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Methodological and Behavioural Drivers of Valuation Decision-Making in Property Markets: A Systematic Literature Review

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Abstract

Property valuation is a core function in organizational asset management, directly informing decisions related to investment, financing, and strategic resource allocation. Despite growing adoption of analytical models and automated valuation technologies, outcomes remain substantially influenced by professional judgement, organizational processes, and institutional constraints. Prior reviews have examined either methodological advances—such as Abidoye and Chan's (2017) review of ANN-based valuation models and Glumac and Des Rosiers' (2018) examination of big data applications—or behavioural factors in isolation (e.g., Gallimore, 1996; Diaz & Hansz, 1997), leaving an integrative gap this study addresses. Following the PRISMA 2020 framework, 42 peer-reviewed articles were selected from Scopus, Web of Science, and Emerald Insight (March 2024) and analyzed through three-stage thematic analysis. Five themes emerged: (1) methodological evolution in valuation practice, (2) professional judgement and organizational decision-making, (3) behavioural bias in appraisal management, (4) technological transformation through automated valuation systems, and (5) institutional governance of valuation standards. The resulting conceptual framework, derived inductively from thematic coding of the 42 included studies, conceptualizes valuation as a hybrid decision-making process where scientific and managerial-behavioural dimensions—moderated by institutional and technological context—jointly shape valuation outcomes. This study contributes by providing the first systematic integration of methodological and behavioural perspectives in property valuation, offering actionable insights for asset managers, financial institutions, and policymakers seeking to enhance valuation reliability in data-driven property markets.

KEYWORDS

property valuation; real estate appraisal; managerial decision-making; automated valuation model; professional judgement; systematic literature review.

Introduction

Property valuation constitutes a foundational element of organizational asset management, providing essential inputs for a broad range of managerial and strategic decisions. In contemporary organizations, valuation results directly inform decisions related to property investment, mortgage financing, portfolio allocation, financial reporting, and strategic resource management. For financial institutions, real estate firms, and public sector organizations, reliable valuation outcomes are prerequisites for sound managerial decision-making and effective governance of asset portfolios (Hoesli, M.; MacGregor, 2014; McAllister, 2019). Accordingly, the credibility and reliability of the valuation process are critical for organizational performance and stakeholder confidence.

From a theoretical perspective, property valuation has traditionally been conceptualized as an analytically grounded discipline. Classical valuation theory emphasizes structured approaches such as the sales comparison approach, income

capitalization approach, and cost approach (Pagourtzi et al., 2003a). These methods rely on economic principles, market evidence, and systematic analysis to generate value estimates that reflect prevailing market conditions (French & Gabrielli, 2004). Over time, developments in econometrics and real estate analytics have further strengthened the scientific orientation of valuation through the application of hedonic pricing models, spatial econometrics, and mass appraisal systems (; (Glumac & Des Rosiers, 2018; McCluskey et al., 2013).

Technological innovation has increasingly transformed valuation in recent years. The emergence of automated valuation models (AVMs), machine learning techniques, and artificial intelligence has enabled analysts to process large volumes of property data with greater efficiency (Baldominos et al., 2018; Kok Koponen, Eija-Leena, Martínez-Barbosa, Carmen Adriana, 2017). These developments have created new analytical capabilities in real estate management, supporting financial institutions and property platforms seeking to enhance both analytical efficiency and decision speed (Deng & Zhang, 2025; Dimopoulos et al., 2025; Ho et al., 2021; Yuan, Jian; Li, Ming; Zheng, 2022). Consequently, contemporary valuation increasingly emphasizes data-driven methods and technological integration.

Despite these advancements, property valuation in organizational contexts cannot be fully understood as a purely technical or algorithmic process. Real estate markets are inherently heterogeneous and shaped by contextual factors including local economic conditions, regulatory environments, and market behaviour ; (French & Gabrielli, 2004; Patrick McAllister, 2019). In practice, information is frequently incomplete or ambiguous, requiring managers and professional valuers to interpret available evidence and exercise judgement.

