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The Chartered Institute of Building

Building Adaptably: How the construction sector can future proof Irish cities

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In this report

This report was written by Joseph Kilroy,
Head of Policy & Public Affairs Ireland, Scotland & Wales

Published by the Chartered Institute of Building (CIOB)

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CIOB, 3 Arlington Square, Downshire Way, Bracknell, RG12 1WA, UK
+44 (0)1344 630 700 | policy@ciob.org.uk

Registered Charity No. (England and Wales) 280795 and (Scotland) SC041725

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Setting the scene

Here are some facts to set the scene about the state of Ireland's built environment.

01
Ireland's national commercial vacancy rate (14.5%) is **the highest on record**

02
Dublin's office vacancy rate reached 15.7% in 2024 — the highest level of any major European city.

03
Office vacancy in Ireland is **concentrated in the areas where housing need and demand is highest.**

04
Waste from construction and demolition (CDW) is **forecast to double between 2020 and 2029.**

05
Converting a building can save up to 73% of embodied carbon compared to demolishing and rebuilding.

Executive Summary

This paper examines how building adaptability can help address two interconnected challenges facing Ireland's cities: rising commercial vacancy and persistent housing shortages. As office demand declines due to remote working and a contraction in the tech sector, vacancy rates have reached historic highs.

Simultaneously, urban areas continue to experience acute housing need, unaffordability, and homelessness. The current "demolish and rebuild" model of development not only fails to respond to these shifts but also drives up embodied carbon emissions and construction waste, undermining Ireland's climate objectives. Building adaptability offers a pathway to realign construction with social and environmental priorities by ensuring that buildings can be repurposed efficiently over time.

International precedents demonstrate the potential of policy-led adaptability. London's Policy D3 mandates that new developments demonstrate long-term flexibility; Paris requires reversible, modular, and circular construction; and Amsterdam integrates design-for-disassembly principles into its planning and procurement frameworks. These approaches show that embedding adaptability at the design stage can produce a resilient built environment capable of evolving with economic and social change.

In Ireland, socio-economic conditions are favourable for such a transition: structural office vacancy coexists with a tight housing market, urban cores contain the majority of underused space, household sizes are shrinking, and local authorities have the legislative tools—through City Development Plans—to guide more adaptable construction practices.

> The current "demolish and rebuild" model of development not only fails to respond to these shifts but also drives up embodied carbon emissions and construction waste, undermining Ireland's climate objectives.

The paper recommends four key policy measures: (1) mandating adaptability assessments, such as the EU Level(s) Indicator 2.3, for large-scale city-centre developments; (2) requiring planning applications to include future conversion scenarios; (3) incentivising modular and circular construction through fast-tracked permitting or density bonuses; and (4) embedding adaptability standards in public land sales and procurement. Together, these measures would align planning, housing, and climate objectives, ensuring that new buildings serve present and future urban needs while reducing carbon emissions and construction waste.

Introduction

The evolution of a city's physical form and the fortunes of its buildings are influenced by a range of economic, social, political, legislative and environmental forces that change over time. In 'The Death and Life of Great American Cities' (1992, p61) Jacobs observes that: *'time makes the high building costs of one generation the bargains of a following generation. ...time makes certain structures obsolete for some enterprises, and they become available to others.'*

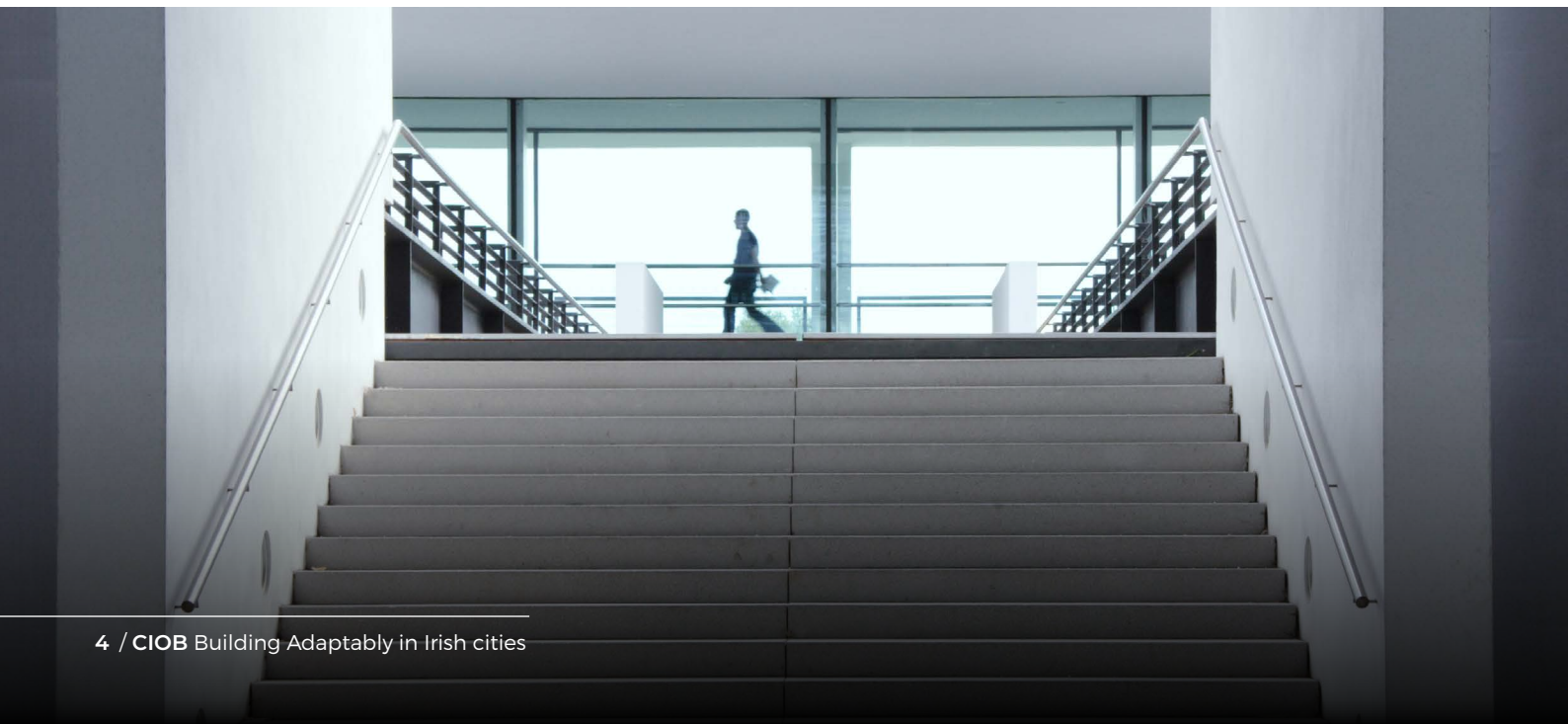
Indeed, throughout history, successful cities have been marked by their buildings' ability to adapt to changing circumstances. Celebrated examples include the Parthenon, which transitioned from a Greek temple to a treasury, a church, a mosque and now a tourist attraction (Mohamed et al., 2017); the 17th century canal houses in Amsterdam changed from warehousing, to housing, to offices, and back to housing and shops (Leupen 2006; Remøy and Van der Voordt, 2014); and the conversion of mid-century office buildings in downtown Manhattan during the 1980s and 90s in response to a tight housing market, which led to the reinvention of New York City as a residential mecca (Aldana et al, 2024).

