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The Evidentiary Challenge of Circular Construction for Financial Accounting Disclosure and Property Valuation Inclusion

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Abstract

The growing availability of digital information on circular building characteristics raises the question of whether such information can be incorporated into established financial accounting and property valuation practices. This study examines how circular building attributes can support existing accounting and valuation mechanisms, and it identifies the evidentiary conditions required for their practical application. The analysis combines an examination of relevant International Financial Reporting Standards with primary qualitative evidence from four accounting and auditing professionals and a secondary analysis of 13 interviews with professionals in the Swiss real-estate sector. The findings show that existing mechanisms can, in principle, accommodate several economically consequential circular attributes, in both financial accounting and property valuation. In financial accounting, component-based depreciation, useful-life estimates, and residual value provide potential entry points. Property valuation approaches can reflect circularity through parameters including future capital expenditure, renovation cycles, income, vacancy, residual value, and risk. However, the availability of circularity information alone is insufficient for financial incorporation. The study identifies two related evidentiary conditions: technical credibility, concerning the reliability and verifiability of building-level information, and economic

substantiation, concerning the translation of circular attributes into defensible financial assumptions. The study therefore reframes the financial challenge of circular construction from one of missing financial mechanisms to one of evidentiary translation.

Keywords: Circular Economy, Circular Construction, Financial Accounting, Financial Disclosure, IAS 16, IAS 40, IFRS 13, Property Valuation, Technical Credibility, Economic Substantiation, BIM, Material Passports

List of Abbreviations

BIM	Building Information Modelling
CA	Carrying amount
CAPEX	Capital Expenditure
CE	Circular economy
DCF	Discounted Cash Flow
et al.	et alii (masculine), et aliae (feminine), or et alia (neuter) *(latin: and others)*
FV	Fair value
IAS	International Accounting Standards
IASB	International Accounting Standards Board
IFRS	International Financial Reporting Standards
ISA-CH	International Standard on Auditing - Confederation Helvetica
MP	Material Passport
n.d.	no date
PPE	Property, Plant and Equipment

1. Introduction

The transition toward a circular economy (CE) is changing how buildings are designed, constructed, used, and dismantled. Circular strategies such as component reuse, design for

disassembly, adaptability, and material recovery seek to preserve the functional and economic value of buildings and their components over longer periods (Reike et al., 2018; Guerra et al., 2021). At the same time, digital technologies such as Building Information Modelling (BIM) and Material Passports increasingly enable circular building attributes to be documented, quantified, and traced (Honic et al., 2019; Atta et al., 2021).

While these developments improve the availability of circularity information, their implications for the financial representation of buildings remain unclear. Existing research on circular construction has predominantly focused on environmental performance, material flows, circular design strategies, and the development of indicators and digital tools (Charef et al., 2021; Guerra et al., 2021). Comparatively less attention has been paid to how circularity information connects to established financial reporting and valuation practices. Existing research on corporate reporting also indicates that circular economy information remains only partially integrated into established reporting structures (Opferkuch et al., 2022; Nazir & Capocchi, 2024). This is particularly relevant because circularity may affect economically consequential characteristics such as component useful lives, residual values, renovation cycles, future costs, and potentially income and risk.

Existing financial frameworks already contain mechanisms through which several of these economic consequences may, in principle, be reflected (IASB, 2023a, 2023b, 2023c). However, the existence of measurable circularity information does not automatically make it financially relevant. Accounting recognition depends on applicable recognition and measurement requirements and on sufficiently reliable evidence, while property valuation additionally requires circular attributes to be translated into economically substantiated assumptions and parameters. The central issue is therefore not only whether circular attributes can be measured, but under what conditions they can be incorporated into financial accounting and valuation.

Against this background, this study examines the following research question:

How can circular building attributes be incorporated through existing accounting and valuation mechanisms, and what evidentiary conditions enable their practical application?

The study combines an analysis of relevant International Financial Reporting Standards (IFRS) with qualitative evidence from accounting, auditing, and real-estate valuation professionals. In doing so, it connects three perspectives that are typically considered separately: the

accounting mechanisms available to represent the economic consequences of circularity, the evidentiary requirements associated with their application, and their potential incorporation into property valuation. The remainder of the paper is structured as follows: Section 2 develops the theoretical background, Section 3 describes the methodology, Section 4 presents the findings, Section 5 discusses their implications, and Section 6 concludes.

2. Theoretical Background

The transition toward a circular economy raises the question of whether the economic consequences of circular building practices can be represented within existing financial reporting frameworks. This study focuses on International Financial Reporting Standards (IFRS), which provide a globally recognized framework for financial reporting (IFRS Foundation, n.d.). Although IFRS were not specifically developed to address circular economy principles, existing standards already contain mechanisms through which some economic consequences of circular construction may be reflected. In the construction and real-estate context, IAS 16 Property, Plant and Equipment, IAS 40 Investment Property, and IFRS 13 Fair Value Measurement are particularly relevant (IASB, 2023a, 2023b, 2023c).

