

Stakeholder-Centred Value Creation Framework for Advancing Circular Economy Practices in the Construction Industry: A Systematic Review

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Abstract

Despite increasing emphasis on circular economic practices, the construction sector remains slow to adopt circular approaches, largely due to limited stakeholder engagement. In this context, understanding how value is perceived by stakeholders is critical for motivating their participation in circular economy practices. This study presents a systematic literature review conducted in accordance with PRISMA guidelines to examine value creation models and frameworks across multiple disciplines. A total of 49 studies were identified and analysed through a structured screening and qualitative content analysis process. The review clarifies the conceptual underpinnings of “value” in a circular system, examines how value can be created and delivered, and identifies the essential elements required for a value creation framework in construction to motivate stakeholders toward circular practices. The findings highlight that a circular value creation framework needs to collectively generate, deliver, and capture economic, environmental, and social value for multiple stakeholders. Based on these insights, the study develops a stakeholder-centred conceptual framework for value creation in construction waste management. The originality of the framework lies in its integration of stakeholder value perceptions with circular economic implementation, explicitly addressing the challenges of the complex and project-based construction environment.

Keywords: circular economy; construction; construction and demolition waste; value; value creation; stakeholders

1. Introduction

The construction industry is one of the largest contributors to global resource consumption and waste generation, placing construction companies worldwide under increasing social, political, and economic pressure to transition their business practices in line with circular economy (CE) principles [1–3]. Despite this urgency, the effective implementation of CE practices in the construction sector remains highly complex and faces numerous challenges [4].

These challenges include low organisational interest in CE, regulatory constraints, the absence of standardised practices, cost-related barriers, limited awareness and knowledge, and a lack of practical guidelines to support project teams in integrating CE principles into construction projects [4–6]. As Oluleye et al. [7] explain, at a global level, organisational-related barriers are among the most critical and require significant attention. The fragmented nature of the construction sector, characterised by multiple stakeholders with



Academic Editor: Dan Bompa

Received: 25 February 2026

Revised: 16 April 2026

Accepted: 20 April 2026

Published: 22 April 2026

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diverse interests and limited expertise in CE and its underlying value propositions, further complicates the adoption of circular practices [8].

Against this backdrop, the Ellen MacArthur Foundation [9] conceptualises circularity as an approach that enables companies to unlock growth and generate substantial value for a wide range of stakeholders by keeping products and materials in circulation at their highest. From this perspective, the CE offers not only environmental benefits but also opportunities for businesses and societal actors to contribute to sustainable development by creating synergies between economic performance, environmental protection, and social well-being [10,11]. Despite this potential, existing knowledge on how to effectively implement CE initiatives within business contexts remains limited [11]. Consequently, the existing research has emphasised the need for further investigation to support the widespread adoption of circular economic practices across both business and society [12].

In response to this gap, research on Circular Economy Business Models (CEBMs) has generated significant insights into how organisations can create economic, environmental, and social value within circular systems. In this context, value creation has emerged as a central concept for understanding the implementation of circular economic practices [11]. While traditional business models predominantly prioritise financial value, CEBMs extend the value creation logic to encompass broader forms of value across the entire value chain [13]. By maximising material value through multiple use cycles, particularly through the recovery, repurposing, and high-value utilisation of waste, CE-aligned business models enable firms to create new markets and employment opportunities beyond the conventional linear ‘take–make–dispose’ model [14]. Nevertheless, prevailing company-centric interpretations of value creation have been criticised for failing to adequately reflect the core principles of the CE [15]. As highlighted by Tapaninaho and Heikkinen [11], CE value creation is inherently a collective and inter-organisational process involving multiple stakeholders operating across different system levels; however, existing research remains limited in systematically addressing this multi-stakeholder dimension in value creation.

Existing research on value creation models has mainly focused on business and marketing perspectives [16–18], but there is a lack of research on the use of value creation models for the construction sector. While some scholars have adopted CEBMs for construction organisations [19], limited attention has been given to examining value creation mechanisms specific to construction projects. These studies have explored value creation at the organizational level [20–22], but none have thoroughly explained their application within project-based context. This represents a critical limitation, as construction activities are predominantly delivered through temporary, project-based organisations characterised by unique project scopes, fixed timeframes, fragmented supply chains, and the involvement of multiple stakeholders with diverse and often competing interests [23]. Consequently, in the construction sector, the achievement of organisational objectives is highly dependent on effective project performance, requiring continuous and careful attention at the project level [24].

Several value-related models have been proposed within the construction domain; however, their scope remains limited. For instance, Heitel et al. [22] developed a conceptual framework for value creation by integrating stakeholder expectations, highlighting the importance of aligning organisational objectives with stakeholder interests. While valuable, this framework remains largely organisation-oriented and does not explicitly address the project-based nature of construction or the specific challenges associated with circular economic implementation. Similarly, Leder et al. [21] proposed a theoretical framework for waste valorisation that focuses on the transition from linear to circular systems but is largely confined to explaining collaboration opportunities through social capital theory at the organisational level. In contrast, Yi et al. [20] introduced a game relationship model to

examine interactions among key actors involved in construction waste resource utilisation. While this approach advances understanding of strategic behaviour among three key stakeholders in construction, it is limited to interpreting the evolutionary behaviour of stakeholders in value co-creation related to waste resource utilisation.

Overall, existing value creation models in construction remain fragmented and do not address the primary objectives of value creation in circular business models, which require the simultaneous creation of economic, environmental, and social value. Current models have a singular focus on either technical valorisation pathways, organisational-level value alignment, or isolated stakeholder interactions, and therefore lack insight to explain how value is jointly created, perceived, and distributed among diverse stakeholders within project-based construction settings. Thus, there is a need for a stakeholder-centred value creation model that explicitly reflects the project-based nature of construction and supports the implementation of CE practices within the construction context.

This study aims to address these gaps through a comprehensive literature review of value creation and co-creation models and frameworks across diverse sectors. The review aims to clarify what is meant by “value”, and identify the core elements required for a construction waste value creation model. By integrating insights from business, marketing, and sustainability domains, the study proposes a stakeholder-inclusive value creation framework tailored to the construction context. The new framework has the potential to support the development of waste value models that enhance stakeholder engagement and promote more circular construction practices.

This paper is structured as follows: Section 2 presents the research methodology; Section 3 reports the results of the descriptive and content analyses; Section 4 discusses the findings; and Sections 5–7 present the conclusions, limitations, and future research directions, respectively.

2. Methodology

A systematic literature review (SLR) was conducted following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA (2020) guidelines (Supplementary Materials) [25,26]. The SLR approach was selected for its ability to comprehensively synthesise existing knowledge while maintaining a structured, transparent, and unbiased review process [27]. The PRISMA framework was adopted to ensure transparency, reproducibility, and methodological rigor in identifying, screening, and selecting relevant [26] studies. The review followed a four-stage procedure, identification, screening, eligibility and inclusion, which is outlined in this section and illustrated in Figure 1.

2.1. Identification

In the identification stage, a structured search strategy was developed to identify relevant studies. The following keywords were used: (“Value creation” OR “value co-creation” OR “value enhanc*” OR “value generat*” OR valorization OR valorisation) AND (model* OR framework*). The Boolean operators “AND” and “OR” were used to combine key concepts, while the wildcard “*” was applied selectively to capture variations of relevant terms. British and American spellings (e.g., “valorisation” and “valorization”) were explicitly included to ensure comprehensive coverage.

These terms were searched within the ‘Title, Abstract, and Keywords’ fields to identify potential peer-reviewed studies related to value creation. The initial search was conducted using the Scopus database, which is widely recognised as a leading academic database with extensive coverage of peer-reviewed literature [27]. Due to its strong indexing capabilities and broad disciplinary scope, Scopus has been widely utilised in CE and construction-related research [26]. It offers extensive coverage across engineering,

construction management, sustainability, and interdisciplinary domains, making it suitable for the present study [28,29].

