precarious Professional Niche**

Across both the practitioner interviews and the discourse corpus, adaptive reuse and historic preservation work were consistently characterised as a genuine, demand-supported professional niche, several discourse corpus contributors specifically noted that renovation work has, in aggregate, come to exceed new construction activity nationally, and as personally rewarding, but also as commanding lower compensation than comparable new-build or general commercial practice, and as dependent on a comparatively small number of specialist firms and project-specific incentive programmes for its financial viability. This theme integrates the preceding five: the niche is real and its demand basis sound (Themes 1 and 6), but its workforce pipeline remains constrained by cost and fragmentation (Themes 4 and 5), its underlying valuation criteria remain contested (Theme 2), and its community-level benefits are not unambiguous (Theme 3).

### Summary of Thematic Convergence

Table 1 summarises the mapping between identified themes, the theoretical framework, and corroborating data sources.

| Theme                                    | Theoretical construct                   | Practitioner interviews | Discourse corpus | Literature                |
|------------------------------------------|-----------------------------------------|-------------------------|------------------|---------------------------|
| 1. Retrofit cost and regulatory friction | Diffusion (complexity)                  | Yes                     | Strong           | Tokede et al. (2018)      |
| 2. Contested preservation criteria       | Diffusion (compatibility)               | Not directly            | Strong           | Not previously addressed  |
| 3. Gentrification and displacement       | Circular economy (distributional limit) | Yes                     | Moderate         | Mengüşoğlu (2013)         |
| 4. Absence of formal training pathways   | Human capital                           | Yes                     | Strong           | Not previously quantified |
| 5. Non-standard career entry             | Human capital                           | Not directly            | Strong           | Not previously addressed  |
| 6. Genuine but precarious niche          | Integrated                              | Yes                     | Strong           | Orbasli & Barch (2009)    |

Four of six themes show strong convergence across at least two independent data sources; Themes 2 and 5 emerged primarily from the discourse corpus, illustrating the value of triangulating practitioner interviews, necessarily limited in scale and scope, against a substantially larger body of independent professional discourse.

The combined practitioner and discourse evidence substantiates, and in several respects meaningfully extends, the case for adaptive reuse developed in the existing literature, while indicating that its realisation at scale is constrained by factors extending beyond the retrofit cost and regulatory barriers most commonly discussed.

### Circular Value Retention and Its Distributional Limits

The literature's account of adaptive reuse as environmentally and economically superior to demolition and new build (Munarim & Ghisi, 2016; Orbasli & Barch, 2009; Tokede et al., 2018) is well substantiated by both the practitioner interviews and the discourse corpus at the level of building-scale material and energy value retention, directly consistent with the Circular Economy framework outlined in Section 2.1. Theme 3, however, indicates that this value retention does not automatically translate into equitable outcomes at the community level, a distinction the Circular Economy framework, focused as it is on material rather than social value flows, does not itself resolve, and which requires explicit policy attention distinct from the sustainability case for reuse itself.

### Diffusion Barriers Beyond Cost

Theme 2's finding of deeply contested preservation valuation criteria represents the most significant extension of the existing literature offered by this study. Where prior research (Mengüşoğlu, 2013; Orbasli & Barch, 2009) treats the case for reuse as comparatively settled at the level of aggregate environmental and economic benefit, the discourse corpus indicates that the prior question, which buildings warrant reuse effort in the first place, remains genuinely unresolved and contested among practitioners and the public alike. This constitutes a compatibility barrier in Rogers' (2003) terms distinct from, and logically prior to, the cost and complexity barriers addressed in Theme 1: a regulatory or financing

mechanism to support retrofit is of limited use if the underlying decision to designate a building for preservation is itself contested and inconsistently applied.

### **Human Capital Constraints on Workforce Supply**

Themes 4 and 5 substantiate and extend the Human Capital Theory account developed in Section 2.3. The practitioner interviews' identification of financial and geographic barriers to formal training is corroborated, and given considerably more specific texture, by the discourse corpus's reports of substantial qualification costs and the geographic concentration of specialist firms. Theme 5 further indicates that the resulting fragmentation of entry pathways, while lowering the cost barrier for some entrants relative to full architectural licensure, introduces its own uncertainty regarding professional standing and design authority, a nuance the Human Capital Theory framework's focus on training cost and return does not, by itself, fully capture, and which suggests that workforce development interventions in this sector must address career pathway clarity as a distinct policy target alongside training cost and accessibility.