A first distinction concerns the accounting classification of buildings. Properties used in the production or supply of goods and services or for administrative purposes generally fall within IAS 16, whereas properties held to earn rentals or for capital appreciation fall within IAS 40 (IASB, 2023a; IASB, 2023c). Under IAS 40, investment properties may subsequently be accounted for using either the cost model or the fair value model. Under the cost model, the principles of IAS 16 apply; under the fair value model, changes in fair value are recognized in profit or loss and measurement follows the principles established by IFRS 13 (IASB, 2023a; IASB, 2023b)**.** Under the cost model, changes in fair value do not result in adjustments to the carrying amount, which remains subject to applicable depreciation and impairment requirements. Under the fair value model, changes in fair value are recognized in profit or loss (IASB, 2023a, 2023b).

IFRS 13 defines fair value from a market-participant perspective and recognizes three main valuation approaches: the market approach, income approach, and cost approach (IASB, 2023b). These approaches provide potential channels through which economically relevant consequences of circularity may be reflected. The market approach relies on observable prices and comparable transactions; the income approach translates expected future economic

benefits into present value; and the cost approach considers the amount required to replace the service capacity of an asset (PwC, 2025). Circular characteristics such as adaptability, longer component lifetimes, reduced future replacement requirements, or recoverable material value may therefore become relevant where they demonstrably affect the inputs used within these approaches.

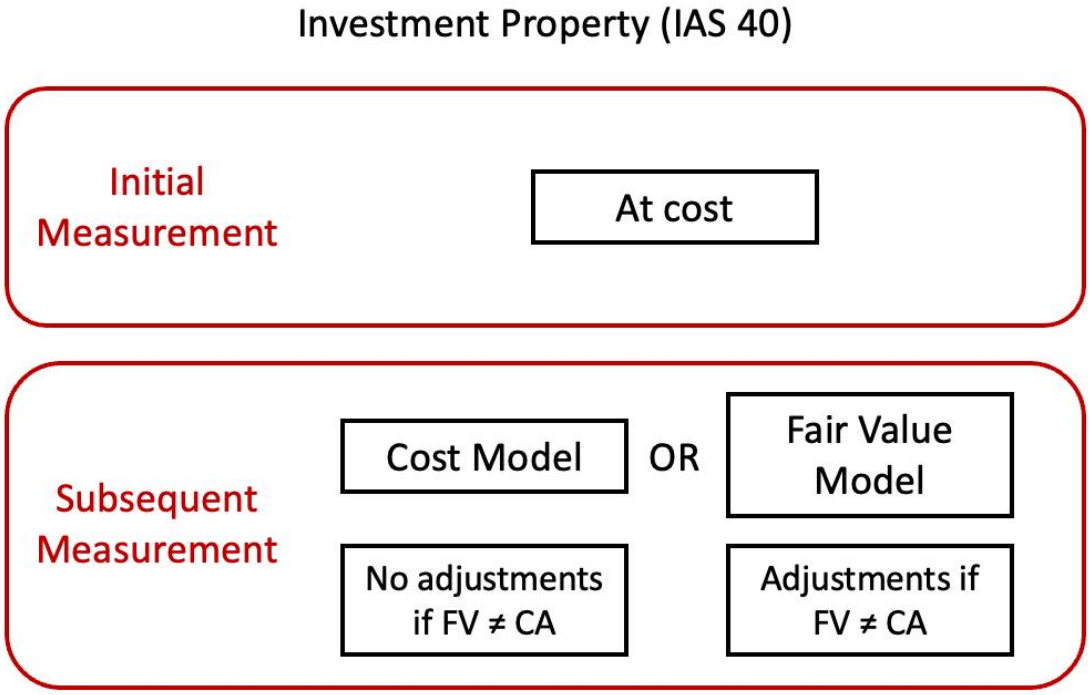


Figure 1: IAS 40 Measurement Methods

Note. Own elaboration based on IASB (2023a).

However, IFRS 13 also distinguishes inputs according to their observability. Its fair-value hierarchy prioritizes quoted and observable market information over unobservable assumptions (IASB, 2023b; KPMG, 2023). Level 1 inputs comprise quoted prices for identical assets in active markets, Level 2 inputs include other directly or indirectly observable information, and Level 3 inputs comprise unobservable inputs reflecting the assumptions that market participants would use when pricing the asset or liability (IASB, 2023b). This distinction is particularly relevant for circular construction, where detailed information on physical building characteristics may be available even when corresponding market evidence remains limited.

Financial reporting under IFRS must be distinguished from professional property valuation, although the two may rely on related valuation concepts. Property valuation commonly draws on three established approaches: the sales comparison approach, income approach, and cost

approach. The sales comparison approach derives value from transactions involving comparable properties, while the income approach estimates value based on the future economic benefits expected from the property. Within real-estate valuation, the income approach can be operationalized through discounted cash-flow (DCF) models. The cost approach instead estimates value with reference to the cost of replacing or reproducing the asset, adjusted for depreciation and obsolescence (Geltner et al., 2014; Kokinis-Graves, 2006; International Valuation Standards Council, 2024). These professional valuation approaches are conceptually related to the market, income, and cost approaches recognized under IFRS 13, but they should not be treated as equivalent to IFRS fair-value measurement. Their relevance to the present study lies in the parameters through which circular building characteristics may potentially affect property value, including future income, operating and renovation costs, useful lives, residual value, and risk.

For owner-occupied properties accounted for under IAS 16, two mechanisms are particularly relevant: component-based depreciation and residual value. IAS 16 requires significant components of an asset with different useful lives to be depreciated separately (IASB, 2023c). Buildings are composed of elements such as structures, façades, technical systems, and interiors that may have substantially different replacement cycles. More granular information on these components may therefore support more differentiated estimates of useful lives and depreciation patterns.