A careful examination of the existing literature reveals that prior reviews have addressed these dimensions in isolation. In terms of methodological reviews, (Pagourtzi et al., 2003b) synthesized classical valuation approaches; (Abidoye & Chan, 2017) conducted an SLR of 31 studies on artificial neural network-based valuation models; and (Glumac & Des Rosiers, 2018) reviewed big data applications in real estate research. On the behavioural side, while individual empirical studies have examined cognitive biases—(Gallimore, 1996) on confirmation bias, (Diaz & Hansz, 1997) on anchoring, and (A. Amidu & Tajudeen Aluko, 2007) on client influence—these have not been synthesized in a standalone systematic review, nor have they been connected systematically to organizational governance frameworks. The rapid adoption of automated valuation technologies further raises new questions about the evolving role of human judgement in organizational contexts that none of these prior streams has addressed comprehensively.

The integrative gap this manuscript addresses is therefore as follows: no prior systematic review has combined the methodological evolution stream, the behavioural bias stream, and the institutional governance stream within a unified management decision-making framework. Addressing this gap is the central contribution of the present study.

Given these research gaps, this study conducts a Systematic Literature Review (SLR) to synthesize existing research on property valuation, integrating methodological, behavioural, and institutional perspectives. The review addresses three research questions:

1. How has the relationship between analytical methods and professional judgement been conceptualized in property valuation literature?
2. What methodological approaches dominate contemporary property valuation research?

3. What behavioural, organizational, and institutional factors influence managerial decision-making in property valuation?

By addressing these questions, this study contributes to the management literature by conceptualizing property valuation as a hybrid managerial decision-making process and proposing a conceptual framework that integrates methodological and behavioural drivers of valuation.

Literature Review and Conceptual Framework Property Valuation as a Managerial Activity

Property valuation is inherently embedded in organizational management. Valuation results provide the informational basis for managerial decisions in investment analysis, financial reporting, credit risk assessment, and portfolio management. Because real estate assets often represent significant proportions of organizational balance sheets, reliable valuation is essential for organizational performance, regulatory compliance, and stakeholder confidence (Hoesli, M.; MacGregor, 2014; Pagourtzi et al., 2003b).

The management perspective on property valuation extends beyond technical methods to encompass organizational processes, governance structures, and decision-making frameworks. Asset managers must coordinate valuation processes, manage professional valuers, and integrate valuation outputs into broader strategic decisions. This organizational dimension distinguishes valuation from purely technical appraisal practice, emphasizing the importance of process design, quality assurance, and institutional accountability (Baur, Christoph; Braun, Thomas; Wimschulte, 2023; McAllister, 2019).

Methodological Foundations of Property Valuation

The analytical foundation of property valuation has evolved substantially over time. Early valuation practice relied primarily on the sales comparison, income capitalization, and cost approaches, each grounded in economic theory and market evidence (Pagourtzi et al., 2003b). These approaches remain central to professional valuation practice because they provide systematic frameworks for interpreting market data.

Advances in econometrics and data analytics have introduced more sophisticated methodological approaches, including hedonic pricing models, spatial econometric methods, and mass appraisal systems. Hedonic models decompose property values into the contributions of individual attributes, enabling researchers and managers to quantify the impact of location, size, and neighbourhood characteristics on property prices (McCluskey et al., 2013); (Morano et al., 2018). The increasing availability of large-scale property datasets has further encouraged the adoption of machine learning and AI techniques. Automated valuation models (AVMs) apply statistical algorithms to transaction records, enabling rapid, scalable value estimation (Kok Koponen, Eija-Leena, Martínez-Barbosa, Carmen Adriana, 2017); (Abidoye & Chan, 2017). Recent advances in ensemble learning and explainable AI further enhance model accuracy while maintaining interpretability (Deng & Zhang, 2025).

Professional Judgement in Valuation

Professional judgement constitutes a critical dimension of valuation, particularly in complex and uncertain market environments. Even when sophisticated analytical models are employed, managers and professional valuers must interpret model outputs, select relevant market comparables, and apply contextual adjustments (A.-R. Amidu & Boyd, 2018; Gallimore, 1996). The concept of tacit knowledge is particularly relevant: experienced valuers develop contextual expertise through extensive practice, enabling them to interpret subtle market signals and property-specific characteristics that cannot be fully captured in quantitative models