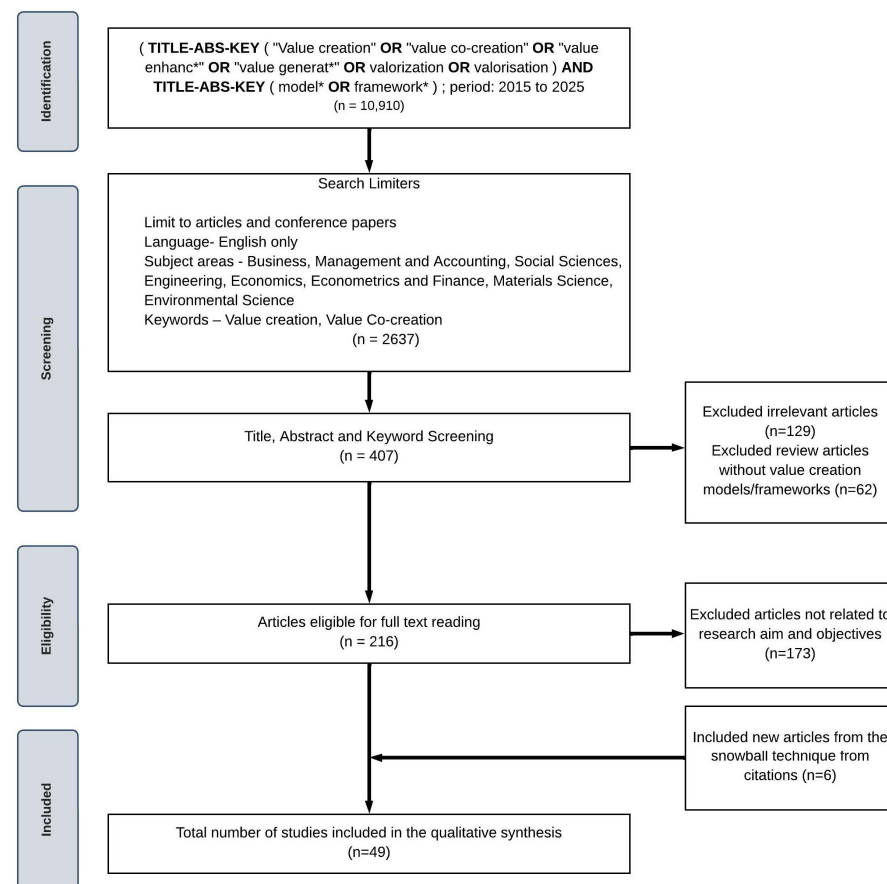


Figure 1. PRISMA flow diagram for the literature review.

The initial search yielded 10,910 articles. While the use of a single database may introduce potential bias, such as the omission of studies indexed in other databases, Scopus provides a comprehensive and multidisciplinary collection of publications suitable for systematic literature reviews [26,27]. The large initial dataset ensured broad coverage of the topic, which was subsequently refined through structured screening stages following a PRISMA-guided approach. Furthermore, the use of clearly defined inclusion criteria and a systematic screening process helps to minimise potential bias and ensure the robustness of the review.

Although discussions on value creation date back several decades, early studies were largely grounded in firm-centric and marketing-oriented perspectives. Over the past decade, value creation research has increasingly shifted toward stakeholder-based, systemic, and sustainability-oriented models and frameworks that are more aligned with the contemporary circular economic context [11,18,28,29]. Accordingly, this study focused on literature published within the last ten years to ensure the inclusion of recent and relevant studies reflecting these conceptual developments.

2.2. Screening

The screening process was conducted in accordance with PRISMA guidelines. All retrieved records were initially screened by the first author based on predefined inclusion criteria. To ensure consistency and reduce bias, the screening decisions were independently reviewed by the second author. In cases of disagreement, both authors re-examined the

respective studies and reached a consensus through discussion. During the screening stage, the number of articles was narrowed to 2637 using defined inclusion criteria.

The review was restricted to subject areas relevant to value creation, including business, management and accounting, social sciences, engineering, economics, econometrics and finance, materials science, and environmental science. To further refine relevance and avoid unrelated disciplines, the keywords “value creation” and “value co-creation” were applied. Only peer-reviewed journal articles and conference proceedings were considered to ensure the reliability of the review, and studies published in languages other than English were excluded.

2.3. Eligibility

After screening the titles of the 2637 articles for relevance, 407 articles were selected for abstract screening. Following the abstract review, 216 articles were retained for full-text analysis, while 191 articles were excluded, including 129 studies not directly related to value creation and 62 review articles that did not present value-creation models or frameworks. Four review articles that directly present value-creation models and frameworks were retained for full-text review, as they provide important insights into the characteristics of value-creation processes.

2.4. Inclusion

Following the full-text review of 216 eligible studies, 43 articles met all predefined inclusion criteria and were retained for qualitative synthesis.

A total of 173 articles were excluded at this stage, as they did not align with the research aim and objectives. An additional six studies were included through snowballing, resulting in a final sample of 49 articles used to inform the study’s findings.

The included studies were systematically examined to analyse key aspects of value creation, including definitions, conceptual clarifications, and model and framework characteristics. From these, 18 studies presenting distinct value creation models and frameworks were identified for further in-depth analysis.

These models were then analysed based on their primary orientation, focus, and key characteristics. Based on this analysis, four model orientations were identified by grouping models with similar focus and underlying logic. The characteristics identified within each group were subsequently synthesised to inform the development of the proposed stakeholder-centred conceptual framework. A summary of the studies included in the final synthesis is presented in Table 1.

Table 1. Characteristics of the included studies.

Study	Year	Country	Sector/Context	Intervention/Key Focus
Shankaranarayana et al. [30]	2025	Multi-countries	Business	Technology integration in value co-creation
Bhattarai [31]	2024	Nepal	Commercial	Value dynamics and pathways of value realisation
Jerab [32]	2023	Turkey	Business	Value drivers and valuation basics
Sugai & Mahajan [33]	2023	Multi-countries	Marketing	Measuring value created by stakeholders
Marchowska-Raza & Rowley [16]	2024	UK	Marketing	Consumer and brand value creation and co-creation

Table 1. Cont.

Study	Year	Country	Sector/Context	Intervention/Key Focus
Norris [18]	2024	Germany	Business	Stakeholder perceptions on value fulfillment
Ramaswamy & Ozcan [34]	2018	USA	Business	Interactional creation framework for value co-creation
Hjelmbrekke et al. [35]	2017	Norway	Construction	Model for governing value creation in projects
Xu et al. [36]	2022	China	Public administration	Behavioural impact of personal values
Mahajan [37]	2017	Multi-countries	Business	Normative framing of creating value
Yiapanas et al. [38]	2024	Cyprus	Sports industry	Value-based stakeholder analysis framework
Almunawar et al. [39]	2025	Indonesia	Business	Circular economic activities within a business ecosystem
Kristensen & Mosgaard [40]	2020	Denmark	CE business	Circular economic initiatives in environmental management systems
Vulsteke et al. [41]	2024	Europe	Circular economy	Meaning of the value concept within the circular economy
Aljaber et al. [4]	2024	Multi-countries	Construction	Critical success factors in implementing CE in construction
Treptow et al. [23]	2022	Brazil	Construction	Business model innovation in sustainable value creation
Tapaninaho & Heikkinen [11]	2022	Finland	CE business	Stakeholder theory on conceptualisation of value creation
Lüdeke-Freund et al. [13]	2019	Multi-countries	Business	Framework for sustainable value creation
Leder et al. [21]	2020	UK	Business	Framework for value creation in CE via waste valorisation
Heitel et al. [22]	2015	Germany	Housing/built environment	Process model integrating stakeholder interests for sustainable value creation
Andreassen et al. [42]	2018	Multi	Uber Service platforms	Triadic “triadic way” value creation/business model innovation
Nguyen & Menezes [43]	2024	Vietnam	Marketing	Customer-to-customer value co-creation practices framework
Yi et al. [20]	2024	China	Construction	Game relationship model among stakeholders for green value co-creation
Kao et al. [44]	2016	Taiwan	Social media/marketing	Co-creation process in the social media environment
Bharti et al. [45]	2015	Multi-countries	Marketing	Five pillars framework for value co-creation
Kushwah et al. [46]	2017	India	Political marketing	Stages of value co-creation (pre-process/process/post)
De Koning et al. [47]	2016	Multi-countries	Business	Models of value co-creation

Table 1. Cont.