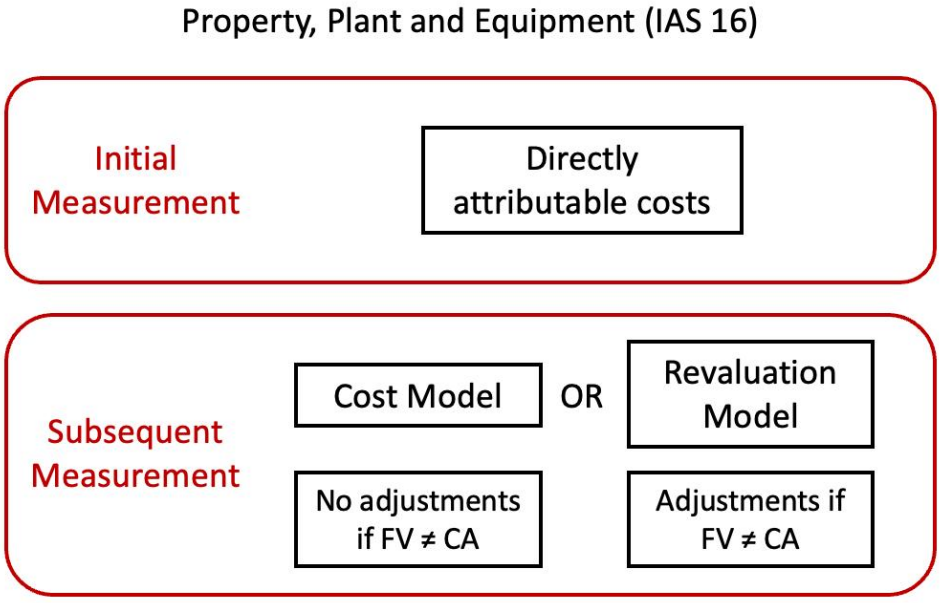


Figure 2: IAS 16 Measurement Methods

Note. Own elaboration based on IASB (2023c).

Residual value provides a second potential mechanism. Under IAS 16, the depreciable amount of an asset is determined after deducting its estimated residual value (IASB, 2023c). Circular construction may challenge the conventional assumption that building components have little or no economic value at the end of their initial use. Components designed for disassembly or materials that can be recovered and reused may retain economic value beyond their use in a particular building. Where such value can be reliably estimated, a higher residual value reduces the depreciable amount and consequently affects depreciation expense and the development of book value over the asset's useful life (IASB, 2023c).

Under the IAS 16 cost model, changes in fair value do not directly affect the carrying amount, which remains subject to depreciation and impairment. Under the revaluation model, the carrying amount is adjusted to reflect revalued amounts, with revaluation increases and decreases accounted for in accordance with the requirements of IAS 16 (IASB, 2023c).

IAS 16 further requires residual values and useful lives to be reviewed at least at each financial year-end (IASB, 2023c). Consequently, new information about component longevity, condition, recoverability, or expected disposal proceeds can, in principle, inform revisions to accounting estimates. Digital building information may be particularly relevant in this context because BIM and Material Passports can provide increasingly granular information about individual components, their characteristics, expected lifetimes, and potential recovery (Honic et al., 2019; Atta et al., 2021).

Taken together, these standards suggest that circularity does not necessarily require the recognition of a new category of “circular value” for assets. Rather, its financial consequences may potentially be reflected through existing accounting variables, including useful life, depreciation, residual value, and fair value considerations. The critical question is therefore whether circularity-related information provides a sufficiently credible and economically meaningful basis for applying these mechanisms. This question provides the starting point for the empirical analysis of accounting, auditing, and valuation professionals developed in the following sections.

3. Methodology

3.1 Research Design and Data Collection

A qualitative research design is particularly appropriate for examining emerging phenomena for which established empirical evidence remains limited, as it enables in-depth investigation

of professional interpretations and practices (Eisenhardt & Graebner, 2007). The empirical analysis combines an examination of relevant International Financial Reporting Standards (IFRS) with qualitative evidence from two complementary professional domains: (1) accounting and auditing and (2) real-estate valuation.

The accounting and auditing dataset consists of expert interviews and a written follow-up assessment conducted as part of the broader research project on circular construction and financial reporting. Participants were selected based on their expertise in financial accounting, IFRS, auditing, and sustainability assurance. The interviews followed predefined thematic areas while retaining sufficient flexibility to adapt questions to participants' professional expertise, supporting both comparability across interviews and deeper exploration of relevant issues (Kallio et al., 2016). The interviews focused on the applicability of existing accounting mechanisms to circular building attributes, particularly component-based depreciation, useful-life estimation, and residual value, as well as the type and reliability of evidence required to support these estimates.

The accounting and auditing evidence draws on four professional experts across five empirical interactions. A07 was an exploratory interview with a professor of accounting. A08 was a semi-structured interview with an auditor conducted in French. A09 and A10 participated jointly in an English-language interview, contributing IFRS and sustainability-audit expertise respectively. A15 represents a subsequent written follow-up assessment with the same auditor as A08. In this follow-up, the auditor was provided with BIM outputs and Material Passport documentation and asked to assess whether such information could, in principle, provide sufficient evidence for assumptions concerning component useful lives and residual values. Because A15 was conducted in writing rather than as a recorded interview, no interview timestamps are reported for this evidence.