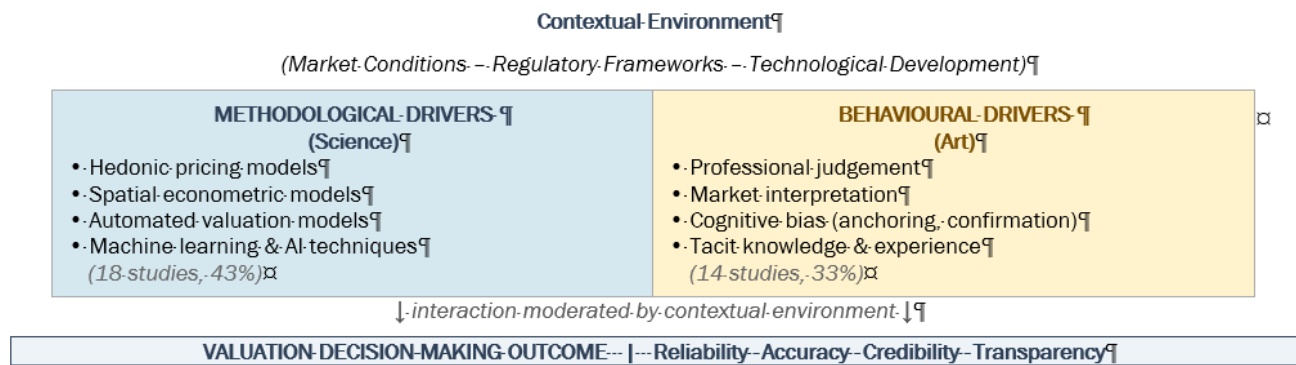


Figure 1. Conceptual Framework: Balancing Art and Science in Property Valuation

Source: Processed by the authors (derived inductively from thematic coding of 42 included studies)

(French & Gabrielli, 2004; Gilbertson & Preston, 2005). Behavioural research has further demonstrated that professional judgement in valuation is susceptible to cognitive biases, including anchoring effects and confirmation bias; (Diaz & Hansz, 1997; Gallimore, 1996).

Valuation Accuracy and Managerial Implications

Valuation accuracy is a central concern because inaccurate valuations can lead to suboptimal organizational decisions, including mispriced assets, inefficient capital allocation, and increased financial risk. Empirical studies have documented systematic discrepancies between appraised values and actual transaction prices, commonly referred to as appraisal bias or valuation error (Crosby et al., 2010; Geiger & Fuerst, 2018; Tzioumis, 2017). Appraisal smoothing—whereby valuers adjust estimates conservatively in response to market volatility—has been identified as a significant source of valuation inaccuracy (Crosby et al., 2010). Client pressure and institutional incentives can also influence valuation outcomes, raising governance concerns (A. Amidu & Tajudeen Aluko, 2007; Fuerst, Franz; McAllister, 2016).

Technological Transformation in Valuation

Technological innovation has fundamentally altered the operational landscape of property valuation. Digital property databases, geographic information systems, and automated valuation platforms have expanded analytical capabilities while reducing per-unit valuation costs (Glumac & Des Rosiers, 2018); (A.-R. Amidu et al., 2025). Comparative studies confirm that modern machine learning models, including gradient boosting and neural network approaches, consistently outperform traditional hedonic specifications in prediction accuracy (Yuan, Jian; Li, Ming; Zheng, 2022); (Zhang, 2021). However, the managerial literature consistently emphasizes that automated models should not substitute for professional judgement in complex valuation contexts, and leading organizations have adopted human-in-the-loop approaches (Glumac & Des Rosiers, 2018; Glumac, Boris; Hervé-Bazin, Marie; Des Rosiers, 2021).

Institutional Governance and Valuation Standards

Institutional frameworks and professional standards exert a profound influence on how property valuation is structured and governed. International standards developed by the IVSC and national frameworks established by RICS provide methodological guidance, reporting requirements, and ethical principles (Lorenz & Lützkendorf, 2011; Patrick McAllister, 2019). Adherence to professional standards serves both quality assurance and legitimacy functions—technically reducing methodological variability, and institutionally signalling credibility to investors and regulators (Cheloti & Mooya, 2023; Patrick McAllister, 2019). The integration of

sustainability considerations into valuation represents an emerging governance challenge requiring new methodological capabilities (Lorenz & Lützkendorf, 2011).

Conceptual Framework

Based on the preceding literature synthesis, property valuation can be conceptualized as a hybrid decision-making process shaped by two primary dimensions operating within a broader organizational and institutional context. Crucially, the framework components were derived through the three-stage thematic coding process (open, axial, and selective coding) applied to the 42 included studies, rather than being imposed a priori.