Study	Year	Country	Sector/Context	Intervention/Key Focus
Ng & Vargo [48]	2018	Multi-country	Marketing	Integrative framework of value co-creation
Ramaswamy & Ozcan [49]	2016	USA	Business	Integrative framework for brand value co-creation
Krüger et al. [50]	2018	Multi-countries	Sustainable development	Holistic model integrating co-creation methodologies for sustainable development
De Tommaso & Borini [17]	2024	Brazil	Business	The process of stakeholder value creation
Sjödín et al. [51]	2020	Sweden	Business	Process view of value creation and value capture alignment
Pucci et al. [52]	2020	Italy	Business	Stakeholder engagement in developing sustainability culture
França & Ferreira [53]	2016	Portugal	Business	Resource and capability lens for value (co)-creation
Åström et al. [54]	2022	Multi-countries	AI business	Three-phase framework for AI value creation and capture
McIntyre et al. [55]	2025	New Zealand	Supply chain and logistics	Unified theory of value creation and capture
Hansen & Revellio [56]	2020	Germany	Business	Circular value creation architectures
Blackburn et al. [57]	2023	Multi-countries	Business	Use of digital platforms in CE business models
Chen et al. [58]	2025	China	Business	Circular value creation via digital platforms
Freudenreich et al. [28]	2020	Germany	Business	Stakeholder theory perspectives in value creation through business models
Zheng et al. [59]	2025	Multi-countries	Manufacturing	Co-evolution of data-driven transformation and value proposition
Wu et al. [14]	2024	China	Construction	Digital platforms enabling CE value creation
Hopkinson et al. [2]	2020	UK	Business	“Building blocks” for creating and capturing CE value
Lata et al. [60]	2023	Netherlands	Circular economy	Principles for balancing retained value
Rittershaus et al. [61]	2025	Germany	Business	Integrating life cycle assessment in value alignment
Reda & Fatima [62]	2024	Multi-countries	Business	Evolving nature of value and value co-creation
Mitra et al. [63]	2024	Multi-countries	AI adoption	AI enabling value creation
Mak et al. [64]	2019	Hong Kong	Construction	Extended planned behaviour model to promote C&D waste recycling
López-Toro et al. [65]	2016	Spain	Waste management	Stakeholder interest in integration in sustainable waste management

3. Results

3.1. Conceptualising “Value” Within the CE Paradigm

The concept of ‘value’ has evolved from a narrow economic interpretation toward a multidimensional construct encompassing social, environmental, and institutional dimensions. This evolution was driven by growing recognition that traditional linear economic systems prioritised financial performance while externalising environmental and social costs, particularly through the treatment of waste as a liability rather than a potential resource [10]. The emergence of circular economic thinking has further reinforced this shift by reframing waste as a source of retainable, recoverable, and regenerative value rather than an end-of-life burden [15,41]. Table 2 summarises the existing and diverse definitions of value identified in the literature. The categorisation was developed through qualitative content analysis, whereby the definitions were inductively examined according to their underlying conceptual focus and thematically grouped into economic and exchange-based, perception- and interaction-based, and holistic and system-level perspectives, reflecting similarities in meaning and orientation.

Table 2. Definitions for value in literature.

Value Theme	Reference	Definition for Value	Relevance to the Study
Economic and exchange-based value	Shankaranarayana et al. [30]	the balance between benefits and sacrifices (e.g., price, cost) as perceived by the customer	Value is understood as perceived economic and non-economic trade-offs
	Bhattarai [31]	a feeling that a product or service is worthy of its customer, and a feeling of benefits and services over the payment made	Value reflects perceived worth relative to cost
	Jerab [32]	the perceived worth derived from benefits received relative to the monetary sacrifice made	Value is conceptualised as perceived value-in-use
	Sugai & Mahajan [33]	an increase in the overall goods as the net difference between benefits and costs, which can be measured financially (i.e., price) or non-financially (i.e., time, effort, etc.).	Value reflects how stakeholders evaluate outcomes
Perception- and interaction-based value	Marchowska-Raza & Rowley [16]	An interactive relativistic preference experience (and is characterised by its uniqueness to each consumer, conditional or contextual dependence, relateness (to alternatives), and dynamism (constant change over time)	Value perceptions vary across stakeholders and contexts
	Norris [18]	Value is determined by the extent to which stakeholders perceive that their needs, interests, and expectations are fulfilled through their engagement with an organisation or system.	Value reflects perceived fulfilment of stakeholder expectations
	Ramaswamy & Ozcan [34]	Value is created through interactive experiences among multiple actors, emerging from engagement, dialogue, and interaction rather than from firm-produced outputs.	Value emerges through stakeholder engagement and interaction
	Hjelmbrekke & Lohne [35]	the perceived relative worth or future benefit, such as the individual value of education or the value for a company of having the best capability within a specific field	Value captures perceived worth and anticipated benefits
Holistic and system-level value	Xu et al. [36]	Value encompasses economic, social, and environmental dimensions, including intangible and relational elements such as knowledge and stakeholder relationships	Value is treated as multidimensional (economic, social, environmental)
	Mahajan [37]	Executing normal, conscious, inspired, and even imaginative actions that increase the overall good and well-being, and the worth of and for ideas, goods, services, people or institutions including society, and all stakeholders, and value waiting to happen	Provides normative justification for value creation beyond firm-level outcomes

As illustrated in Table 2, value cannot be universally defined, as its meaning varies across economic, experiential, stakeholder, and sustainability-oriented perspectives. Xu et al. [36] emphasised that value must be understood from the viewpoints of different

stakeholders, as each actor perceives and prioritises value differently. Similarly, Sugai and Mahajan [33] noted that conventional economic interpretations tend to assess value creation primarily at the firm level, often overlooking the impacts of value creation or destruction on other stakeholders involved in the system. This firm-centric orientation remains prevalent in corporate contexts, where financial performance is frequently prioritised, and shareholders are positioned as the dominant value beneficiaries [31].

Existing literature also discusses different types of values. For example, Yiapanas et al. [38] identified six value categories in their research: societal, personal, functional, regulatory, business, and negative. Marchowska-Raza and Rowley [16] explained that the value types that are most evident in literature are: social value, emotional value, functional value, and epistemic value. Conversely, Almunawar et al. [39] stated that the value can take many forms, such as in the form of products, services, and information. However, it can also encompass social value, environmental value, and other forms of value. The authors further explained that value can be classified into three groups: hard value, soft value, and intangible value. Hard value is value in the form of goods, services, and revenue, soft value is value in the form of information and knowledge, and intangible value is value in the form of benefits.

In the context of the CE, value extends beyond profit generation to include regenerative, restorative, and societal benefits, aligning with the three CE principles. As reflected in the literature, CE-oriented value is conceptualised in multiple ways, including maintaining products, components, and materials at their highest utility and value, generating economic, environmental, and social benefits, and supporting decision-making through measurable indicators, as summarised in Table 3.

Table 3. Interpretation of Value in the CE context.

Author	CE Related Interpretation for Value	Key Emphasis
Ellen MacArthur Foundation [9]	Maintaining products, components, and materials at their highest utility and value	Value retention and resource longevity
Geissdoerfer et al. [10]	Value creation through economic, environmental, and social benefits	Triple-bottom-line value
Kristensen & Mosgaard [40]	Value as measurable outcomes supporting CE indicators and decision-making	Operationalisation of CE value
Vulsteke et al. [41]	Distinction between functional value and created value across life cycles	Conceptual clarity and indicator alignment

Despite this growing body of research, the term “value” in CE remains conceptually ambiguous. Different authors interpret value as minimising value destruction, maximising value creation across system linkages, or extending the productive life of resources, often without clearly defining what constitutes “maximised” or “retained” value [41]. This lack of conceptual clarity poses challenges for consistent assessment, comparison, and implementation of circular practices, particularly in waste-intensive sectors such as construction. Consequently, several studies have highlighted the need for a coherent and comprehensive value framework to guide indicator development and support effective CE implementation [40,41,60].

Among recent efforts to clarify the concept of value in the context of the circular economy, Vulsteke et al. [41] conducted an in-depth analysis of value and associated concepts and proposed a comprehensive value framework bridging CE definitions and indicators. They distinguish between two value categories: functional value and created value. Func-

tional value refers to the worth assigned to resources, materials, components, or products based on their capacity to perform functions that deliver benefits to human well-being. Conversely, created value represents the overall balance of positive (handprint) and negative (footprint) economic, social, and environmental effects produced throughout a product's life cycle. As the authors explained, while these two value types are conceptually distinct, they are tightly connected. The functional value of materials and products changes as they undergo various actions across their life cycle, and these actions simultaneously generate positive and negative impacts that contribute to created value. This distinction provides important conceptual clarity for understanding how value is retained, transformed, or lost within CE systems.