The second empirical source consists of 13 semi-structured interviews with professionals active in the Swiss real-estate sector, originally collected for a study examining the incorporation of circular economy strategies into property valuation. The sample includes transaction managers, appraisers, developers, asset and portfolio managers, and sustainability and real-estate advisory professionals. These interviews were conducted online via Microsoft Teams between March and April 2026 and lasted between 34 and 56 minutes. All participants consented to recording; the interviews were transcribed using Microsoft Teams and subsequently checked against the recordings for accuracy. The present study conducts a secondary analysis of this interview material, focusing specifically on evidence concerning

the flexibility of existing valuation methods, the financial parameters through which circular attributes could be incorporated, and the information required to substantiate such effects.

Combining these datasets enables this study to examine the research question from two related but institutionally distinct perspectives. Accounting and auditing evidence addresses whether existing financial-reporting mechanisms can accommodate circular building attributes and what evidence is required to support the associated estimates. The valuation evidence examines whether circular characteristics can enter established property valuation models and under what conditions their economic consequences can be substantiated. The IFRS analysis complements these professional perspectives by establishing the formal accounting mechanisms available under IAS 16, IAS 40, and IFRS 13.

Table 1: Empirical Interview Sample

Interview ID	Professional Group	Position/ Perspective	Data Source
A07	Accounting	Professor of Accounting	Expert interview
A08	Audit	Auditor	Semi-structured interview
A09	Audit	Auditor, IFRS expert	Joint semi-structured interview
A10	Audit	Auditor, sustainability expert	Joint semi-structured interview
A15	Audit	Auditor	Written follow-up assessment
J01–J02	Transactions	Transaction Managers	Secondary interview dataset
J03–J05	Appraisal	Managing Director / Partners	Secondary interview dataset
J06–J08	Development	Development and construction professionals	Secondary interview dataset
J09–J11	Asset Management	Asset and Portfolio Management executives	Secondary interview dataset
J12–J13	Sustainability / Advisory	Sustainability and real-estate advisory executives	Secondary interview dataset

Note. A08 and A15 represent two separate interactions with the same professional. A09 and A10 participated in the same joint interview. J01–J13 were originally collected as part of a qualitative study of

circular economy and real-estate valuation in Switzerland and are reanalysed for the purposes of the present study.

3.2 Data Analysis

The qualitative dataset was analyzed thematically, with analytical categories developed through repeated engagement with the interview material and comparison of recurring patterns across participants (Schmidt, 2004). The analysis focused on recurring evidence concerning five interrelated issues: the financial relevance of circular building attributes, the accounting and valuation mechanisms available to incorporate them, the assumptions required to apply these mechanisms, the quality of supporting evidence, and the constraints limiting their practical application.

The accounting and auditing dataset was first analyzed to identify how participants interpreted the applicability of existing IFRS mechanisms to circular buildings. Particular attention was given to component-based depreciation, useful-life estimates, residual value, and the evidentiary requirements associated with accounting estimates. The written follow-up assessment (A15) was analyzed alongside the interview material because it directly evaluated whether structured BIM and Material Passport documentation could support such estimates from an audit perspective.

The valuation dataset was analyzed separately before being compared with the accounting evidence. The secondary analysis focused on statements concerning the flexibility of the sales comparison, income, and cost approaches and on the economic parameters through which circular attributes could affect valuation. Particular attention was given to future capital expenditure, renovation cycles, income, vacancy, residual value, and risk, as well as to participants' discussions of benchmarks, comparable transactions, and market evidence. This narrower analytical focus differs from the broader purpose for which the valuation interviews were originally collected, which examined circular economy strategies and Swiss property valuation more generally. The original study itself used 13 semi-structured expert interviews to examine the three principal valuation approaches and their capacity to incorporate CE strategies.

In a final comparative step, patterns across the two professional domains were examined to identify areas of convergence and divergence. Cross-interview comparison was used to identify recurring patterns while retaining differences between professional perspectives (Miles et al., 2014).

This analytical process provides the basis for the three findings presented in the following section, concerning the applicability of existing accounting mechanisms, the incorporation of circularity into property valuation, and the evidentiary conditions connecting circular building information to financial outcomes.

4. Findings

4.1 Existing Accounting Mechanisms Can Reflect Circularity, but Require Reliable Evidence

The accounting and auditing evidence indicates that circular building attributes do not necessarily require the development of separate accounting mechanisms. Instead, their economic consequences may potentially be reflected through existing IFRS requirements. A08 observed that, although no dedicated financial accounting standard currently addresses circular economy activities, there is no inherent obstacle to representing circular transactions within existing financial statements (A08, 04:00–05:15). The joint interview with A09 and A10 provided a more cautious assessment: existing IFRS requirements offer flexibility, but emerging circular business practices may require interpretation of general principles and, where these prove insufficient, additional guidance (A09–A10, 02:23–03:40).

This potential is particularly evident in component-based depreciation under IAS 16. A08 confirmed that the component approach can be applied to buildings and emphasized that different building elements may be separated where their costs are significant and their useful lives differ. From an audit perspective, the allocation of costs and the determination of different depreciation periods would need to be appropriately justified and documented (A08, 06:18–10:55). The KPMG interview similarly identified roofs and technical installations as examples of building components with replacement cycles different from the underlying structure. It further clarified that separate saleability is not required for componentization; what matters is that parts of the building have different useful lives (A09–A10, 10:25–15:35). IFRS also does not prescribe a maximum useful life for buildings, provided that the estimate appropriately reflects the expected consumption of economic benefits (A09–A10, 15:35–16:19).