Despite these benefits, a 'present bias' (Hancock et al, 2022; Sennett, 2018) has emerged in the design of the modern built environment. This bias leads to the form of buildings being rigidly defined by immediate considerations, typically led by economic demand cycles, rather than more context-oriented and time-based considerations that consider future as well as actual scenarios (Askar et al, 2021). Present bias is seen in the rigidity of how form relates to function in modern buildings; whether they are commercial, residential, industrial, educational, or cultural, new buildings are typically built to fulfil a single function throughout their life span.

Changed work practices and a contraction of the tech sector (White et al, 2023) have exposed the costs of this rigidity. Urban office vacancy rates have reached historic highs (McKinsey, 2025), while cities simultaneously experience chronic housing shortages, most acutely in the very locations where offices lie vacant (Nelson et al, 2024; Morton and Elsden, 2021). This underuse presents a problem and an opportunity for designers of the built environment.

While vacancy is often framed by the commercial real estate industry as a problem facing older office buildings, the reality is vacancy is a sector-wide challenge (McKinsey, 2025). There has been a spate of high profile firms – Meta, Google, Tik Tok, and LinkedIn – turning down newly built, A-Grade office space on the basis of reduced demand for space from their work force (Grant, 2025). This suggests that the principle rather than the quality of office space is at the core of recent behaviour change.

Taken alongside the difficulties in delivering sufficient housing supply in these areas, this trend calls into question the first principles of how new buildings are designed, and points to an opportunity for adaptability to be embedded into the construction process.



Introduction
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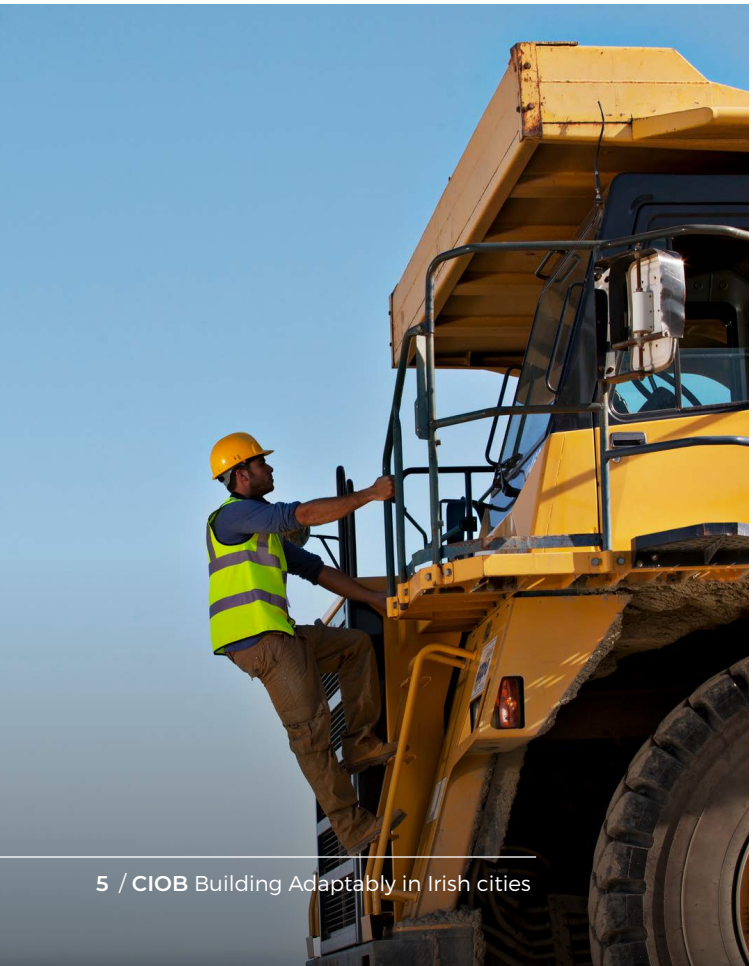
Building adaptability

The concept of building adaptability offers the construction sector the opportunity to evolve away from present bias, address vacancy, and meet real rather than speculative demand for buildings. In the current 'demolish and rebuild' (CIOB, 2022) building paradigm, vacant offices in urban areas appear as wasted assets. But, flexible and positive construction and planning policies that embed adaptability requirements for new buildings can turn vacancy in the commercial segment of the market into an additional source of housing in the residential segment. This is particularly the case where there is a disequilibrium between the supply of office space and the demand for residential accommodation (Heath, 2001), as is the case in Ireland's cities.

Beyond individual buildings, adaptability can play a wider role in the revitalisation of places and help to meet the growing pressure for residential accommodation in cities. Building adaptably is also environmentally sustainable as it promotes urban intensification, and – by avoiding the need to demolish and rebuild – reduces the embodied carbon footprint of the construction sector (Heath, 2001). The fit in a traditional building is restricted to the limits of function and form defined by immediate considerations. For an adaptable building, the fit is context-oriented and time-based, providing fit scenarios to both actual and future considerations. As Askar et al. (2021, p15) put it:



The concept of building adaptability offers the construction sector the opportunity to evolve away from present bias, address vacancy, and meet real rather than speculative demand for buildings. In the current 'demolish and rebuild' (CIOB, 2022) building paradigm, vacant offices in urban areas appear as wasted assets.

'The general understanding of adaptability stems from shifting the conventional perception of a building as a finished, static object towards contemplating it as a dynamic system that consists of the object and the process of construction, change, deconstruction, and reconstruction'.

Askar et al. (2021) point out a central distinction in building adaptability between new and existing buildings:

'The utilization of the concept of adaptability in the scope of the built environment usually refers to strategies targeting either (1) designing new buildings with prospective vision by incorporating adaptability solutions from the early design stages, or (2) redesigning of existing buildings by developing solutions to adapt the existing stock to emerging variables led to their current obsolescence status.