Informed by the literature in this section [9,10,40,41], the 'value' in this study is defined as the economic, social, and environmental benefits or satisfaction that stakeholders perceive and gain through their involvement in an activity, reflecting the extent to which stakeholders believe their engagement generates meaningful outcomes financially, socially, or ecologically, and contributes to both individual and collective well-being. This definition is carried forward to inform the conceptualisation of value creation in the development of the stakeholder-centred value creation framework presented in the following section.

3.2. Understanding "Value Creation" in CE Transitions

As the term value has different definitions across diverse perspectives, value creation as a concept needs to reflect these different perspectives, including an economic (product- and market-driven) and a stakeholder (relationships-driven) [66]. From the economic perspective, value creation defines the difference between the buyer's willingness to pay for products and the opportunity costs of the resources provided, and it happens when the benefits generated exceed the costs to create them [17]. Firms create value through mechanisms such as cost leadership, performance improvement, customer satisfaction, and innovation that enhance profitability and market share [63]. However, emerging stakeholders and sustainability perspectives contend that firms should redefine value beyond profit by addressing the needs of multiple stakeholders, including employees, partners, communities, and the environment, to establish enduring relationships and co-create shared benefits [17,55]. Thus, core competencies and relational roles of various participants shape how the enterprises create value and the value output that they generate [14].

Within the context of CE transitions, value creation takes on an expanded role by linking economic performance with resource efficiency and regeneration. CE seeks to decouple economic growth from resource consumption by replacing the linear "end-of-life" model with regenerative practices of reduction, reuse, recycling, and recovery [56]. Accordingly, circular value creation is defined as the simultaneous pursuit of economic and circularity objectives, creating environmental, social, and economic benefits across the entire product-service system [57,58,67]. It should generate benefits for stakeholders by delivering outcomes that enhance competitive advantage, operational performance, and long-term sustainability [59]. Therefore, a value creation model within a circular system should be capable of collectively generating, delivering, and capturing economic, environmental, and social value for multiple stakeholders operating within regenerative systems.

3.3. Critical Review of Existing Value Creation and Co-Creation Models Across Disciplines

The existing literature has identified several value creation and co-creation models and frameworks developed under different contexts. Most of these models are established in the business management domain, focusing on how firms create value for their stakeholders or contribute to sustainable development through value-oriented practices.

It should be noted that, in the existing literature, models on value creation and value co-creation are often used interchangeably with no conceptual harm, even though each concept focuses on different dimensions of the value generation process. Value creation models primarily emphasise what value is generated, where it is generated, and how it is realized across an organizational or system-level setting.

In contrast, value co-creation models highlight the collaborative dimension of value generation, focusing on how companies and consumers jointly generate value through interaction [62]. Accordingly, this study reviews both value creation and value co-creation models in the critical review section to extract transferable insights relevant to complex, multi-stakeholder systems, where value is generated through both individual and collaborative processes beyond firm–consumer interactions. However, as the primary focus of this research is on identifying value gaps within the value generation process and understanding how value can be realised across stakeholders, the term value creation is adopted in developing the proposed framework.

From the 49 studies included in the review, 18 studies that explicitly present value creation or value co-creation models and frameworks were identified for further in-depth analysis. Each model was systematically examined to understand its primary focus, key characteristics, and underlying conceptual orientation. While some models exhibited features across multiple perspectives, each model was assigned to a primary category based on its dominant focus.

The categorisation was guided by identifying the main emphasis of each model, such as stakeholder engagement, process structure, collaboration mechanisms, or sustainability orientation. Based on this analysis, four model orientations were derived: stakeholder-oriented, process-oriented, collaboration-oriented, and sustainability-oriented. Figure 2 presents this classification, and a discussion of each category is provided in the following subsections.

3.3.1. Stakeholder-Oriented Models and Frameworks

Stakeholder-oriented models and frameworks emphasise that value creation cannot be meaningfully understood without stakeholder involvement, as it is a subjective and context-dependent process shaped by stakeholders' needs, perceptions, and expectations [18]. Both Freudenreich et al. [28] and Heitel et al. [22] recognised that identifying stakeholders and their expectations should be the first step in any proposed stakeholder value creation framework. As Heitel et al. [22] emphasised, value is inherently stakeholder-centric, defining how stakeholders perceive and interpret the benefits they receive.

Nguyen and Menezes [43] explained that value creation is no longer a unidirectional process between a firm and its customers but rather a multi-directional, networked process where customers interact, collaborate, and collectively construct value within and beyond firm-managed environments. They highlighted that value creation will need to adopt a wider focus beyond the firm to also include customers and communities. Accordingly, their model mapped how customers interact with one another to co-create value across multiple micro-practices, levels, and phases of experience within a real event context.

Building on this idea, Freudenreich et al. [28] also highlighted the bi-directional nature of value creation, where value should be generated both with and for various stakeholders. Their proposed framework differentiates value creation activities according to stakeholder groups and highlights the mutual and reciprocal nature of stakeholder relationships, where stakeholders function simultaneously as value recipients and co-creators. The authors further noted that the value produced through a business model constitutes a portfolio of diverse value forms, rather than a singular outcome, encompassing benefits for all stakeholder groups as well as the focal firm. Importantly, their study acknowl-

edged that financial value represents only one among multiple value types created within such interactions. They argued that while existing value creation models have identified value exchanges as integral to business models, most frameworks fail to question what benefits stakeholders receive in return for their contributions. As a result, the value captured by stakeholders often remains obscured, even though it is essential for developing and implementing effective sustainability solutions. Thus, their model seeks to examine how stakeholders' expectations and contributions shape their engagement in value creation processes.

Supporting this view, De Tommaso and Borini [17] conveyed that although a firm may be the first to initiate interactions with multiple stakeholders, it cannot fully control the value creation and appropriation processes that emerge beyond its direct influence. In this context, the firm functions as an enabling hub that facilitates interactions, while stakeholders may independently interact with one another and generate value outside the firm's control.

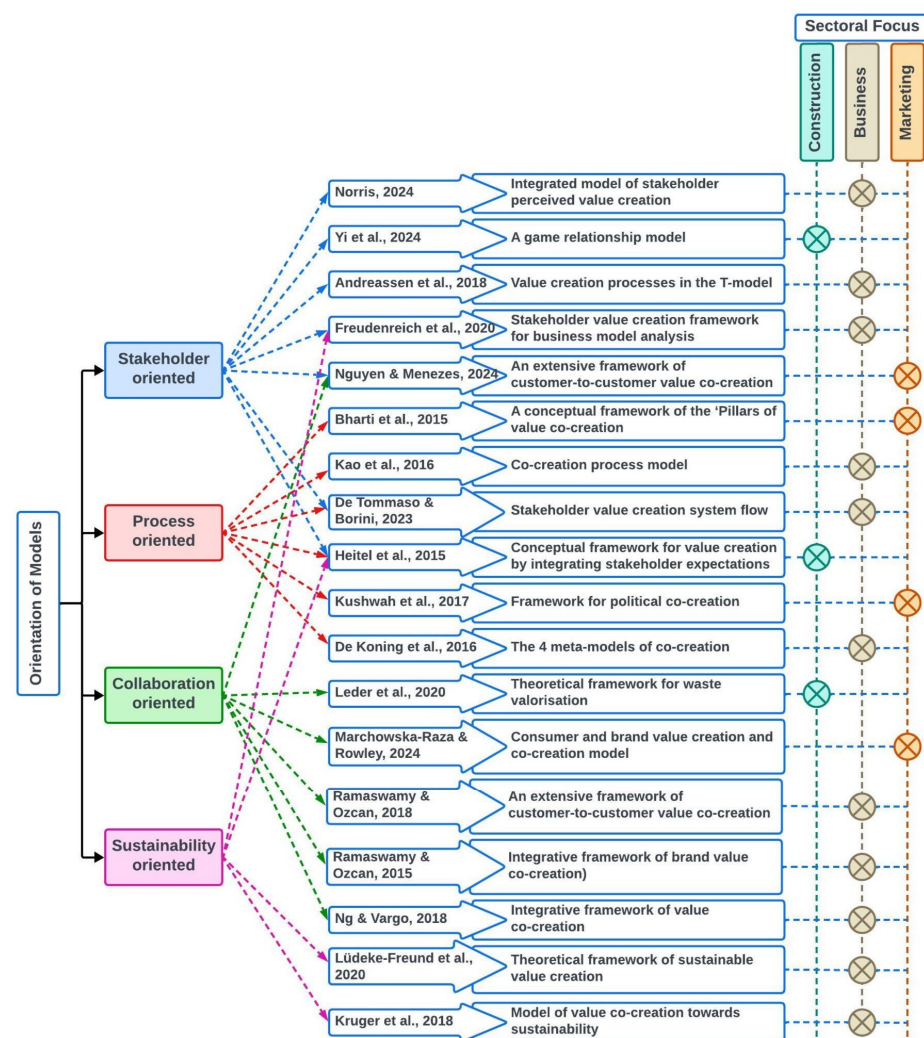


Figure 2. Model categorisation based on their orientation [13,16–18,20–22,28,34,42–50].