Residual value represents a second potential mechanism. A08 considered a non-zero residual value possible where an entity can substantiate the amount expected to remain recoverable from building materials or components. The estimate would need to be supported by documentation and defensible assumptions rather than being asserted without evidence. In

particular, A08 highlighted the relevance of calculations, current market prices, comparable second-hand materials, expected selling costs, and conservative assumptions when assessing a future residual value (A08, 14:28–19:49; 21:59–24:46). The KPMG interview reached a similar conclusion while clarifying that an active market is not strictly necessary. Rather, the entity would need to demonstrate, based on current circumstances, a plausible future secondary use or demand and provide sufficient evidence supporting the expected value (A09–A10, 20:55–25:21).

The interviews also identify the time horizon as an important source of uncertainty. A08 noted that the reliability of an estimate decreases as the forecast horizon becomes more distant, increasing the importance of documentation, market comparisons, and plausible assumptions (A08, 21:59–24:46). Similarly, A09–A10 emphasized that substantiating a residual value becomes increasingly difficult when reuse is expected only after several decades, because future demand and secondary-market conditions become more uncertain (A09–A10, 23:43–25:21). Thus, the accounting possibility of recognizing a residual value does not imply that any estimated future circular value would satisfy the evidentiary requirements for its use.

The potential role of digital building information was examined directly through a written follow-up assessment with A15. The auditor was provided with BIM outputs and Material Passport documentation and asked whether such information could constitute sufficient audit evidence to support assumptions concerning component useful lives and residual values. After reviewing the documentation, the auditor's assessment was affirmative (A15). Importantly, this conclusion was conditional. A15 characterized the documentation as information produced by a management's expert and referred specifically to ISA-CH 500. Such expert-generated information can support the audit where the relevant audit procedures are performed and the expert satisfies the applicable requirements concerning competence, objectivity, and independence (A15). The digital origin of the information therefore does not automatically establish its reliability; rather, BIM and Material Passports can provide an evidentiary basis where the process and expertise underlying the information satisfy the relevant audit requirements.

Taken together, the interviews indicate that the principal challenge lies less in identifying an accounting mechanism than in substantiating the estimates required to apply it. Component depreciation can reflect differences in component useful lives, while residual value can, in principle, capture expected recoverable value from reusable materials or components. Digital building information may strengthen the evidentiary basis for these estimates, but its

accounting relevance ultimately depends on whether the underlying assumptions can be supported with sufficiently reliable and auditable evidence.

Finding 1. Existing accounting mechanisms can accommodate economically consequential circular building attributes. Their practical application depends on whether the underlying estimates can be supported by sufficiently reliable and auditable evidence, with structured digital information providing a potential evidentiary basis.

4.2 Existing Valuation Models Can Reflect Circularity, but Require Economic Substantiation

The valuation interviews reveal a pattern similar to the accounting evidence. Participants generally did not identify the absence of an appropriate valuation model as the principal obstacle to incorporating circularity. Instead, established valuation approaches were considered sufficiently flexible to reflect circular building attributes where these attributes can be translated into economically relevant parameters. This view was expressed particularly clearly by J03, who argued that existing models can accommodate additional effects provided that the underlying assumptions are transparently derived and explained (J03, 11:05), and by J10, who described the DCF model as sufficiently flexible while identifying the availability of appropriate figures and benchmarks as the greater challenge (J10, 14:21).

For institutional real-estate valuation, the interviews particularly emphasized the income approach and DCF model. Participants described value as being driven primarily by expected income, costs, and risk (J07, 39:25; J12, 19:24). Circularity can therefore affect valuation where it changes one or more of these established parameters. Longer-lasting components, for example, may postpone future renovation expenditures. J01 explained that different useful lives can already be reflected in a DCF through assumptions concerning future renovation cycles (J01, 16:36). J09 similarly described how higher initial investment costs could be accompanied by longer useful lives and consequently later renovation requirements (J09, 23:01).

Adaptability and flexibility provide another potential channel. J03 explained that, where evidence demonstrates that a flexible building can be converted or re-let more quickly, the resulting effects could be represented through lower conversion costs, shorter vacancy periods, or corresponding adjustments to future cash flows (J03, 14:25). J04 similarly emphasized that lower costs or other cash-flow-relevant benefits can be incorporated where these effects can be substantiated (J04, 22:09). Circularity therefore does not enter the valuation simply

because a building is classified as circular; it becomes relevant when a circular attribute produces an identifiable effect on income, expenditure, or risk.

The interviews also identified potential implications for residual value and cost-based valuation. J09 argued that higher-quality components with longer useful lives or reuse potential should not necessarily be assumed to have no remaining value and linked this possibility to the residual value of the asset (J09, 23:01). J03 similarly considered the cost approach potentially suitable for reflecting circularity where replacement costs, useful lives, and residual values can be quantified (J03, 24:01). These mechanisms are conceptually compatible with circular building characteristics, although the interviews indicate that cost-based approaches play a more limited role in institutional property valuation than income-based methods.