Point (2) normally considers strategies of retrofitting, rehabilitation, refurbishment, renovations, and adaptive reuse, among others; whereas point (1) involves using policy and regulation to ensure that new buildings are built in such a way that they can be adapted to different uses over time without sacrificing the quality of the building. Point 1 is the substance of this paper.

Research Question and Aims

This paper outlines a proposal to introduce a building adaptability requirement for new large scale building projects in Ireland's city development plans.[1]

To that end, this paper aims to answer the following research question:

What are the policies that can be put in place to incentivise new buildings being built in a way that allows for their adaptation to different uses over time?

This paper aims to explore how embedding building adaptability into Ireland's city development plans can address current social, economic, and environmental challenges associated with commercial vacancy and housing shortages. Specifically, it seeks to:

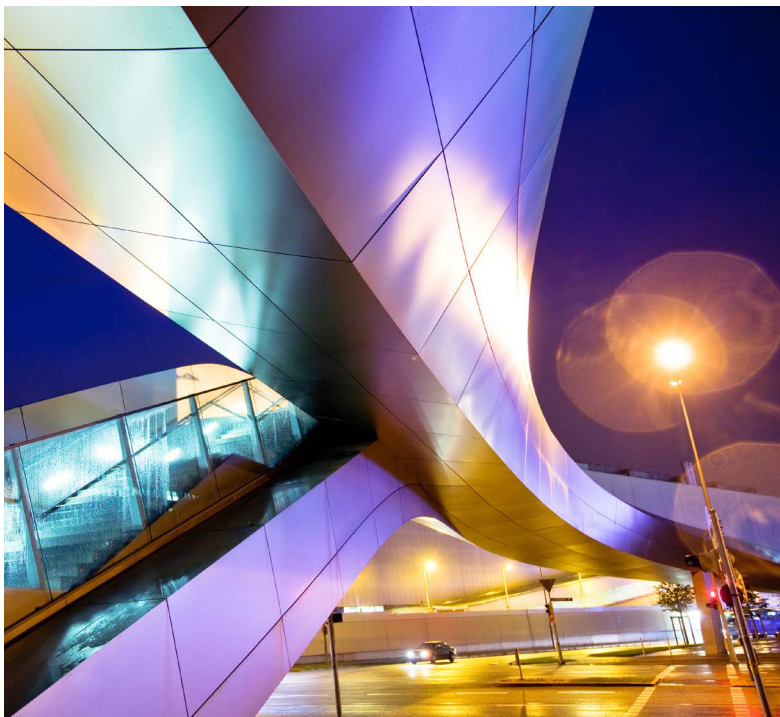
- Examine the potential social, economic, and environmental benefits of designing and constructing buildings adaptably—particularly in mitigating the housing crisis, reducing embodied carbon emissions, and promoting more efficient use of urban land and resources.
- Outline a policy framework for introducing a building adaptability requirement for large-scale developments within Irish cities, drawing on international best practice from cities such as London, Paris, and Amsterdam.
- Identify the key policy instruments and governance mechanisms at local and national levels that can incentivise and regulate adaptable building practices, ensuring that new construction aligns with long-term urban resilience, climate targets, and community needs.

In doing so, the paper aims to contribute to the evolving discourse on sustainable urban development by demonstrating that adaptability is both a design principle and a policy tool—one capable of bridging the gap between vacant space and housing demand, while fostering a more circular and climate-resilient built environment.

Structure

The paper is structured as follows.

- Firstly, the impacts of commercial vacancy on cities are discussed, and the current state of vacancy in the commercial real estate market in Ireland's cities is outlined.
- The possibility of implementing an adaptability requirement for new buildings in Ireland's cities is explored with reference to similar requirements in international cities' development plans.
- Following that, the the socio-economic conditions that allow adaptability to succeed in a given location are considered; the situation in Ireland's cities is assessed against these conditions.
- The physical characteristics of buildings that facilitate efficient adaptation are outlined.
- The paper concludes with 4 policy recommendations, aimed at embedding building adaptability into the design and construction of new buildings in Ireland's cities.



[1]A large scale building project is a construction project involving extensive planning, resources, and labour aimed at creating large structures or complexes, often spanning significant areas and requiring considerable time to complete.

Vacancy and speculative commercial real estate development

Overbuilding of office space has been a feature of the commercial property sector for decades (Gallagher & Wood, 1999). This is related to the difficulty of predicting the market at the time of delivery and predicting how long production will take. Even if investors can predict the business cycle, this can still lead to overbuilding. The production lag can turn out to be longer than expected, leading to the construction of new office space in a time of reduced demand (Brunes, 2005).

Social and Economic costs of Vacancy

The social, spatial, and economic costs of overbuilding office space are significant. International evidence indicates that overbuilding often results in a large 'lump' of oversupplied vacant space, unable to be absorbed by the market (Ness & Xing, 2017). The dynamics of the property market means that this lump gradually sinks through the various grades of property strata, leaving cities with a physical legacy of substantial amounts of disused, obsolete office space (Ferreri and Vasudevan, 2023; Lee et al, 2023; Newman et al, 2016; Ness, 2021).

Furthermore, the literature suggests that this overbuilding, and the resulting disused space, has detrimental social, economic and environmental effects on the local community. These include: a waste of resources, vis a highly in demand construction workforce struggling to meet housing and infrastructure need (Department of Further and Higher Education, Research, Innovation and Science, 2022), increased urban blight (O'Callaghan, 2023), and elevated levels of embodied carbon (O'Hegarty and Kinnane, 2022).

Even in scenarios where vacant space is not vacant in the long term, the effects of short to medium term vacant office space ripple through the urban economy, because many buildings are financed through short-term loans from banks. If real estate firms are unable to make rent money from commercial tenants, they may default on their loans, increasing the risk for banks. This leads to an 'urban doom loop' (Gupta et al., 2022) where a downturn in real estate, made worse by bad loans, contaminates banks and, potentially, the national economy. Also, without commercial occupants property taxes fall. Commercial property tax revenues are an important component of the budget of city councils, which means less money for public services (Brosy et al, 2024).

Environmental Impact of Vacancy

The environmental impacts of vacancy are significant. The built environment accounts for 37% of Ireland's carbon emissions. Heating, cooling, and lighting buildings – operational carbon – accounts for 23% of national emissions, with the remaining 14% attributable to embodied carbon (O'Hegarty and Kinnane, 2022). Embodied carbon emissions result from the entire process of construction: from mining, quarrying, and transporting building materials; the building process itself; and finally demolition - one of the most carbon hungry activities in the economy (CIOB, 2022). Embodied carbon emissions in the built environment sector are rising and require a firm policy response if Ireland is to meet its net zero 2050 target.