### **Limitations**

This study is subject to several limitations. The practitioner interview sample, though supplemented by direct site observation, remains small and was conducted informally rather than through a structured protocol, limiting the precision with which practitioner-reported findings can be generalised. The discourse corpus, while substantially larger, derives from self-selected forum participants and may over-represent particularly engaged or opinionated contributors, a limitation inherent to netnographic methods generally (Kozinets, 2015). Neither data source provides quantitative measurement of training uptake, workforce age distribution, or project-level financial outcomes; the conclusions drawn here should accordingly be understood as a theoretically grounded, triangulated qualitative account rather than a definitive quantitative assessment of sector conditions.

### **Recommendations**

Drawing on the integrated framework and thematic findings, five recommendations emerge for policymakers, industry bodies, and training providers.

First, given the contested and inconsistently applied preservation valuation criteria identified in Theme 2, industry and heritage bodies should invest in developing clearer, more consistently applied, and publicly transparent frameworks for preservation decision-making, addressing this compatibility barrier directly rather than proceeding on the assumption that the case for reuse is self-evident once identified. Second, given the retrofit cost and regulatory friction identified in Theme 1, government and industry stakeholders should expand and streamline incentive mechanisms, such as tax credit and grant programmes, reducing the administrative burden that discourse corpus contributors identified as a significant barrier to project viability. Third, given the training cost and accessibility barriers identified in Theme 4, training providers and industry bodies should develop shorter, more geographically distributed, and more affordable qualification routes into heritage-specific construction and design skills, directly addressing the Human Capital Theory account of suppressed training investment. Fourth, given the career pathway fragmentation identified in Theme 5, professional bodies should work towards clearer articulation of the distinct routes into heritage construction work, including non-licensure consultancy and contracting pathways, so that prospective entrants can make informed decisions regarding the design authority and career trajectory each route affords. Fifth, given the distributional concerns identified in Theme 3, regeneration policy should incorporate explicit community protection and affordability safeguards alongside adaptive reuse incentives, ensuring that material and

environmental value retention at the building scale does not come at the cost of displacement at the community scale.

## Conclusion

This study examined the adaptive reuse of industrial-era and historic buildings as a strategy for sustainable urban regeneration, combining a systematic literature review, informal practitioner interviews and site observation, and a netnographic thematic analysis of independent professional discourse, interpreted through an integrated framework combining Circular Economy theory, Diffusion of Innovation theory, and Human Capital Theory. The findings substantiate the established environmental and economic case for adaptive reuse while extending it in two significant respects: identifying deeply contested and inconsistently applied preservation valuation criteria as a diffusion barrier logically prior to retrofit cost and complexity, and providing considerably more specific evidence, corroborated across independent data sources, of the training cost, geographic concentration, and career pathway fragmentation constraining the heritage construction workforce pipeline. Addressing these constraints will require coordinated attention to preservation decision frameworks, training accessibility, career pathway clarity, and community protection alongside the retrofit incentive mechanisms most commonly discussed in the existing literature.

### Future Research Directions

Future research should move beyond the qualitative, triangulated approach adopted here towards quantitative assessment of heritage construction workforce demographics, training uptake, and career progression outcomes, testing directly the Human Capital Theory predictions developed in Section 2.3 and 6.3. Further research should examine whether the more accessible, non-licensure career entry routes identified in Theme 5 produce measurably different long-term career and compensation outcomes relative to full architectural licensure, informing prospective entrants' decision-making more precisely than the discourse corpus alone permits. Given the significance of Theme 2, future research should also prioritise the development and empirical testing of more consistent, transparent preservation valuation frameworks, examining whether such frameworks measurably improve the rate of adaptive reuse adoption relative to demolition. Finally, future research should examine the distributional and gentrification concerns identified in Theme 3 through longitudinal, community-level study of specific regeneration projects, assessing whether the recommended community protection safeguards proposed in Section 7 measurably mitigate displacement risk in practice.

### Declaration

No financial incentives were offered to or received by the author in connection with this study. All practitioner and forum data have been anonymised, and no identifying information is reported. Publicly available online discourse was analysed in accordance with ethical guidelines for internet-based research (British Psychological Society, 2021; Kozinets, 2015).

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