Despite this flexibility, participants consistently reported that circularity is not yet systematically incorporated into property valuations. J08 stated that circularity currently has no established influence on valuation and emphasized that incorporation becomes extremely difficult where its effects cannot be measured (J08, 19:34; 30:13). J03 similarly noted that circularity-related information is not yet part of the standard information requested for a valuation assignment (J03, 32:21). Moreover, valuation professionals may not receive the technical sustainability information required to assess such characteristics in the first place (J03, 29:38).

A central limitation is therefore the lack of economic evidence connecting circular attributes to valuation parameters. Participants highlighted insufficient transaction transparency and comparable market evidence (J01, 14:59), limited data on the costs of circular components (J09, 23:01), and the scarcity of examples from which reliable benchmarks could be derived (J13, 27:58). J03 further stressed that even a DCF ultimately depends on market and transaction evidence to substantiate its assumptions (J03, 16:31). As J05 observed, valuation itself does not create these market effects but rather reflects what can be observed in the market; in this sense, valuation functions as a measurement mechanism rather than as the driver of circular value (J05, 40:49).

The valuation evidence therefore distinguishes between the technical measurability of a circular attribute and the economic substantiation of its effect. Knowing that a component is reusable, that a building is adaptable, or that a material retains technical functionality does not by itself determine how much the property is worth. For these characteristics to influence

valuation, they must be connected to defensible assumptions regarding variables such as future CAPEX, renovation cycles, vacancy, rental income, residual value, or risk.

Finding 2. Existing property valuation models are sufficiently flexible to incorporate economically relevant consequences of circular building attributes. Their practical incorporation is constrained primarily by the limited availability of benchmarks, comparable transactions, and other evidence linking circular attributes to established valuation parameters.

4.3 Evidence as the Critical Condition for Financial Incorporation

Taken together, the accounting, auditing, and valuation evidence reveals a common pattern. Across both professional domains, the principal constraint is not necessarily the absence of mechanisms through which circularity can be reflected, but the evidence required to apply those mechanisms. Existing accounting standards provide entry points through component depreciation, useful-life estimates, and residual value, while established valuation models can incorporate effects on costs, income, renovation cycles, residual value, and risk. In both cases, however, measurable circularity attributes alone are insufficient.

The interviews point to two related evidentiary conditions. The first concerns the technical credibility of the underlying information. Accounting and auditing professionals emphasized that information supporting useful lives, component differentiation, or residual values must be sufficiently documented, reliable, and verifiable. This requirement becomes particularly important where estimates extend far into the future, as uncertainty regarding future component condition, reuse possibilities, and secondary markets increases with the time horizon (A08, 21:59–24:46; A09–A10, 23:43–25:21). The written assessment by A15 further demonstrates that structured BIM and Material Passport information can contribute to this evidentiary basis, provided that the information and the expertise underlying it satisfy the relevant audit requirements.

The second condition concerns the economic substantiation of the financial effect. The valuation interviews consistently indicated that technically measurable characteristics do not automatically translate into property value. A reusable component, for example, may have a documented material composition and remaining technical life, but this does not by itself establish a recoverable residual value. Similarly, evidence that a building is adaptable does not automatically demonstrate lower vacancy, reduced conversion costs, or higher rental income. Such effects need to be connected to established valuation parameters and supported through

defensible assumptions, benchmarks, comparable transactions, or other market evidence (J03, 14:25; 16:31; J10, 14:21; J13, 27:58). Figure 3 illustrates how these two evidentiary conditions connect circular building attributes to existing accounting and valuation mechanisms.