The construction sector in Ireland generated an estimated 8.2 million tonnes of waste in 2020 (based on data reported by authorised waste collectors and local authorities) (Environmental Protection Agency, 2022). Figure 1 summarises national Construction and Demolition Waste (CDW) projections from 2020 to 2029, illustrating that the annual quantity of CDW generated in Ireland is projected to almost double by 2029, corresponding with a steady increase in the level of construction activity.

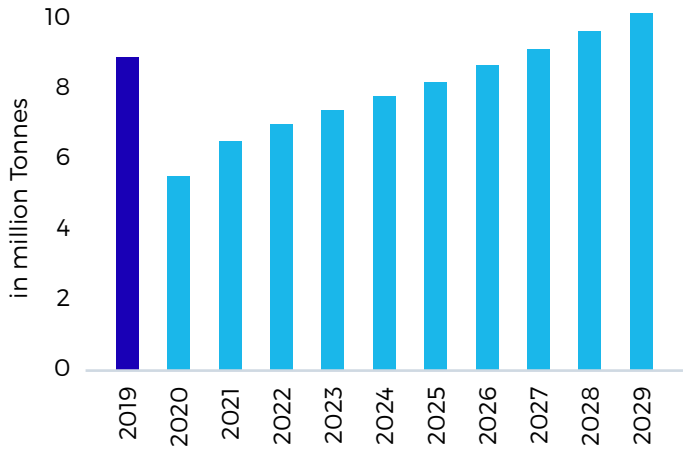


Figure 1: Construction and Demolition Waste Projections 2019-2029 (Government of Ireland, 2022)

Vacancy and speculative commercial real estate development (continued)

With the construction sector having experienced a remarkable resurgence since the COVID-19 pandemic, there is once again high demand for construction. The continual demand for development means action needs to be taken to reduce the accompanying embodied carbon emissions from the built environment. Put simply, there is an upward trend forecasted for CDW from 2021 to 2029, and embodied emissions are forecasted to increase (Government of Ireland, 2022) . Is this the space for policy intervention?

The embodied carbon and CDW impact of building in the traditional 'demolish and rebuild' model (Ricketts, 2024) could be significantly mitigated if new buildings were built in such a way that allowed them to be adapted to different uses over time. Rather than demolishing an old building and building a new one – one of the most carbon intensive activities in the economy (CIOB, 2023), building adaptably would allow the existing building to be repurposed to a new, in demand use, thereby avoiding the need to demolish and rebuild, saving on both CDW and embodied carbon

Commercial Vacancy in Ireland's Cities

Demand in Ireland's urban office market is undergoing significant change, resulting in structural vacancy in certain segments. Meaning, vacancy in the commercial real estate sector is attributable to long-term, underlying factors, rather than short-term fluctuations in demand or property management practices (Remøy et al, 2009).

In Dublin, research throughout 2023 and 2024 found that the office segment of the commercial market is over-stocked with space, (McCartney, 2025; Lisney, 2025) which is reflected in Dublin's high office vacancy rate. Nevertheless, during this period the quantum of office space continued to rise more quickly than new occupancies commenced (McCartney, 2024). This incongruity between supply and demand drove Dublin's vacancy rate to 15.7% during 2024 – the highest vacancy rate of any major city in Europe.

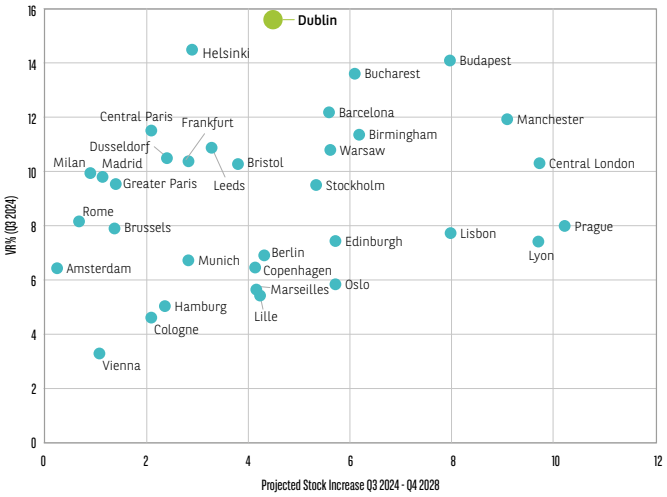


Figure 2: Office market vacancy in European cities (Image courtesy of BNP Baribas)

In Dublin, there was more office construction in Q1 2024 than in all of 2023. While the fall off in demand has led to the stalling or cancellation of some high-profile projects due to viability concerns, the projects that do manage to reach completion add to already elevated vacancy (Lisney, 2024). Indeed, the take-up of new space during 2024 largely came from a churn of existing commercial tenants rather than new entrants, meaning the overall rate of vacancy was not impacted by new leases (Savills, 2025).

This is a city-level instance of a wider national trend. The national commercial vacancy rate reached a new high of 14.4% in June 2024, with a total of 30,246 commercial units classified as vacant across the State, according to the GeoDirectory Commercial Vacancy Rates Report (2024). The analysis found that the commercial vacancy rate increased in 14 out of 26 counties surveyed. The highest commercial vacancy rates are be found in the west of the country with Sligo, at 20.5%, recording the highest proportion of vacant commercial units in Q2 2024. Donegal (19.4%), Galway (18.5%), Limerick (17.5%) and Leitrim (17.5%) rounded off the top five counties with the highest commercial vacancy rates.

Across Ireland's cities, office vacancy levels remain elevated, albeit with some variation between urban centres. In Cork, the commercial vacancy rate stood at 12.4% in late 2024, slightly below the national average of 14.5%, supported in part by public sector leasing activity, particularly from the Health Service Executive (Curran,

Vacancy and speculative commercial real estate development (continued)

2023). In contrast, cities in the west and Midwest, such as Galway and Limerick, are experiencing some of the highest vacancy rates in the country, with both cities recording rates exceeding 17.5% as of mid-2024 (GeoDirectory, 2024). This regional disparity highlights a structural oversupply of commercial space in parts of Connaught and Munster, especially in areas with older or less adaptable building stock. While Waterford lacks city-specific data, trends at the county level suggest similarly elevated vacancies consistent with broader patterns across the south-east (GeoDirectory, 2024).

In Northern Ireland, office vacancy is concentrated in the Belfast market. Belfast is currently experiencing a significant office vacancy challenge, with approximately 1.24 million square feet of office space reported as vacant at the end of 2022—roughly five times higher than in 2018 (McAleer, 2023). At existing levels of market demand, it would take up to four years to absorb this excess supply, suggesting a considerable mismatch between supply and occupier needs. Notably, 2024 marked the first year in nearly a decade with no new office completions in the city centre, indicating a slowdown in development activity and waning investor confidence (Deloitte, 2025).