The Scientific/Methodological Drivers dimension emerged from the cluster of studies focusing on quantitative modelling, AVMs, and machine learning (e.g. (Deng & Zhang, 2025; Kok Koponen, Eija-Leena, Martínez-Barbosa, Carmen Adriana, 2017; McCluskey et al., 2013; Pagourtzi et al., 2003b), representing 18 of the 42 included articles. The Managerial-Behavioural Drivers dimension was derived from studies examining professional judgement, cognitive bias, and tacit knowledge (e.g., (A.-R. Amidu & Boyd, 2018; Diaz & Hansz, 1997; Gallimore, 1996), representing 14 studies. The Contextual Environment layer was informed by studies addressing market conditions, regulatory frameworks, and technology adoption (e.g., (A.-R. Amidu et al., 2025; Cheloti & Mooya, 2023; Lorenz & Lützkendorf, 2011), accounting for 10 studies. Note that several studies informed multiple dimensions (as shown in Table 3 below).

The framework goes beyond a narrative summary of the literature by proposing directional interactions among these components: specifically, that methodological and behavioural drivers jointly shape valuation outcomes, and that this interaction is moderated by the contextual environment (market conditions, regulatory frameworks, and technological developments). This interaction produces the final valuation decision, which reflects both the outputs of analytical models and the judgements of managerial professionals (see figure 1).

Methods

Research Design

This study employs a Systematic Literature Review (SLR) to synthesize existing research on property valuation, integrating methodological, behavioural, and institutional perspectives. The SLR approach was selected because it allows researchers to systematically identify, evaluate, and synthesize relevant studies using transparent and replicable procedures. Compared with traditional narrative reviews, SLR provides stronger methodological rigour through explicit criteria for literature selection, data extraction, and thematic analysis ;

Table 1. Literature Search Keywords

Primary Search Terms	Management Context Terms
"property valuation"	"asset management decision"
"real estate appraisal"	"professional judgement valuation"
"valuation accuracy"	"valuation governance"
"appraisal bias"	"portfolio management real estate"
"automated valuation model"	"valuation decision-making"
"machine learning valuation"	"property investment management"

Table 2. Inclusion and Exclusion Criteria

Inclusion Criteria	Exclusion Criteria
- Articles related to property valuation or asset management decision-making - Studies discussing valuation methodologies, accuracy, or behavioural aspects - Published in peer-reviewed academic journals indexed in Scopus or Web of Science (SSCI/ESCI) - Journals meeting SJR $\geq$ 0.20 or Scopus CiteScore $\geq$ 0.50 at time of search - Articles published between 2014 and 2024 (seminal pre-2014 studies included where warranted on theoretical grounds) - Articles written in English	- Articles not directly related to property valuation or real estate decision-making - Non-academic publications (reports, industry blogs, news articles) - Conference papers without peer review - Duplicate records identified during screening - Dissertations and grey literature - Articles from journals below the stated SJR/CiteScore threshold

(Moher et al., 2015; Tranfield et al., 2003). The review process follows the PRISMA 2020 framework (Page et al., 2021), structured into four stages: identification, screening, eligibility, and inclusion.

Literature Search Strategy

All database searches were conducted in March 2024. The primary database was Scopus, selected for its extensive coverage of international peer-reviewed journals in real estate, finance, management, and related disciplines. Additional searches were performed using Web of Science (SSCI/ESCI) and Emerald Insight to broaden coverage in property management. Table 1 summarizes the keyword categories used across all databases and organizational research.

The following full Boolean search strings were applied per database:

Scopus: TITLE-ABS-KEY ("property valuation" OR "real estate appraisal" OR "automated valuation model" OR "appraisal bias" OR "professional judgement valuation") AND ("decision-making" OR "asset management" OR "organizational" OR "governance") AND PUBYEAR > 2013

Web of Science: TS= ("property valuation" OR "real estate appraisal" OR "valuation accuracy" OR "appraisal bias") AND TS= ("decision-making" OR "management" OR "behavioural") AND PY= (2014-2024)

Emerald Insight: "property valuation" OR "valuation decision-making" OR "professional judgement valuation" [full-

text search, filtered: peer-reviewed journals, 2014–2024]

Google Scholar was not used as a primary search database. It was employed solely to verify the availability of seminal pre-2014 theoretical works (e.g., (Diaz & Hansz, 1997; Gallimore, 1996; Kahneman, 2011; Simon, 1957) that were included on explicit theoretical grounds as stated in the inclusion criteria. These supplementary works are clearly identified as exceptions and are not included in the primary retrieval count. The full search protocol is provided in Appendix B.