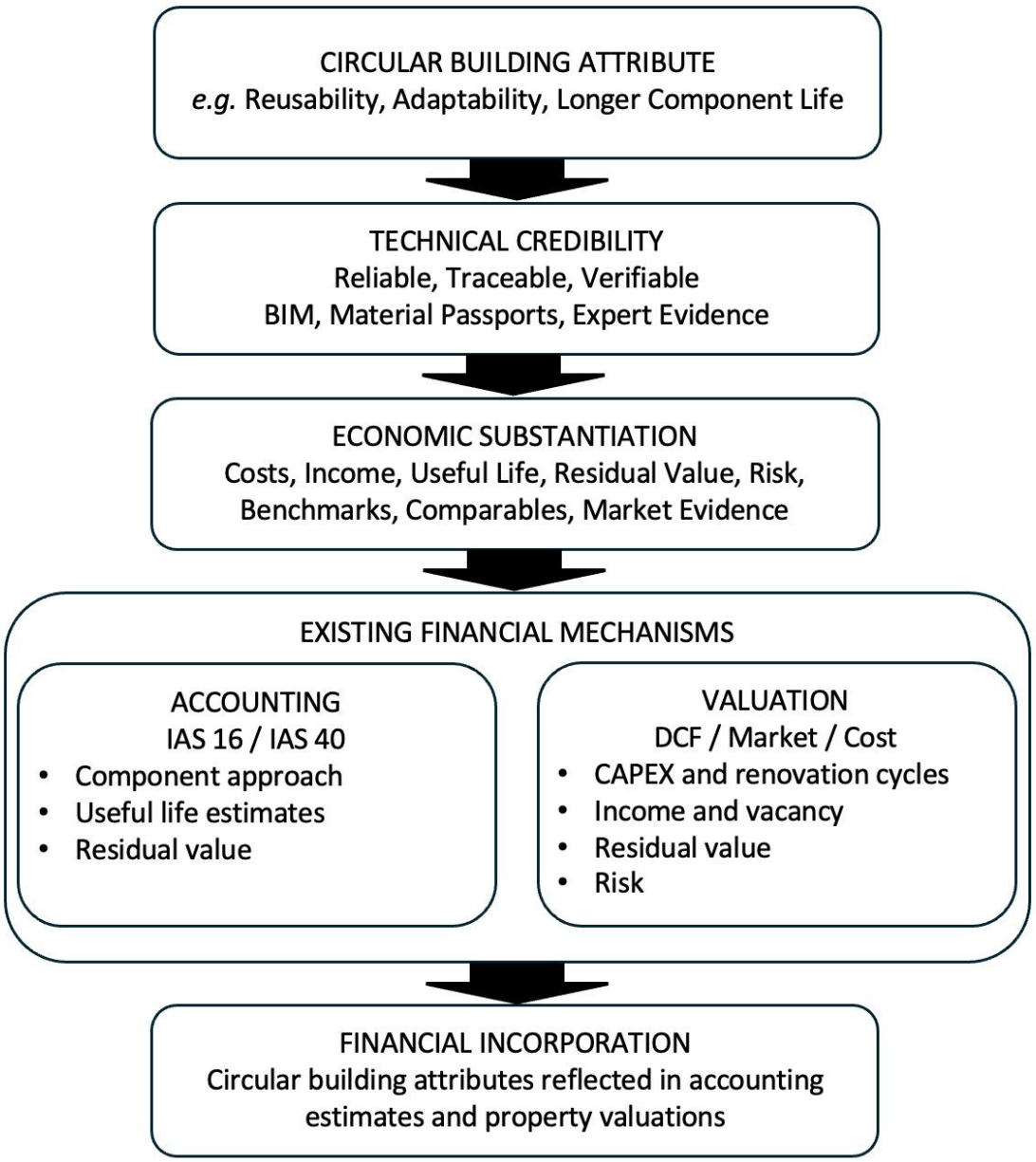


Figure 3: From Circular Attributes to Financial Incorporation

Note. Own illustration based on the empirical findings.

Technical credibility and economic substantiation should not be understood as exclusive to accounting and valuation respectively. Accounting estimates can also require economically substantiated assumptions, while valuation depends on credible underlying technical information. Rather, the interviews suggest a cumulative evidentiary process. Circular

building attributes must first be documented with sufficient credibility and subsequently connected to an economically meaningful consequence before they can affect accounting estimates or valuation parameters. The relative importance and required strength of each form of evidence depend on the mechanism through which the attribute is incorporated.

This distinction explains why improved circularity measurement does not necessarily result in financial incorporation. Digital technologies can substantially improve information about what a building contains, how its components differ, and whether they may be recovered or reused. They therefore reduce an important information constraint. However, they cannot independently establish what those characteristics are worth. Financial incorporation requires an additional translation from credible technical information into substantiated economic assumptions that can enter established accounting and valuation mechanisms.

Finding 3. Financial incorporation of circular building attributes requires a cumulative evidentiary process: technically credible information must be connected to sufficiently substantiated economic effects before it can enter existing accounting or valuation mechanisms.

5. Discussion

This study examined how circular building attributes can be incorporated through existing accounting and valuation mechanisms and which evidentiary conditions enable their practical application. The findings suggest that the central challenge is not necessarily the absence of financial mechanisms capable of reflecting circularity. Both accounting and property valuation already contain established parameters through which economically relevant consequences of circular building attributes can, in principle, become financially visible. The more fundamental challenge lies in establishing sufficiently credible and economically substantiated inputs for these mechanisms.

The findings offer a complementary perspective to research highlighting the limitations of conventional management accounting in supporting circular business models. Aureli et al. (2025), for example, identify limitations in mainstream management accounting arising from its focus on financial value, organizational boundaries, and shareholder-oriented value creation. The evidence presented here does not suggest that existing frameworks fully capture circularity or that further accounting developments are unnecessary. Rather, it indicates that several economically relevant consequences of circularity can already be represented through

established accounting estimates. Under IAS 16, differences in component useful lives and recoverable residual values provide potential mechanisms, while the cost model under IAS 40 permits corresponding accounting treatment for relevant investment properties. For fair-value measurement, IFRS 13 similarly provides established valuation approaches through which economically consequential characteristics may be reflected where they affect market-participant assumptions. The issue is therefore less whether IFRS contains a dedicated concept of “circular value” and more whether circular attributes produce effects that can be supported within existing recognition and measurement requirements.

The valuation evidence points in the same direction. Circularity does not appear to require a separate valuation model. Established income, market, and cost approaches already provide channels through which relevant consequences can enter property valuation. In a DCF, for example, longer component lifetimes may postpone future capital expenditure, while adaptability may affect conversion costs, vacancy periods, or potentially income. Reusable components may also influence residual-value assumptions where a recoverable economic value can be substantiated. This shifts attention from attempting to assign a general premium to a “circular building” toward identifying the specific economic consequences of individual circular attributes. Such a parameter-based perspective is more consistent with existing professional valuation practice because it connects circularity to variables already used in established models rather than introducing an additional and potentially ambiguous circularity adjustment.