Andreassen et al. [42] identified value creation as a dynamic and interdependent process in which each stakeholder simultaneously creates, experiences, and sustains value through continuous interaction. They proposed a “T-model” business structure, where value creation occurs through active engagement and co-creation among three key stakeholder groups: the platform, suppliers, and buyers. Similarly, Yi et al. [20] examined interactions among three groups: the remanufacturer, the construction enterprise, and the

public in value creation within the construction and demolition waste resource utilisation context. They demonstrated that meeting the basic requirements of these three parties can jointly create green value through interactive feedback across the production and consumption stages. Accordingly, they conveyed that each stakeholder's behaviour affects the others and that the overall value proposition is jointly shaped through their game relationship model.

Moreover, the existing models collectively highlight the heterogeneous nature of value perceptions among stakeholders. These needs differ both across and within stakeholder groups, indicating the importance of assessing them separately rather than from a single organisational viewpoint. Since individual stakeholders tend to evaluate value based on their own benefits and satisfaction, convincing them that their perceived needs are adequately met enhances their willingness to reciprocate and engage in mutual value creation. This, in turn, strengthens interdependent and collaborative relationships [18].

While these models collectively emphasise value creation as a perception-driven process that emerges through continuous interaction among multiple actors and diverse stakeholder needs, they offer limited guidance on how competing stakeholder interests can be translated into concrete value creation actions that drive engagement within complex project environments. Although the game-relationship model proposed by Yi et al. [20] provides insights into stakeholder value creation within the construction sector, it is also limited to relationships among three key stakeholders. Nevertheless, in a sector such as construction, where multiple stakeholders interact temporarily within project-based settings and make time-sensitive decisions, existing models remain insufficient to explain how stakeholder expectations are prioritised and aligned, particularly with CE principles. Moreover, although stakeholder interactions are acknowledged, these models largely overlook how the benefits of CE are valued differently by stakeholders across the construction value chain, thereby limiting their applicability to CE implementation in construction projects.

3.3.2. Process-Oriented Models and Frameworks

Another key component emphasised in existing value creation models is the process itself. Most identified models present value creation as a process flow representing how stakeholder interactions, resource integration, and organisational actions collectively lead to value creation and eventual value realisation. De Tommaso and Borini [17] explained that a value creation system comprises multiple flow relationships, and managers should follow specific steps to implement it. According to their model, the process is driven by two critical factors: changes in top managers' mindsets and awareness that stakeholder preferences evolve over time. As stakeholders' needs and interests change, they defined value creation as an endless and dynamic process. They further divided this process into three main stages: value creation, distribution, and capture, and described the key managerial actions required within each phase to implement an effective stakeholder value creation system.

In contrast, Heitel et al. [22] developed a process model consisting of six phases: identification of relevant stakeholders, collection of stakeholder expectations, processing of demands, balancing of interests, decision on targets, and controlling and reporting. According to this model, the process begins by identifying what value means from the stakeholders' standpoint. When stakeholder interests are adequately addressed through the firm's resources and strategies, value is created across multiple dimensions, including economic, social, and environmental.

Several other scholars, including Kushwah et al. [46], De Koning et al. [47], Kao et al. [44], and Bharti et al. [45], have defined the process of value co-creation through their models. Kushwah et al. [46] proposed a framework for implementing co-creation in political

organisations, structured in three stages: co-creation indicating factors, the co-creation process, and post-co-creation stages to ensure successful implementation. Similarly De Koning et al. [47] defined co-creation as a process of mutual firm–customer value creation. They described this as a creative and interactive process that replaces the traditional one-way firm-to-customer relationship with active engagement and experience sharing between both parties. One of their key findings was that co-creation transforms firm–customer contact from a purely transactional exchange into an experiential interaction.

Kao et al. [44] introduced the five-stage IEPAR model (Interact–Engage–Propose–Act–Realize) to describe how enterprises use social media to co-create value with consumers. Through this process, firms develop new initiatives intended to enhance consumer value, and upon implementation, realise value by improving both firm performance and consumer satisfaction. The model demonstrates that value co-creation generates mutual benefits for both sides.

Bharti et al. [45] examined the co-creation process by grouping its elements into five key pillars: process environment, resources, co-production, perceived benefits, and management structure. Among these, perceived benefits were identified as a core pillar in which value functions as a central component. Perceived benefits were defined as a combination of expected benefits, customer experience, learning, value, and problem-solving outcomes. The authors noted that this pillar strongly influences customers' decisions to participate in the value co-creation process. Expected benefits include monetary, non-monetary, and indirect monetary rewards, each of which determines customer participation behaviour. Hence, the authors emphasized that acknowledging these expected benefits is essential to ensure active stakeholder engagement and satisfaction during co-creation.

Together, these process-oriented models emphasise that value creation and co-creation are dynamic, iterative, and interactive processes involving multiple stages and actors. Although different authors have identified varying stages, they all demonstrate that value creation is not a single-stage process but one that unfolds across multiple, interconnected phases. It should begin with identifying stakeholder groups and their expectations from different perspectives, which should then be aligned with the firm's goals to initiate value creation. Subsequently, various resources and capabilities need to be mobilised to generate value. Finally, the process should evolve through measuring performance and analysing outcomes, with the results continuously fed back into the system to maintain its dynamism.

While inclusive in design, existing process-oriented value creation models often rely on idealised process flows that assume stable organisational structures and clear managerial control. Such assumptions limit their applicability to construction waste management contexts, which involve multiple stakeholders operating across fragmented organisational, contractual, and regulatory arrangements, including design, construction, demolition, and waste recovery. Value creation in this context does not occur within a single business setting or through linear firm–customer relationships but rather emerges across inter-organisational interfaces involving independent actors with differing roles, incentives, and decision-making authority. Although Heitel et al. [22] provide the only construction-specific, process-oriented value creation model, their framework primarily focuses on integrating stakeholder expectations into a firm's strategic targets, offering limited insight into how value is created and coordinated across inter-organisational and CE interfaces. Consequently, existing models fall short of capturing the dynamic, multi-actor, and cross-sectoral nature of value creation required for the implementation of the CE in construction waste management.

3.3.3. Collaboration-Oriented Models and Frameworks

Another key aspect highlighted across existing value creation and co-creation models is collaboration. Many of these models emphasise collaboration as a critical mechanism through which shared value outcomes are achieved, shifting value creation away from firm-centric delivery towards interactive and relational processes among multiple actors.

For instance, in the Consumer and Brand Value Creation and Co-Creation Model developed by Marchowska-Raza and Rowley [16], value creation is portrayed not as a unidirectional process delivered by a system to its users, but as a reciprocal co-creation process among diverse stakeholders whose shared interactions, perceptions, and experiences collectively shape the perceived value.

Correspondingly, Nguyen and Menezes [43] suggested that value co-creation emerges through multi-level interactions among individuals and groups who participate in collective activities within their communities. Value is co-created through both cooperative and creative interactions facilitated by experiential platforms provided by service organisations, and through self-directed interactions among participants. This perspective underscores that value creation extends beyond firm-led initiatives and is distributed across networks of actors whose interactions evolve dynamically over time.