Inclusion and Exclusion Criteria

Predefined inclusion and exclusion criteria were applied to ensure the relevance and quality of selected studies. The inclusion criteria required that articles: (1) addressed property valuation or real estate appraisal management; (2) discussed valuation methodologies, accuracy, behavioural factors, or organizational governance of valuation; (3) were published in peer-reviewed academic journals indexed in Scopus or Web of Science (SSCI/ESCI); (4) journals must meet a Scimago Journal Rank (SJR) score $\geq$ 0.20 or a Scopus CiteScore $\geq$ 0.50 at the time of the search; (5) were published between 2014 and 2024, with explicit exceptions for seminal theoretical works (pre-2014) foundational to the field regardless of current indexing status; and (6) were written in English.

The exclusion criteria eliminated articles that: (1) did not directly address property valuation; (2) constituted non-academic publications, reports, or unpublished manuscripts; (3) were conference papers without peer review; (4) were identified as duplicates during the screening process; (5) were dissertations and grey literature; or (6) were published in journals below the stated SJR/CiteScore threshold. Table 2 presents the complete criteria.

Article Selection Process (PRISMA)

The article selection process followed the four-stage PRISMA 2020 framework.

Stage 1 – Identification (Search date: March 2024): The initial database search identified 812 records: Scopus (n = 524), Web of Science (n = 198), and Emerald Insight (n = 90). Twelve seminal pre-2014 works identified through reference tracking were included separately on theoretical grounds and are not counted in this retrieval total. After removing 77 duplicate records, 735 articles remained for screening.

Stage 2 – Screening: Titles and abstracts of 735 articles were reviewed for relevance to property valuation and managerial decision-making. Articles not meeting the topic relevance criteria were excluded, removing 537 records and leaving 198 articles for full-text evaluation.

Stage 3 – Eligibility: Full texts of 198 articles were assessed against the inclusion and exclusion criteria. Articles lacking sufficient focus on valuation decision-making or management relevance were excluded, removing 156 studies.

Stage 4 – Inclusion: A total of 42 peer-reviewed articles met all inclusion criteria and were included in the systematic review. The PRISMA flow diagram is presented in Figure 2.

Data Extraction and Analysis

Data were systematically extracted from each selected article, including: author and year of publication, journal and indexing source, research methodology, thematic focus, and key findings related to valuation. Extracted data were organized into a structured literature matrix to facilitate comparative analysis.

Thematic analysis was conducted following (Braun & Clarke, 2006) three-stage coding process. In the open coding stage, all three authors independently read and coded each of the 42 articles, identifying key concepts, theoretical constructs, and empirical findings. In the axial coding stage, the authors convened to group related concepts into preliminary thematic categories. Where disagreements arose in code assignment—