Factors underlying reduced demand

There are several structural factors underlying this fall off in demand for office space, in particular changing work practices, and a contraction of the tech sector since mid-2022. Having spiked during the covid pandemic, the incidence and intensity of remote working stabilised in 2024 with the proportion spending most of their time outside the office stabilising at around 58% (Business Post, 2024). Further, a correction of the stock market in 2022 has led to a contraction in the tech sector globally, leading to shrinking workforces and less demand for office space. The spatial impact of this contraction was particularly clear in tech heavy cities such as Dublin, where tech firms accounted for 51% of new office leases between 2017 and 2021 (McCartney, 2024).

Housing

This heightened vacancy, and misalignment of building supply with building demand, comes in the context of a long-term shortfall of housing in Ireland's cities. The level of unmet housing demand has led to well publicised overcrowding, unaffordability, homelessness, and an overheating rental sector (Housing Commission, 2024). The level of office vacancy occurring in the context of a housing shortfall suggests a significant failure of the speculative building model to meet real demand. If adaptability requirements had been in place, the current mismatch of commercial versus residential real estate may not exist. This is therefore the space for policy intervention. Policy can correct this failure of the speculative building model, and ensure that new buildings meet the prevailing needs of society rather than speculative future demand.

This heightened vacancy, and misalignment of building supply with building demand, comes in the context of a long-term shortfall of housing in Ireland's cities.

Correcting the problem

In order to facilitate the construction of buildings that can be adapted to different uses over time, developers and architects could incorporate change-of-use into building design. Are there policy levers that can encourage them to do so? A shift away from the traditional 'demolish and rebuild' (CIOB, 2023) model can be achieved by making adaptability an important issue in the briefing and design of office buildings.

Circular economy solution

Rather than accepting vacancy as the cost of doing business, the CIOB sees potential to address vacancy through design that supports adaptability, repair, and maintenance, in line with the indicators of a framework such as the EU Framework for sustainable Buildings, Levels (Dodd et al, 2017). The most significant environmental impacts of constructing a building relate to its structure and facade. If the useful life of the building, and therefore also its structure, can be extended, this will significantly reduce its embodied carbon footprint. Further, if a building can be quickly adapted to a use that reflects immediate local need – residential, for example – building adaptability could address the social and economic costs of vacancy, and create a new source of housing supply in central urban areas.

The proposal

The proposal is to introduce adaptability metrics into the planning permission decision-making process. Assessing a building's potential adaptability would ensure that new buildings are designed to meet real demand, rather than to meet future speculative demand for office space that may not materialise given changing occupancy habits.

While an adaptability requirement would be overly onerous on smaller developments in peripheral locations, implementing an adaptability score could be effective in central urban locations, where changes in demand for building types are frequent. Further, putting such a requirement in city development plans would avoid the administrative burden of a piecemeal, case by case adoption.

As per the European Commission's 'Level(s) indicator 2.3: Design for adaptability and renovation guide' (Dodd et al, 2020) a building's adaptability score can provide a semi-quantitative assessment of the extent to which the design of a building could facilitate future adaptation to changing occupier needs and market conditions. It can therefore provide a proxy for the capacity of a building to continue fulfilling its function and to extend the useful service life into the future (López Ruiz et al, 2021), thereby mitigating the negative impacts of overbuilding office space.

This proposal aligns with national planning policy, which prioritises dense, mixed-use development (Government of Ireland, 2025). From a legislative perspective – by offsetting the need to repeatedly reproduce the most significant environment impacts of construction - the proposals in this paper align with: the Climate Action and Low Carbon Development (Amendment) Act 2022, which requires major emissions cuts from buildings to help achieve a climate-neutral Ireland by 2050; and the Circular Economy and Miscellaneous Provisions Act 2022, which promotes reuse and resource efficiency in construction to cut building-related emissions. By providing a score for adaptability, developers, local planning authorities and communities will be presented with clear options to take a longer view on the design aspects that may influence the building's service life.

Options to introduce an adaptability requirement for new buildings in Ireland's cities include:

- An adaptability score could be embedded in individual planning decisions, as part of a new development's Environmental Impact Assessment.
- City development plans could create a requirement that buildings of a certain scale in the urban core must achieve a certain adaptability score, according to a framework such as EU Levels.
- A score such as 'Level(s) indicator 2.3: Design for adaptability and renovation' could be introduced via Green Public Procurement for all publicly procured buildings.

The principle for such a spatially sensitive construction policy is already in place in Ireland's national planning guidelines. For example, it is recommended that the quantum of car parking or requirement for such provision should depend on the location of development. In central urban locations, according to Planning Guideline 28,13 (Department of Housing, Local Government and Heritage, 2020) parking provision should be minimised or eliminated, whereas in peripheral locations restrictions can be relaxed. This principle of employing a spatial criterion could be used to implement adaptability scoring for buildings.

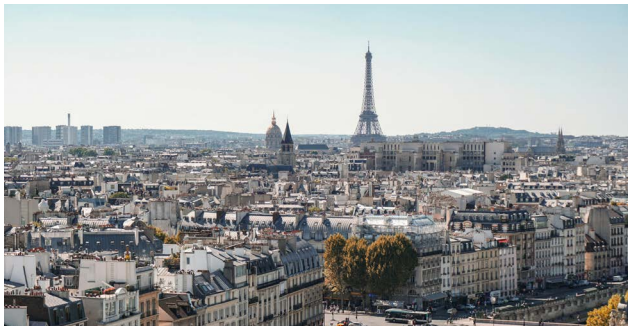
Case Studies

Many cities have already tailored their approach to changed commercial occupancy patterns since the COVID-19 pandemic. London, Paris and Amsterdam have each implemented policies that ensure that new buildings in their city centres are adaptable to different uses depending on real demand.

Case Study:
London — Embedding Adaptability Through Policy D3

The London Plan 2021 integrates adaptability into the core of its spatial and design policy, most notably through Policy D3: Optimising site capacity through the design-led approach (Greater London Authority, 2021).

This policy requires that development proposals must demonstrate how they have been designed to be 'fit for purpose…now and in the future'. In line with the Plan's emphasis on long-term resilience and sustainable growth, buildings must incorporate features that allow for flexible internal layouts, such as generous floor-to-ceiling heights and robust servicing infrastructure to support changes of use over time. The Boroughs of Camden and Hackney have reinforced these requirements at the planning application stage by requiring proposals to show how developments will enable adaptation to different occupancy patterns, including shifts from office to residential uses (London Borough of Camden, 2023; London Borough of Hackney, 2023). This requirement ensures that new buildings contribute to a high-quality built environment that is responsive to evolving economic and social needs. As a result, adaptability is embedded as a functional necessity within the city's planning framework.