Ramaswamy and Ozcan [34,49] further reinforce this collaborative perspective through their co-creation models, which assert that value is generated through interaction and engagement rather than through firm output alone. Their extensive framework of customer-to-customer value creation [34] explains that value arises not simply from the final outcome but from the lived, interactive processes among stakeholders, artefacts, and interfaces. This interpretation supports the notion that value in circular contexts emerges not only from the extraction or reuse of materials but from how interactions occur, how stakeholders engage, and how systems are configured for reuse and regeneration. Both models stress that value cannot be fully understood by analysing outputs or consumption in isolation; instead, it must be examined through the ongoing interaction of resources over time. In addition, the integrative framework of value co-creation by Ng and Vargo [48] expands this understanding by examining value processes beyond organisational boundaries and rethinking value capture from a systemic and network-based perspective. This approach situates collaboration at the centre of value co-creation, where networks of actors collectively contribute to and benefit from shared value outcomes.

While the waste valorisation framework proposed by Leder et al. [21] directly addresses construction waste valorisation, it primarily focuses on the interconnected roles of collaboration and technological integration, framing these as essential contextual enablers for the transition from linear to circular systems. However, the framework does not explicitly conceptualise value creation from diverse stakeholder perspectives. Although existing models collectively highlight collaboration as a critical requirement within value creation frameworks, they offer limited guidance on how collaborative value creation can be practically enabled and governed within a CE setting.

3.3.4. Sustainability-Oriented Models and Frameworks

As value creation is closely intertwined with sustainability, many existing value creation models explicitly integrate sustainability principles into their conceptual foundations. These models extend value beyond short-term economic outcomes to incorporate social and environmental considerations, highlighting the need for inclusive, long-term, and systemic approaches to value creation.

Consequently, Lüdeke-Freund et al. [13] developed a framework of sustainable value creation that explains the theoretical perspectives on sustainable value creation within sustainable business model research. Their framework implies that sustainable value

creation requires a stakeholder-oriented understanding of value, a systemic perspective that accounts for spatial and temporal dimensions of value distribution, a collaborative and relational approach to co-creation, and comprehensive performance measures that reflect not only value outcomes but also underlying power dynamics among stakeholders. Collectively, these principles suggest that sustainability-oriented value creation cannot be achieved through isolated organisational actions but must be embedded within broader stakeholder systems that recognise differential benefits, responsibilities, and impacts over time.

Likewise, Freudenreich et al. [28] proposed the ‘Stakeholder Value Creation Framework for Business Model Analysis’, emphasizing the importance of examining stakeholder concerns on value in relation to sustainability. The authors noted that stakeholders often play a dual role in sustainability challenges and solutions. For instance, those who contribute to ecological and social problems are also essential participants in developing and implementing effective remedies. They argued that the value for these stakeholders often remains under-researched, even though it is critical for realising sustainable outcomes. Therefore, the authors emphasised the need to establish structures that enable all stakeholders to express their expectations regarding sustainability-related outcomes and to encourage their active participation in addressing sustainability issues arising during value creation.

Furthermore, Krüger et al. [50] analysed the use of co-creation as a mechanism for stakeholder engagement in contributing to sustainable development, while Heitel et al. [22] also highlighted that value extends beyond financial benefits to encompass social and environmental dimensions. The authors described their model using “sustainable value creation”, as it goes beyond short-term economic gains to include broader social and ecological considerations.

Viewed as a whole, sustainability-oriented value creation models emphasise the importance of achieving ecological and socially beneficial outcomes while maintaining financial viability. However, none of the analysed value creation and value co-creation models explicitly focus on sustainability within the construction sector. As a result, the findings of the current study reveal that existing value creation models offer limited insight into how sustainability-driven value is operationalised within construction and CE contexts. Specifically, within the construction sector, where sustainability outcomes depend heavily on decisions related to construction and demolition waste, existing models are unable to clearly explain how such decisions translate into stakeholder value across economic, environmental, and social dimensions.

Collectively, existing value creation models offer important conceptual insights into stakeholder engagement, process dynamics, collaboration, and sustainability. However, they remain fragmented and insufficiently tailored to the waste-intensive and multi-stakeholder nature of the construction industry. None of the reviewed model categories comprehensively explains how construction stakeholders’ value expectations can be systematically identified, aligned, and operationalised to motivate their engagement in CE implementation for C&D waste reduction. This gap underscores the need for a stakeholder-centred, process-integrated conceptual value creation model that explicitly incorporates stakeholder value perceptions, CE principles, and C&D waste management practices, thereby highlighting the central role of stakeholder value perspectives in driving circular construction outcomes.

4. Discussion

The frameworks and models reviewed in the literature consistently indicate that value creation is not a linear activity but a dynamic, iterative process that evolves through

interactions among multiple stakeholders. It involves interconnected elements such as stakeholder identification, alignment of expectations, resource mobilisation, performance evaluation, and feedback, which together support adaptive learning over time.

In the transition from a linear economy to a circular economy, circular business models provide a key mechanism for enabling this shift through value creation [68]. These models commonly conceptualise value creation as comprising three interrelated stages: value proposition, value creation, and value capture [11]. Building on this structure, the conceptual framework proposed in this study adopts a stakeholder-centered value creation perspective to guide the transition from linear to circular practices in C&D waste management.

While the proposed framework draws on established value creation and co-creation concepts from the broader literature, the transferability of these concepts lies primarily in their underlying principles rather than in the direct adoption of existing models. In particular, the literature highlights stakeholder engagement, the identification of stakeholder value perceptions, the role of sustainable values and collaboration, and the iterative nature of value creation as key foundations that are applicable across contexts. However, their application in this study is adapted to reflect the project-based, temporary, and fragmented nature of construction organisations, where multiple stakeholders interact within time-bound structures. The following sections outline how each stage is operationalised within the proposed framework, particularly as adapted for the construction context.

4.1. Value Proposition

The value proposition serves as the starting point of the value-creation process, as it defines the type of value offered to stakeholders [11]. It articulates the expectations of, and benefits proposed to, different stakeholder groups and is commonly examined across multiple dimensions, including economic, social, and environmental value [69]. Within the CE context, a circular value proposition clarifies stakeholders' value expectations, including reducing resource consumption, minimising waste generation, and lowering environmental impacts through closed-loop and regenerative practices [61,64,65]. Therefore, in the current context, the value proposition concerns understanding what different stakeholders perceive as valuable in relation to waste minimisation and resource recovery, and how they assign value to C&D waste within CE engagement. Within the proposed conceptual framework, the value proposition stage therefore focuses on two core elements: (i) identifying key stakeholder groups and their perceptions of the value of C&D waste, and (ii) aligning stakeholders' perceived importance of value factors with current industry performance in order to identify value gaps, priority improvement areas, and opportunities for circular value creation.

4.1.1. Identifying Stakeholder Groups Related to C&D Waste Management

Stakeholders in the construction sector can be broadly categorised into internal and external stakeholders. Internal stakeholders are those directly involved in project planning, execution, and waste-related decision-making across the construction lifecycle, while external stakeholders include regulatory bodies, policymakers, and market actors that shape the broader institutional and economic environment in which construction activities take place.

Accordingly, this study identifies five key internal stakeholder groups directly involved in C&D waste decision-making: clients/client representatives/asset owners, design professionals, construction professionals, demolition professionals, and waste recovery professionals. These stakeholders are directly engaged in value creation and waste-related

decisions across different stages of the construction lifecycle and form the core focus of the proposed framework.

However, CE implementation in construction is also significantly influenced by external stakeholders, particularly through regulatory frameworks, policy interventions, and market conditions. Regulatory policies act as enabling and constraining mechanisms that influence stakeholder behaviour across all stages of value creation. External stakeholders involved in the development and enforcement of these mechanisms influence how internal stakeholders perceive the benefits, risks, and feasibility of engaging in circular practices. Therefore, considering both internal and external stakeholders, and recognising their interaction, enables a more comprehensive understanding of how value is perceived and managed across the C&D waste stream, supporting a holistic view of the construction value chain.

4.1.2. Identifying Stakeholders' Perceptions of the Value of C&D Waste

Stakeholders' perceptions of waste are closely linked to the value they ascribe to it. This value is inherently subjective and context-dependent, shaped by stakeholders' roles, responsibilities, and priorities [16]. Accordingly, identifying stakeholder-specific value expectations is a critical prerequisite for effective value creation and sustained engagement in CE practices.