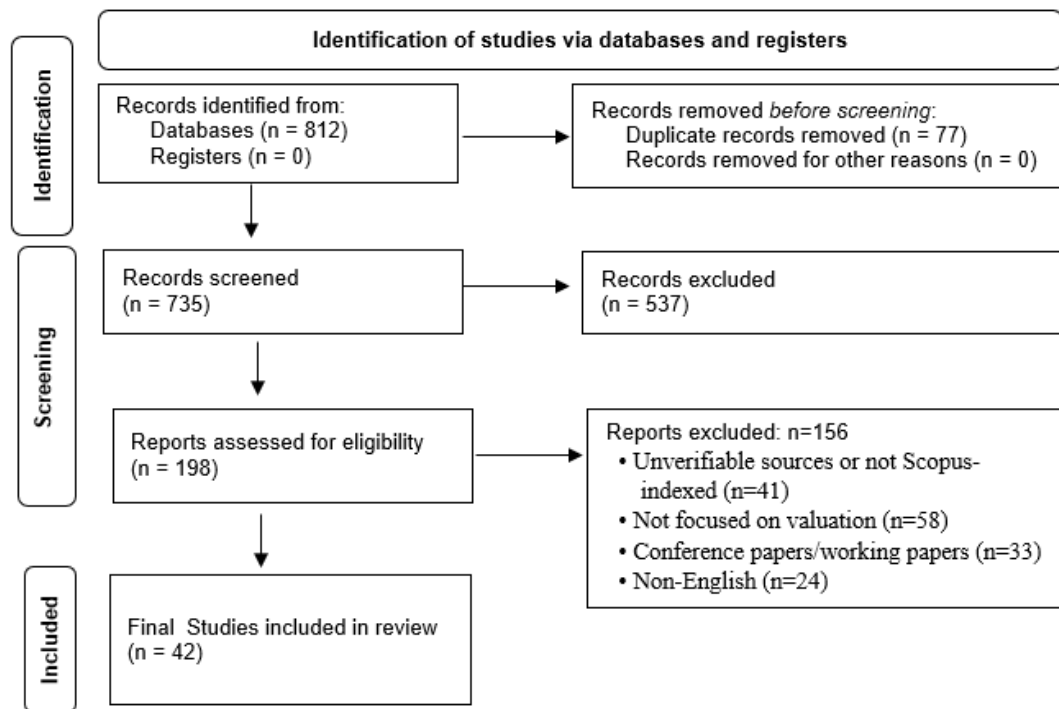


Figure 2. PRISMA 2020 Flow Diagram

Source: Processed by the authors (adapted from PRISMA 2020)

occurring in 11 of the 42 articles, primarily in the overlap between the behavioural bias and institutional governance themes—resolution was achieved through structured discussion until consensus was reached. No formal inter-rater reliability statistic was calculated, as the study used interpretive rather than content-analytic coding, consistent with (Braun & Clarke, 2006) reflexive approach. In the selective coding stage, dominant themes were identified by frequency, theoretical salience, and alignment with the research questions. The five final themes were validated through peer debriefing: each author independently reviewed the final theme structure and confirmed it accurately represented the included literature before it was used as the basis for synthesis.

Result and Discussion

The systematic literature review identified 42 relevant articles examining property valuation from methodological, behavioural, and organizational perspectives. Thematic analysis of these studies yielded five major themes: (1) methodological evolution in property valuation, (2) professional judgement and managerial decision-making, (3) behavioural bias in appraisal management, (4) technological transformation in valuation practice, and (5) institutional governance and regulatory influences.

Table 3 below presents a cross-theme frequency matrix mapping each of the 42 included studies to its primary theme(s), research method, and geographic context, enabling readers to see how the literature is distributed across the five thematic areas.

Methodological Evolution in Property Valuation

The reviewed literature demonstrates a significant evolution in the analytical methods applied to property valuation. Traditional approaches based on sales comparison, income capitalization, and cost methods remain foundational in professional practice because they provide transparent, theoretically grounded frameworks for interpreting market evidence. Hedonic pricing models have

emerged as one of the most widely applied analytical tools, enabling managers to conduct systematic, evidence-based valuation analysis (Morano et al., 2018; Pagourtzi et al., 2003b)). Spatial econometric methods have further extended this capability by accounting for spatial dependencies in property markets (Glumac, Boris; Hervé-Bazin, Marie; Des Rosiers, 2021; McCluskey et al., 2013). The adoption of automated valuation models and machine learning techniques represents the most recent phase of methodological evolution, with recent advances in ensemble learning and explainable AI further enhancing model accuracy while maintaining transparency (Deng & Zhang, 2025; Zhang, 2021). However, the literature consistently emphasizes that advanced analytical models do not eliminate the need for managerial interpretation, reinforcing the hybrid nature of valuation.

Professional Judgement and Managerial Decision-Making

Professional judgement represents an indispensable dimension of property valuation. Even in organizations with sophisticated analytical systems, managers and professional valuers must exercise interpretative judgement when selecting comparable transactions, applying valuation adjustments, and contextualizing model outputs within specific market conditions (A.-R. Amidu & Boyd, 2018; Gallimore, 1996). The role of tacit knowledge is particularly significant: experienced valuers and asset managers develop contextual expertise through years of professional practice (French & Gabrielli, 2004; Gilbertson & Preston, 2005). The concept of bounded rationality (Simon, 1957) provides an important theoretical lens, and (Kahneman, 2011) dual-process theory further illuminates how both analytical (System 2) and intuitive (System 1) cognitive processes contribute to valuation decisions in organizational settings.