The findings nevertheless demonstrate an important distinction between the measurement of circular attributes and their financial incorporation. Digital technologies such as BIM and Material Passports can increasingly document what materials and components a building contains, their quantities, characteristics, and potential for recovery. Prior research has emphasized this role of digital technologies in improving material traceability and circularity assessment (Honic et al., 2019; Atta et al., 2021). The present findings indicate that such information can also contribute to the evidentiary basis for financial estimates. The written audit assessment in particular suggests that structured BIM and Material Passport information may support assumptions concerning component differentiation, useful lives, and residual values where the underlying expert evidence satisfies relevant audit requirements. Digital traceability can therefore reduce an important information constraint between physical building characteristics and financial assessment.

At the same time, better technical information does not itself establish economic value. This represents the central distinction emerging from the comparison between accounting, auditing, and valuation evidence. A Material Passport may credibly demonstrate that a component is demountable or reusable, but this does not determine whether a buyer will exist for that component several decades later or at what price. Similarly, BIM may document a building's adaptable structure without establishing how much adaptability reduces future conversion costs or vacancy. The implication is that advances in circularity measurement address only the first part of the financial-information problem. A second step is required to establish whether and how technically documented attributes affect economically relevant parameters. Depending on the mechanism concerned, this may require current market prices, comparable transactions, cost information, secondary-market evidence, documented methodologies, or other defensible assumptions.

Technical credibility and economic substantiation are relevant across both domains rather than corresponding separately to accounting and valuation. Accounting estimates require credible technical information as well as support for economic assumptions, while property valuation similarly depends on reliable asset information before its effects can be translated into cash flows, costs, or risk. Figure 3 therefore conceptualizes financial incorporation as a cumulative evidentiary process rather than an automatic consequence of improved circularity measurement.

This perspective also helps explain why circularity remains weakly represented financially despite rapid advances in digital measurement. The interviews indicate that market evidence is still limited, particularly for long-term residual values, reusable building components, and the effects of adaptability or circular design on income and risk. The longer the time horizon, the more difficult it becomes to substantiate assumptions regarding future demand, prices, and secondary markets. Valuers face a related constraint because limited transaction evidence and comparables restrict their ability to derive market-supported parameters. Consequently, a technically sophisticated circular building may still receive little or no distinct financial treatment where the economic consequences of its characteristics cannot yet be demonstrated.

The study therefore contributes to the emerging discussion on accounting and valuation for circular construction by reframing the problem from one of missing financial mechanisms to one of evidentiary translation. Rather than asking primarily how a new category of circular value should be recognized, the findings suggest examining how specific circular attributes affect existing financial variables and what evidence is required to substantiate these effects.

This perspective does not eliminate the potential need for future guidance or standard development as circular business models become more widespread. It does, however, identify a more immediate pathway through which circularity can become financially relevant within current practice: improving the connection between credible building-level information, substantiated economic consequences, and established accounting and valuation parameters.

6. Conclusion

This study examined how circular building attributes can be incorporated through existing accounting and property valuation mechanisms and which evidentiary conditions enable their practical application. Drawing on IFRS analysis and qualitative evidence from accounting, auditing, and real-estate valuation professionals, the study finds that the financial incorporation of circularity does not necessarily depend on the development of entirely new accounting or valuation mechanisms. Existing frameworks already provide several potential entry points through which economically consequential circular attributes can be reflected.

Within financial accounting, component-based depreciation, useful-life estimates, and residual value provide mechanisms through which differences in component longevity and recoverability may affect the financial representation of buildings. Established property valuation approaches similarly allow circular attributes to influence value where they affect parameters such as future capital expenditure, renovation cycles, income, vacancy, residual value, or risk. The central challenge is therefore not simply whether circularity can be measured, but whether its economic consequences can be sufficiently substantiated for use within these existing mechanisms.

The study identifies technical credibility and economic substantiation as two closely related conditions in this process. Digital technologies such as BIM and Material Passports can strengthen the reliability, traceability, and verifiability of building-level information and may therefore provide part of the evidentiary basis required for accounting estimates and valuation assumptions. However, technically credible information alone does not establish financial value. Circular attributes must additionally be connected to defensible economic effects supported by appropriate assumptions, benchmarks, comparable transactions, market evidence, or other relevant documentation.

These findings have implications for both research and practice. For researchers, they suggest shifting attention from the search for a generic concept of “circular value” toward the

mechanisms through which specific circular attributes affect established financial variables. For practitioners, they highlight the importance of connecting increasingly sophisticated building-level data with the economic evidence required by accountants, auditors, and valuation professionals. Improved digital measurement is therefore an important condition for financial incorporation, but not a sufficient one.

The study is subject to limitations that also provide directions for future research. The empirical evidence is situated primarily within the Swiss accounting and real-estate context, and several of the financial effects identified remain prospective because mature secondary markets, transaction evidence, and standardized benchmarks for circular building components are still limited. Future research could therefore test the proposed relationships using observed transactions and longitudinal building data as circular practices become more widespread. Particular attention could be given to whether documented circular characteristics systematically affect renovation expenditure, vacancy, rental income, residual values, or other established financial parameters.

Ultimately, the financial challenge of circular construction may be less about creating a new way of accounting for or valuing circularity than about making its economic consequences credible, substantiated, and usable within the mechanisms that already exist. In this sense, the path from circular building information to financial incorporation is fundamentally a problem of evidentiary translation.

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