Existing value creation models conceptualise value as multidimensional, typically encompassing economic, social, and environmental dimensions. However, within the CE context, value extends beyond these traditional interpretations to include regenerative, restorative, and experiential outcomes that influence stakeholder engagement in waste recovery practices.

In the waste management context, economic value primarily relates to operational efficiency and cost-related considerations, social value reflects moral and responsibility-driven motivations, and environmental value captures regenerative and restorative outcomes. In addition, emerging literature on circular transitions highlights the importance of knowledge development, innovation, and experiential learning in enabling long-term systemic change. To reflect this, the present study incorporates an additional value category, knowledge–experiential value, to capture capability development and adaptive capacity within circular construction practices. Accordingly, the study conceptualises four interrelated value categories: (i) economic–operational value, (ii) social–moral value, (iii) environmental–regenerative value, and (iv) knowledge–experiential value.

i. Economic–operational value

Economic considerations play a critical role in influencing stakeholder participation in CE practices, as cost–benefit outcomes strongly shape decision-making in construction and waste recovery activities [70,71]. Stakeholders assess not only the benefits gained from CE engagement but also the associated costs, including those related to time, resources, and potential operational disruptions.

Economic instruments such as taxes, incentives, subsidies, and penalties have been widely identified as effective mechanisms for influencing stakeholder behaviour in C&D waste management [70]. In construction and waste recovery contexts, economic value is closely linked with operational efficiency, process optimisation, and cost management. Accordingly, this study integrates economic and operational considerations into a single economic–operational value category to reflect their interdependent role in supporting effective CE implementation.

ii. Social–moral value

Social values influence how individuals and organisations perceive responsibility, ethical behaviour, and societal contribution [72]. Stakeholders are often motivated by moral

considerations, including the desire to act in socially responsible and ethically acceptable ways [73]. Engagement in CE practices has been associated with a range of social benefits, including improved community wellbeing, enhanced social responsibility, and more ethical use of resources [74].

However, uncertainty regarding how these social benefits are realised in practice has been identified as a key barrier to CE adoption. Given the strong influence of stakeholder behaviour on the implementation of CE initiatives, understanding how different actors perceive social–moral value is essential for designing value propositions that effectively motivate stakeholder engagement [70].

iii. Environmental–regenerative value

Growing concerns regarding resource depletion and environmental degradation have heightened the importance of environmental values in construction decision-making [75]. From an environmental perspective, CE aims to reduce material throughput, limit the use of virgin resources, and minimise waste and emissions [74].

Moving beyond traditional impact reduction, CE in the built environment adopts a regenerative approach that seeks to enhance material efficiency, extend asset lifespans, and retain value across all lifecycle stages [68]. Accordingly, this study adopts the term environmental–regenerative value to capture this restorative intent and emphasises the importance of understanding how stakeholders perceive such value in shaping their motivation to engage in CE practices.

iv. Knowledge–experiential value

In addition to economic, social, and environmental considerations, existing literature highlights the importance of knowledge, skills, and experiential learning as key motivators for stakeholder engagement in CE practices [76]. Training and education have been shown to improve waste management performance while also being perceived as valuable outcomes that support the adoption of circular practices [77].

Empirical evidence from diverse geographical contexts confirms that experiential learning and knowledge accumulation are consistently valued by stakeholders and play a critical role in driving waste reduction practices [78]. Beyond immediate operational benefits, knowledge–experiential value contributes to long-term capability development, innovation, and behavioural change, which are essential for sustaining CE transitions.

Accordingly, this study conceptualises knowledge–experiential value as a distinct value domain that extends beyond the traditional triple bottom line framework, recognising learning, competence development, and practical experience as fundamental drivers of stakeholder engagement in CE implementation.

Together, these categories capture both established and emerging dimensions of value that are critical for understanding how different stakeholder groups perceive waste and what motivates their engagement in circular waste recovery practices. These value perceptions can be explored using empirical methods such as surveys, semi-structured interviews, workshops, or Delphi studies among construction sector stakeholders, allowing for flexible application of the framework across different contexts.

Once stakeholder-perceived value factors are identified, the next step in the framework is to assess how effectively current industry practices fulfil them, thereby identifying opportunities for enhanced value creation. Aligning these value expectations with industry performance is therefore a critical component of the value proposition stage, as it enables the identification of areas in which values are met, unmet, or adversely affected. This alignment provides a systematic basis for translating stakeholder value expectations into targeted CE practices.

4.1.3. Aligning Stakeholder Expectations with Industry Performance

Sjödén et al. [51] conceptualise the value proposition as the process of aligning value-creation opportunities with the ways value is delivered and distributed among participating actors. In the context of current research, this alignment requires a systematic assessment of existing waste management practices against stakeholder expectations. This assessment enables the identification of misalignments between the values of different stakeholder groups and the construction industry's current delivery. As Pucci et al. [52] explain, evaluating current industry practices and adapting them to better align with stakeholders' perceived values can strengthen and realign existing industry capabilities for value creation, rather than relying on entirely new interventions. Thus, aligning stakeholder value expectations with industry performance provides a practical foundation for identifying value gaps, thereby revealing opportunities for value creation through CE implementation.

4.2. Value Creation

Once value-creation opportunities are identified at the value proposition stage, the process proceeds to value creation. This stage explains how resources and capabilities are mobilised and coordinated to generate the desired value within a value creation network, which typically involves multiple actors collaborating to enhance collective outcomes [54]. França and Ferreira [53] conceptualise resources and capabilities by classifying resources as tangible or intangible. Tangible resources include financial, organisational, physical, and technological assets. In contrast, intangible resources comprise human resources (e.g., knowledge, management skills, and organisational routines), innovation resources (e.g., ideas and innovation capacity), reputational resources (e.g., brand reputation and perceived product quality) and specific types of core competencies.

Consistent with this, the proposed framework focuses on identifying the activities required to address existing value gaps, as well as the resources and capabilities needed to implement them effectively. This process is operationalised through strategy development, whereby targeted strategies are formulated to close identified value gaps and deliver economic–operational, social–moral, environmental–regenerative, and knowledge–experiential value to stakeholders.

These strategies are directly derived from the identified value gaps and are operationalised into specific actions aimed at addressing misalignments between stakeholder expectations and current industry practices. This transition enables the systematic progression from value gap identification to strategy implementation and ultimately to measurable value outcomes.

4.3. Value Capture

Following the development and implementation of value creation strategies derived from identified value gaps, the next stage of the framework focuses on value capture, which refers to how the value generated through CE practices is realised, measured, and distributed among stakeholders. In this context, the identified strategies are translated into specific actions aligned with stakeholder value expectations.

Value capture involves evaluating both financial and non-financial outcomes arising from the implementation of value creation strategies. In this context, financial outcomes relate primarily to the fulfilment of economic–operational value for construction stakeholders, including new revenue streams, cost savings through reduced material consumption, and improved operational efficiency. Non-financial outcomes reflect the fulfilment of other value dimensions. These include social–moral value, such as enhanced stakeholder relationships and improved community engagement; environmental–regenerative value, such as reduced environmental emissions and more efficient use of natural resources; and

knowledge–experiential value, including enhanced learning opportunities, innovation capacity, and career development.

Importantly, value capture also considers how these benefits are distributed across different stakeholder groups, ensuring that the value generated is appropriately shared and aligned with stakeholder contributions and expectations. This enables a more balanced and sustainable value realisation process.

The captured value can be assessed using relevant performance indicators, allowing stakeholders to evaluate whether the benefits generated exceed the costs associated with implementing value creation strategies. This provides a basis for continuous improvement and supports informed decision-making in advancing CE practices within the construction sector.

As the literature indicates, value creation is a continuous and iterative process involving value identification, performance assessment, and ongoing feedback, which together support continuous improvement [17]. Accordingly, the proposed framework incorporates a feedback loop that communicates captured values to stakeholders to increase stakeholder satisfaction and sustain their engagement in CE implementation over the long term. Figure 3 presents the resulting conceptual framework for stakeholder-centred value creation, specifically developed to support CE-based construction and demolition waste management.