Behavioural Bias in Appraisal Management

The behavioural literature reveals several cognitive biases that can systematically affect managerial decision-making in organizational valuation processes. Anchoring bias is the most extensively documented: (Diaz & Hansz, 1997) demonstrated experimentally that valuers may anchor their estimates on

Table 3. Cross-Theme Frequency Matrix of Included Studies (n = 42)

Author (Year)	T1: Methodological	T2: Professional Judgement	T3: Behavioural Bias	T4: Technology	T5: Institutional	Method / Context
Pagourtzi et al. (2003)	✓					Lit. review / Global
Gallimore (1996)		✓	✓			Experimental / UK
Diaz & Hansz (1997)		✓	✓			Experimental / USA
French & Gabrielli (2004)	✓	✓				Conceptual / UK
Gilbertson & Preston (2005)		✓			✓	Conceptual / UK
Amidu & Aluko (2007)			✓		✓	Survey / Nigeria
Peterson & Flanagan (2009)	✓			✓		Modelling / USA
Crosby et al. (2010)	✓		✓			Empirical / UK
Lorenz & Lützendorf (2011)	✓				✓	Conceptual / Europe
McCluskey et al. (2013)	✓					Statistical / UK
Hoesli & MacGregor (2014)	✓	✓				Analytical / Global
Schulz et al. (2014)	✓			✓		Empirical / Germany
Rianne et al. (2015)	✓			✓		Bayesian / Netherlands
Geiger et al. (2016)	✓				✓	CVaR / Global
Fuerst & McAllister (2016)			✓		✓	Empirical / UK
Abidoye & Chan (2017)	✓			✓		SLR / Global
Kok et al. (2017)	✓			✓		Conceptual / Global
Baldominos et al. (2018)	✓			✓		ML / Spain
Glumac & Des Rosiers (2018)	✓			✓		Lit. review / Global
Geiger & Fuerst (2018)			✓			Empirical / UK
Amidu & Boyd (2018)		✓	✓			Qualitative / Ghana
Morano et al. (2018)	✓			✓		Case study / Italy
McAllister (2019)		✓			✓	Conceptual / Global
Ho et al. (2021)	✓			✓		ML / Hong Kong
Zhang (2021)	✓			✓		Econometric / China
Glumac et al. (2021)	✓			✓		Econometric / Global
McAllister (2021)					✓	Conceptual / Global
Nanda & Xu (2022)				✓	✓	Empirical / China
Zhou & Kockelman (2018)	✓			✓		Econometric / USA
Kauko (2022)	✓			✓		Conceptual / Global
Yuan et al. (2022)	✓			✓		Comparative / China
Cheloti & Mooya (2023)			✓		✓	Empirical / Kenya
Baur et al. (2023)		✓	✓			Empirical / Europe
Deng & Zhang (2025)	✓			✓		ML / Hong Kong
Amidu et al. (2025)				✓	✓	Survey / New Zealand
Tranfield et al. (2003)	✓					Methodological / Global
Moher et al. (2015)	✓					Methodological / Global
Page et al. (2021)	✓					Methodological / Global
Braun & Clarke (2006)		✓				Methodological / Global
Simon (1957)		✓	✓			Theoretical / Global
Kahneman (2011)		✓	✓			Theoretical / Global
Hoesli & MacGregor (2014b)	✓	✓				Analytical / Global
FREQUENCY (n=42)	18 (43%)	9 (21%)	8 (19%)	11 (26%)	7 (17%)	Note: studies may span multiple themes

Note: T1 = Methodological Evolution; T2 = Professional Judgement; T3 = Behavioural Bias; T4 = Technological Transformation; T5 = Institutional Governance. Studies may be coded under multiple themes; percentages sum to more than 100%.