Case Study:
Paris — Mandating Reversibility and Circular Construction

Paris has placed adaptability at the core of its urban development strategy through regulations that emphasize reversibility and sustainability in new construction (City of Paris, 2025).

Under the framework of France's RE2020 environmental regulation, buildings are encouraged—and in certain public or civic projects required—to incorporate demountable, modular, or reversible design techniques that facilitate future changes in use. The city's commitment to a circular economy is reflected in policies mandating that construction methods and materials prioritise reuse and flexibility, enabling buildings to evolve in response to shifting social, economic, and environmental demands. Additionally, Paris employs zoning that promotes the integration of mixed-use developments, requiring developers to consider potential conversions between commercial and residential functions from the outset. This policy approach ensures that urban growth remains resource-efficient and resilient, supporting the city's broader goals of climate neutrality and social inclusivity.

Case Studies
(continued)

Case Study:
Amsterdam — Promoting Adaptable and Circular Building Practices

Amsterdam actively mandates adaptability through its commitment to circular economy principles and sustainable urban development.

Municipal policies require that new buildings, especially those developed on public land or within designated innovation districts, incorporate modular construction methods, demountable components, and flexible infrastructure systems to enable future changes in use. The city's development framework emphasizes design for disassembly, and 'long-life, loose-fit' (City of Amsterdam, 2025) principles, encouraging developments to be easily reconfigured or repurposed over time. By embedding these requirements into building permits and land-use agreements, Amsterdam ensures that its built environment supports resource efficiency, waste reduction, and resilience. This approach aligns with the city's broader goals of achieving a carbon-neutral and circular urban economy by 2050, making adaptability a cornerstone of sustainable growth.

Developing Policy for Ireland's Cities

By integrating clear policy frameworks that mandate flexible building design, Ireland's city development plans can ensure that new buildings remain resilient and responsive to changing economic, social, and environmental conditions. For example, adopting a policy similar to London's Policy D3 could require that developments demonstrate how their designs support long-term adaptability through features like generous floor-to-ceiling heights, robust servicing infrastructure, and flexible internal layouts that accommodate different uses over time—such as conversions from office space to residential units. This approach is especially timely given the rising issue of office vacancy in many Irish cities, driven by evolving work patterns and increased remote working. Mandating adaptability would allow existing and new office buildings to be more easily converted into much-needed housing supply, addressing two critical challenges simultaneously: reducing underused commercial space and easing housing shortages.

Drawing from Paris' focus on reversible and modular construction techniques, Irish cities can encourage buildings designed for demountable components and circular economy principles, minimising waste and cost during conversions. Similarly, following Amsterdam's lead, embedding design-for-disassembly requirements into planning permissions—especially on public or regeneration lands—can facilitate smoother transitions between uses.

By adopting these mandates, Ireland's city development plans can promote a resource-efficient, resilient, and socially-inclusive urban environment that supports sustainability and climate goals, and helps to revitalize vacant office spaces and increase housing availability.

Socio-Economic conditions that facilitate building adaptably

In the examples of London, Paris and Amsterdam there exist a set of circumstances that allow for the successful adoption of an adaptable building regime. Indeed, evidence suggests that there are necessary conditions that must exist to facilitate the construction sector pivoting away from the traditional 'demolish and rebuild' model, toward an adaptable buildings model in any city (Remoy et al, 2009).

These conditions are discussed below, under the headings: macro-economic conditions; location of vacancy; demographics; and governance. The situation in Ireland is assessed against each condition.

Economic conditions

The high-level economic conditions that make building adaptably feasible are: a tight housing market, and a high supply of obsolete office space (Remoy et al 2014). In urban areas where housing demand significantly exceeds supply, converting underutilized commercial buildings into residential units can alleviate shortages while maximizing land use efficiency (Bullen & Love, 2011). Simultaneously, the economic obsolescence of many office buildings has rendered traditional commercial models less viable, making adaptive reuse a financially attractive alternative (Langdon, 2022). These conditions reduce the relative cost of acquisition and renovation compared to new construction, thereby enhancing the return on investment and promoting sustainable urban regeneration (Shipley, Utz, & Parsons, 2006).

The situation In Ireland: Each of Ireland's cities meets these criteria: commercial real estate is in a state of structural vacancy, and there is a chronic supply and affordability problem in the housing market (Housing Commission, 2024). The perpetual growth of the tech sector in the 2010s led to high estimates for office space demand, particularly in Dublin. The advent of remote working, and the contraction of the tech sector has led to a collapse in demand for office space, much of which has already been built in anticipation of perpetual growth as per the speculative model of commercial real estate development (Rosenthal et al, 2022). Concurrently, Ireland's cities have struggled to create new sources of housing supply, resulting in a chronic shortfall of housing.

Location of vacancy

Evidence suggests that vacant properties in city centres are optimal for adaptability as patterns of use change frequently in these areas (Jones et al, 2010). Conversely, conversion of office buildings in business parks and peripheral areas is rarely succesful, due to the lack of demand for housing in these locations (Remoy and Van der Voot, 2014).

The situation in Ireland Office vacancy in Ireland is disproportionately concentrated in city centres (EY Ireland, 2024), where vacancy rates have reached significantly higher levels than the national average (GeoDirectory, 2024). While suburban and rural areas also experience vacancy, city cores hold a disproportionate share.

Demographics and household composition

Areas with demographic trends suggestive of a smaller household size with preferences for smaller properties facilitate the feasibility of building adaptability. Smaller units are conducive to conversions, as office to residential typically yields 1-2 bedroom units in an apartment complex style development (Hubbard et al, 2021).

The situation in Ireland Demographic trends across Ireland's cities show a shift toward smaller household sizes and an accompanying rising demand for more compact housing. According to the Central Statistics Office (CSO) (2023), the average household size declined to 2.74 persons in 2022, continuing a long-term trend from 3.34 in 1991. One-person households now account for over 23% of all private households, reflecting broader societal shifts such as delayed family formation, ageing populations, and rising independent living among younger adults. Despite this trend, under-occupancy in

Conditions that facilitate building adaptably
(continued)

Ireland remains among the highest in Europe, with an average of 2.1 rooms per person, above the EU average of 1.6 (CSO, 2023; Savills, 2024).