The proposed framework draws on established value creation and co-creation concepts from broader literature, including stakeholder engagement, identification of stakeholder value perceptions, collaboration, sustainability considerations, and the iterative nature of value creation. However, their application requires contextual adaptation to reflect the project-based, temporary, and fragmented nature of construction organisations, where multiple stakeholders interact within time-bound structures. Accordingly, the framework is specifically designed to align with the construction context by integrating key elements, including the identification of relevant stakeholder groups, the linkage between the construction project lifecycle and the waste lifecycle, a multidimensional conceptualisation of value (economic–operational, social–moral, environmental–regenerative, and knowledge–experiential), and a value gap alignment mechanism.

The framework is further justified by its ability to integrate and operationalise key insights from the literature into a coherent structure tailored to the construction sector. In particular, it systematically translates theoretical principles of value creation into a construction-specific context by linking stakeholder value perceptions, value gap identification, strategy development, and value realisation within a unified process. In doing so, the proposed framework addresses a critical gap in the literature, where limited research has applied value creation concepts to CE implementation in construction, particularly within project-based environments.

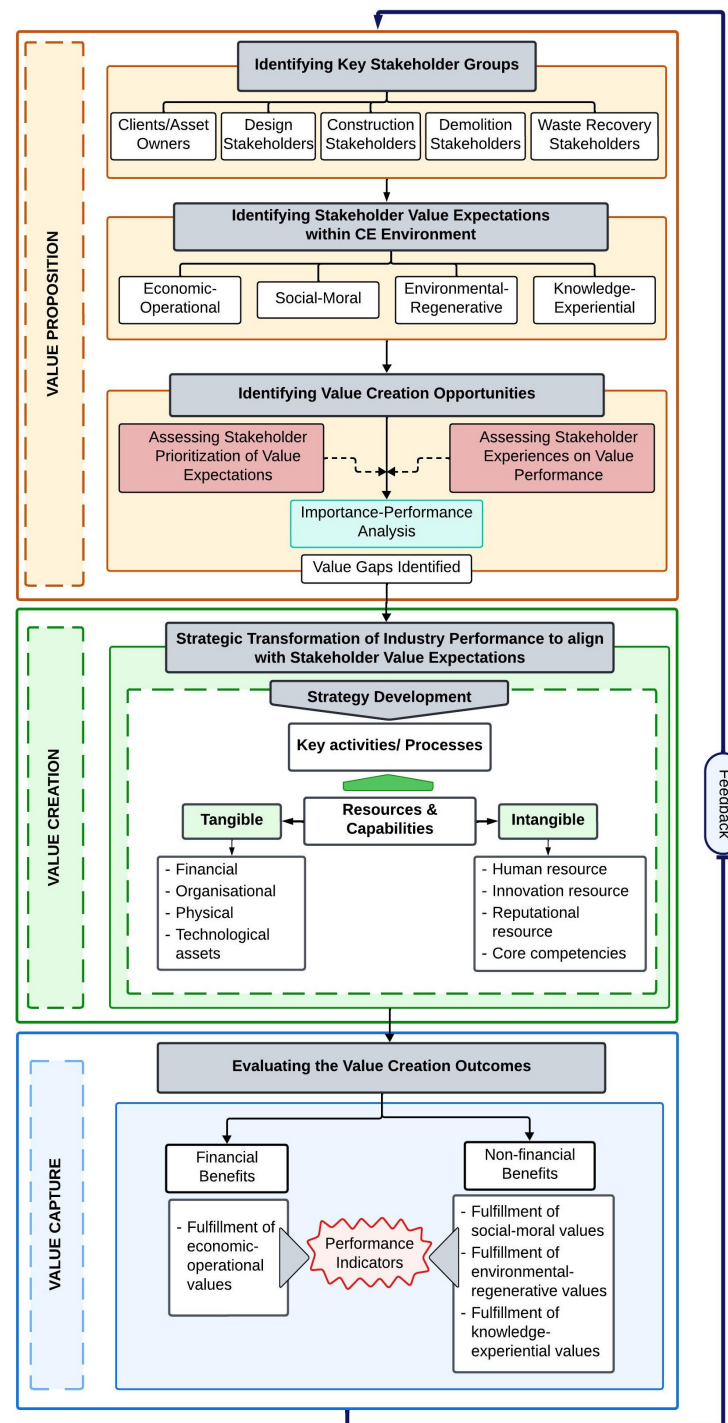


Figure 3. The conceptual framework.

5. Conclusions

CE has been widely discussed as an approach for waste reduction and as a response to resource depletion. However, its application in the construction sector remains limited. This study addresses a critical gap in the construction CE literature by introducing a value-creation perspective for CE implementation and examining how stakeholder value perceptions can drive engagement in circular practices, particularly in C&D waste management. Using a PRISMA-guided systematic literature review, the study analysed value creation models and frameworks across multiple disciplines to identify key concepts and mechanisms relevant to stakeholder-centred value creation.

The findings indicate that the application of value-creation concepts in the construction sector remains limited, despite their extensive development in business and marketing contexts. This highlights the need to adapt such concepts to the construction domain. The study further demonstrates that value in the construction context is inherently multidimensional, encompassing economic–operational, social–moral, environmental–regenerative, and knowledge–experiential dimensions.

Building on these insights, the study develops a stakeholder-centred conceptual framework that integrates value proposition, value creation, and value capture processes. The framework begins by identifying key stakeholder groups involved in C&D waste management and understanding their value expectations. It then aligns these expectations with current industry practices to identify value gaps and proposes targeted strategies to fulfil stakeholder values, thereby enhancing engagement in CE practices.

The proposed framework contributes to both theory and practice. Theoretically, it extends value creation literature by adapting its core principles to the project-based and multi-stakeholder nature of the construction sector. Practically, it provides a structured approach for identifying stakeholder value expectations, translating them into actionable strategies, and evaluating outcomes to support CE implementation in the construction industry.

6. Limitations

Despite the contributions of this study, several limitations must be acknowledged to clarify its scope and methodological boundaries. First, the framework is developed based on a systematic literature review and conceptual synthesis, and therefore lacks empirical validation. Second, the literature review primarily focuses on value creation models and frameworks, which may have limited the inclusion of broader CE studies that do not explicitly adopt a value-based perspective. Third, while the role of external stakeholders—such as regulatory bodies and policymakers—is acknowledged, their influence is not explicitly modelled within the framework.

In addition, the study adopts a generalised construction context, which may not fully capture variations across different geographical regions, regulatory environments, and project types. These limitations suggest that the findings should be interpreted with consideration of contextual differences.

Notwithstanding these limitations, the study provides meaningful contributions by organising a fragmented research landscape, refining conceptual understanding, and identifying key avenues for future empirical research to support stakeholder engagement in CE implementation in the construction sector.

7. Future Directions

Future research is encouraged to empirically test and validate the proposed framework across different construction contexts and stakeholder groups. Quantitative approaches, such as surveys and importance–performance analysis (IPA), as well as qualitative methods, including interviews or Delphi studies, could be used to assess stakeholder value perceptions and evaluate the effectiveness of the proposed strategies.

Further studies could also explore the integration of regulatory and policy mechanisms into the framework. In particular, examining how policy frameworks can support the implementation of the proposed framework to enhance stakeholder engagement in CE practices would provide a foundation for designing collaborative and governance strategies in future applications.

Finally, future research may extend the framework to specific project types or regional contexts to better understand how value creation dynamics vary across different construction environments and to enhance its practical applicability.

Supplementary Materials: The following supporting information can be downloaded at: <https://www.mdpi.com/article/10.3390/buildings16091652/s1>, PRISMA 2020 Main Checklist [26].

Author Contributions: T.L. conducted the literature review, conceptualised the analysis, and drafted the manuscript. M.T. supervised the methodology, coordinated the review process, and reviewed and edited the final draft. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Data Availability Statement: All data and materials used in this study are included within the manuscript.

Acknowledgments: Grammarly (v1.2.253.1879) and ChatGPT 4.0 were used to assist with grammar correction, language refinement, and clarity enhancement. The authors further acknowledge the Queensland University of Technology (QUT), Australia, for providing a research scholarship to the first author for undertaking this study.

Conflicts of Interest: The authors declare no conflicts of interest.

Abbreviations

The following abbreviations are used in this manuscript:

CE	Circular Economy
CEBMs	Circular Economy Business Models
C&D	Construction and Demolition

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