Furthermore, the Economic and Social Research Institute (ESRI) has highlighted a growing mismatch between demographic needs and the existing housing stock, which remains disproportionately geared toward larger, family-sized homes (McQuinn et al, 2024). This mismatch is particularly acute in urban areas, where demand for one- and two-bedroom units far exceeds supply, driven by young professionals, childless couples, and older adults seeking to downsize. As household structures change, Ireland's cities need to diversify housing supply, prioritising smaller, more flexible dwellings that align with contemporary urban living patterns.

Governance

The successful adoption of building adaptability at the city level is often underpinned by a stimulating and active local government (Remoy et al, 2009) who are willing to use their devolved powers to influence the type and quality of buildings delivered in the city.

The situation In Ireland: Ireland's city development plans allow for city councils to play this catalysing role toward the texture of their city's built environment. City development plans are legally binding policy documents required under Irish law. Every city council must prepare, adopt, and regularly review its development plan, aligning it with national policy objectives, regional spatial and economic strategies, and climate action mandates. This makes the city development plan an ideal opportunity for local government to influence the nature of their built environment, particularly in respect of changes that will deliver on Ireland's legally binding climate action mandates (SEAI, 2021).

Ireland provides an ideal environment for building adaptably

Considering the macro-economic context, demographics, location of vacancy, and governance, the situation in Ireland satisfies the conditions required for the adoption of an adaptable building model of construction. The combination of rising office vacancy and housing demand, increasing construction costs, and a growing urban population has created a pressing need for more flexible and efficient building methods. Adaptable construction models—such as modular and offsite manufacturing—offer the potential to deliver high-quality, sustainable buildings more quickly and cost-effectively, while also allowing for future changes in use or occupancy.

Building characteristics that facilitate adaptability

From a technical perspective, there are a number of physical factors that allow buildings to be converted efficiently, without sacrificing quality. A successful policy regime to incentivise building adaptability will ensure that new buildings are built in a way that fits these characteristics.

Open Building

The 'Open Building' term implies a notion of simple structures that easily succumb to flexibility and change overtime. Habraken (2021) suggested a separation between two building elements: the structural support 'Base building,' subjected to the investor decision, and the flexible infill 'fit-out' that follows inhabitants' decision (Askar et al, 2021). Post-war office buildings were designed as 'cockpits' to fit closely around the function they were meant to accommodate (Brand 1995). This rigidity threatens the functional feasibility of conversion into housing, and is a feature that persists in 'present bias'-based building practices today. Buildings designed for adaptability share a set of spatial, structural, and technical characteristics that make it easier to accommodate future changes in use, such as converting office space to residential units

Generous floor-to-ceiling heights and shallow floorplate

One key feature is generous floor-to-ceiling heights, which support a variety of functional needs and improve access to natural light, ventilation, and mechanical systems (Duffy, 1992). Equally important are shallow floorplates, typically no more than 14 metres deep, which ensure sufficient daylight and cross-ventilation for residential standards and help meet regulatory requirements such as minimum daylight factors (Romberg et al., 2022).

Centralised core layout and accessible systems

A centralised core layout—with elevators, staircases, and services grouped in a compact vertical zone—enhances spatial flexibility by allowing large, open, reconfigurable floor areas around it (Kendall, 1999). Non-load-bearing internal partitions further improve adaptability by enabling spaces to be subdivided or opened up without major structural interventions, significantly reducing renovation costs and construction waste (Beadle et al., 2018). Finally, buildings with accessible, zoned mechanical, electrical, and plumbing (MEP) systems—including oversize ducts and risers—make it easier to reconfigure or add new services during a change in use. These systems support both partial and full conversions, enabling a smoother transition between building typologies (Femenias & Geromel, 2019).

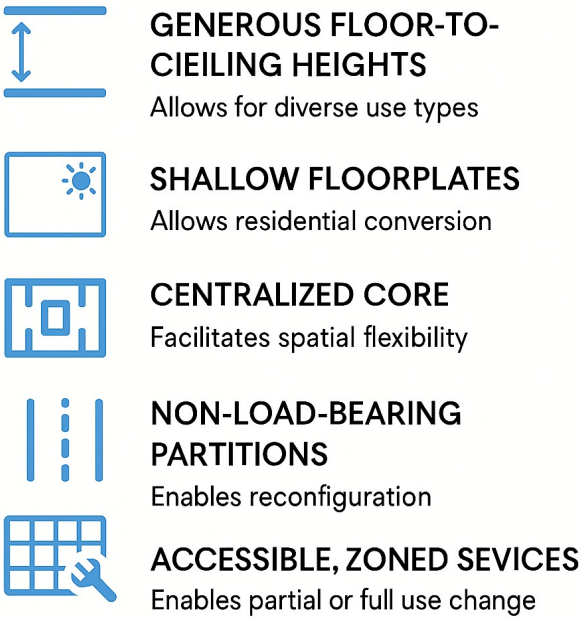


Figure 3: Building Characteristics that facilitate conversions

Recommendations

The compatibility of the situation in Ireland's cities with the economic, spatial, demographic, and governance conditions required for adopting a building adaptability regime, coupled with international best practice, and the EU Levels Adatabiltiy framework, suggests that now is the time to act. Policy measures introduced today can ensure that new buildings can be adapted to future needs, rather than lying vacant.

Below we make 4 policy recommendations, each of which would embed building adaptability into the design and construction of new buildings in Ireland's cities. Recommendations 1 – 3 address city development plans, while recommendation 4 addresses national policy vis public land sales.

For City Development Plans

1. **Mandate that all new large-scale developments in the city centre demonstrate design adaptability using standardised assessment tools—such as EU Level(s) Indicator 2.3—to ensure long-term spatial and functional flexibility.**

Introducing a mandatory requirement for adaptability assessments at the planning stage would ensure that new developments are designed with future change in mind. Tools like EU Level(s) Indicator 2.3 provide a clear, structured framework for evaluating how easily a building can accommodate different uses over its lifespan. This encourages developers to integrate design elements—such as flexible floorplates, service zoning, and non-load-bearing partitions—from the outset. Over time, this policy would contribute to a building stock that is more resilient to demographic shifts, climate policy changes, and market volatility.

2. **Require planning applications for large-scale commercial or residential projects to include renovation and conversion scenarios as part of their design proposals.**

By requiring applicants to submit conversion scenarios, planning authorities can assess whether large developments have been designed with flexibility and future-proofing in mind. This would help prevent the long-term obsolescence of buildings that are overly specialized or rigid in design. The scenarios could outline how an office building could later support residential use, co-living, or other mixed uses, depending on urban needs. This approach embeds adaptability in design thinking from the earliest stages of development and supports more sustainable land use.

3. **Incentivize the use of modular, demountable, and circular construction methods through fast-tracked permitting or density bonuses for developments that exceed adaptability benchmarks.**

Offering tangible incentives – such as expedited planning approval or additional floor area ratio – would encourage developers to adopt innovative, future-ready construction methods. Modular and circular construction techniques improve adaptability and reduce embodied carbon and construction waste (CIOB, 2024). A benchmarking system could assess developments against predefined adaptability and sustainability thresholds. This policy would reward forward-thinking design while accelerating progress toward Ireland's climate and housing goals.

For National Policy

4. **Embed design-for-adaptability criteria into public land sales and procurement contracts to ensure that publicly funded or facilitated developments are future-proofed for changing uses.**

When public land is released for development, it presents an opportunity to set higher standards for design adaptability through procurement frameworks and contract conditions. Requiring that projects on public land include adaptability features ensures long-term value for taxpayers and reduces future retrofit costs. This policy could also lead to demonstration projects that set an example for private-sector adoption. Public sector leadership in this area would send a strong signal to the market and support the creation of a more flexible, sustainable urban fabric.

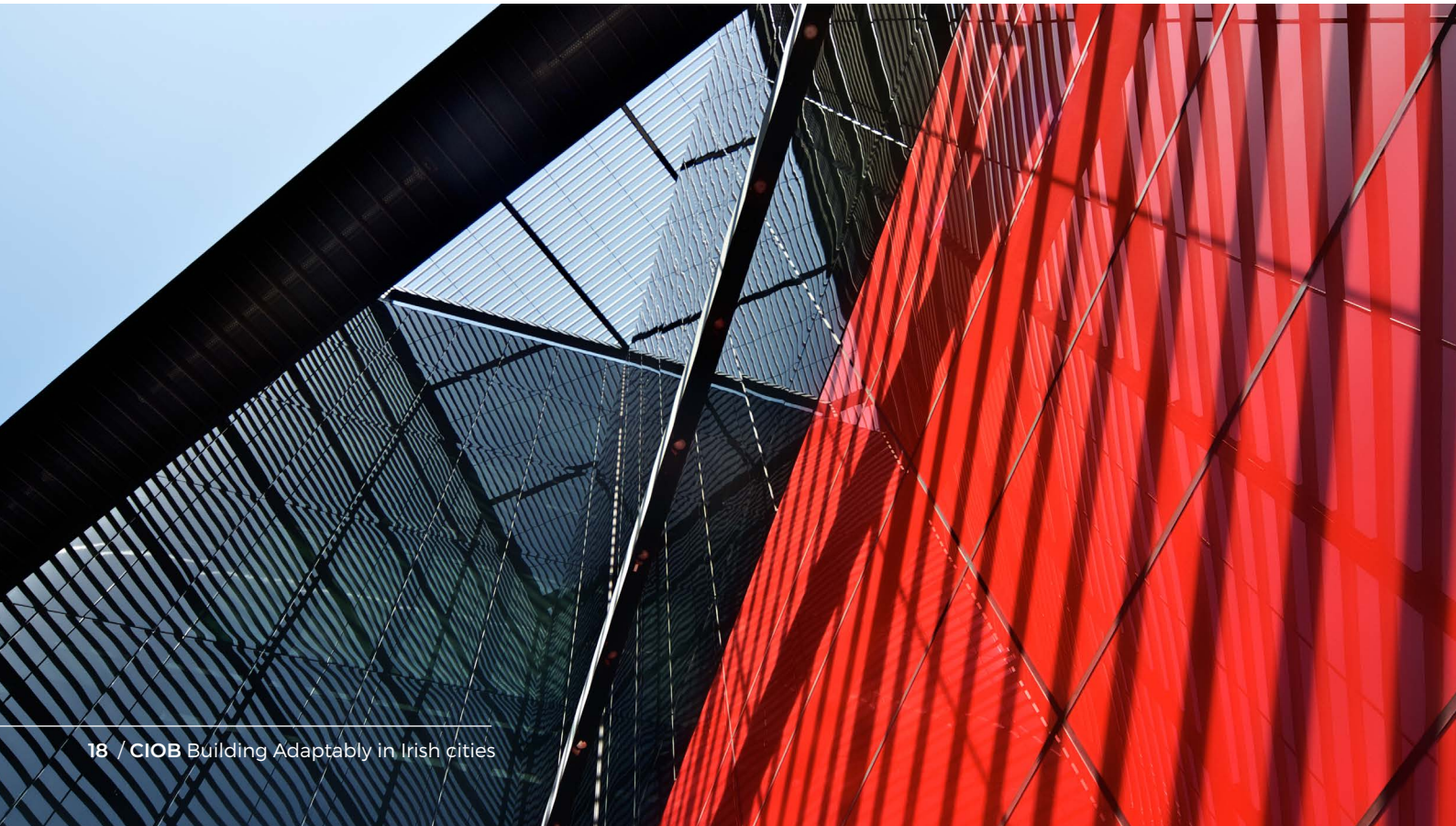
Conclusion

The evidence presented in this paper demonstrates that Ireland's cities now stand at a pivotal juncture in their urban development trajectory. The coexistence of record-high office vacancy rates and a persistent housing shortage reveals deep structural imbalances in how the built environment is produced and consumed.

The prevailing "demolish and rebuild" model—driven by short-term economic cycles and speculative expectations—has proved both environmentally and socially unsustainable. By contrast, embedding adaptability into the design and regulation of new buildings offers a practical and forward-looking means of aligning urban development with real demand, long-term sustainability, and climate resilience.

International experience from London, Paris, and Amsterdam illustrates that adaptability is not an abstract design ideal but a policy tool capable of transforming how cities grow and regenerate. These cities show that planning policies which require flexible layouts, modular construction, and reversible design can extend the functional lifespan of buildings, reduce embodied carbon, and enhance the social and economic vitality of urban centres. Ireland possesses the key conditions necessary for similar success: strong governance structures through its City Development Plans, a clear policy mandate for sustainable development, and a pressing need to reconcile vacancy with housing demand.

By adopting the proposed policy measures—mandating adaptability assessments, requiring conversion scenarios, incentivising modular construction, and embedding adaptability in public land development—Irish cities can create a more resilient, circular, and inclusive urban fabric. Such reforms would enable buildings to evolve alongside the societies they serve, converting underused assets into homes and communities rather than waste. In doing so, Ireland can move beyond reactive, speculative building practices toward a proactive, adaptable, and sustainable model of urban development fit for the 21st century.



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The Chartered Institute of Building,

3 Arlington Square,
Downshire Way,
Bracknell,
RG12 1WA, UK

Tel: +44 (0)1344 630 700

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