Table 4. Characteristics of Reviewed Literature

Author	Year	Journal	Focus	Method	Key Findings
Pagourtzi et al.	2003	J. Property Invest. & Finance	Valuation methods review	Lit. review	Synthesizes traditional valuation approaches
Gallimore	1996	J. Property Research	Confirmation bias	Experimental	Demonstrates confirmation bias in appraisal
Diaz & Hansz	1997	J. Property Valuation & Investment	Anchoring in valuation	Experimental	Prior estimates anchor valuers' judgements
French & Gabrielli	2004	J. Property Invest. & Finance	Valuation uncertainty	Conceptual	Valuation inherently involves uncertainty
Gilbertson & Preston	2005	J. Property Invest. & Finance	Valuation profession	Conceptual	Professional standards shape practice
Amidu & Aluko	2007	Property Management	Client influence	Survey	Client expectations affect valuation outcomes
Peterson & Flanagan	2009	J. Real Estate Research	Neural network hedonic	Modelling	ANN improves hedonic price estimation
Crosby et al.	2010	J. Property Research	Valuation accuracy & smoothing	Empirical	Appraisal smoothing deviates from market prices
Lorenz & Lützendorf	2011	J. Property Invest. & Finance	Sustainability & valuation	Conceptual	Sustainability factors influence property values
McCluskey et al.	2013	J. Property Research	Mass appraisal modelling	Statistical	Spatial econometrics improve mass appraisal
Hoesli & MacGregor	2014	Routledge	Property investment mgmt	Analytical	Valuation central to portfolio decisions
Schulz et al.	2014	J. Property Research	AVM specification	Empirical modelling	AVM performance depends on model specification
Rianne et al.	2015	J. Property Invest. & Finance	CRE decision support	Bayesian Network	Bayesian models support CRE management
Geiger et al.	2016	J. Sustainable Real Estate	Sustainable RE portfolios	CVaR optimisation	Sustainable REITs add diversification benefits
Fuerst & McAllister	2016	J. Property Research	Valuation accuracy	Empirical	Appraisal values may diverge from prices
Abidoye & Chan	2017	Property Management	ANN in valuation	SLR (31 studies)	ANN improves accuracy; mainly developed markets
Kok et al.	2017	J. Portfolio Management	Big data in real estate	Conceptual	Big data enables data-driven valuation
Baldominos et al.	2018	Applied Sciences	ML valuation	ML modelling	AI-based approaches enhance accuracy
Glumac & Des Rosiers	2018	J. Property Research	Big data in RE	Lit. review	Big data expands property market analysis
Geiger & Fuerst	2018	J. Property Research	Valuation bias & market cycles	Empirical	Detects systematic appraisal bias in cycles
Amidu & Boyd	2018	J. Property Invest. & Finance	Expert problem-solving	Qualitative	Need for structured valuation approaches
Morano et al.	2018	Intl J. Housing Markets & Analysis	Mass appraisal methods	Case study	Multicriteria algorithms enhance accuracy
McAllister	2019	J. Property Invest. & Finance	Valuation reliability	Conceptual	Transparency improves valuation credibility
Ho et al.	2021	J. Property Research	ML price prediction	ML modelling	ML models improve prediction accuracy
Zhang	2021	Scientific Programming	Housing price prediction	Econometric	Accuracy improves with ML approaches
Glumac et al.	2021	J. Property Research	Spatial price modelling	Econometric	Spatial econometrics improves reliability
McAllister	2021	J. Property Invest. & Finance	Valuation transparency	Conceptual	Transparency improves trust in valuation
Nanda & Xu	2022	J. Urban Management	Real estate digitalisation	Empirical	Digital platforms reshape market transparency
Zhou & Kockelman	2018	J. RE Finance & Economics	ML housing prices	Econometric	ML improves housing price prediction
Kauko	2022	J. Property Research	Integrated spatial-AI valuation	Conceptual	Spatial & AI integration improves modelling
Yuan et al.	2022	J. Real Estate Research	ML valuation models	Comparative modelling	Hybrid ML models outperform traditional
Cheloti & Mooya	2023	J. Property Research	Valuation problems – Kenya	Empirical	Institutional context shapes appraisal reliability

Author	Year	Journal	Focus	Method	Key Findings
Baur et al.	2023	J. Property Invest. & Finance	Valuation uncertainty	Empirical	Market volatility increases valuation dispersion
Deng & Zhang	2025	Annals of Regional Science	Ensemble learning & XAI	ML (MRMR, Bayesian)	Higher accuracy; building age & location key drivers
Amidu et al.	2025	J. European RE Research	Digital tech adoption	Survey (131 valuers)	60% non-adoption; driven by perceived opportunities
Tranfield et al.	2003	British Management J.	SLR methodology	Methodological	SLR provides rigour for knowledge synthesis
Moher et al.	2015	PLOS Medicine	PRISMA reporting	Methodological	PRISMA enhances transparency in reviews
Page et al.	2021	BMJ	PRISMA 2020 update	Methodological	Updated standards improve SLR reporting
Braun & Clarke	2006	Qualitative Research in Psychology	Thematic analysis method	Methodological	Flexible framework for qualitative analysis
Simon	1957	Wiley	Bounded rationality	Theoretical	Managers operate under bounded rationality
Kahneman	2011	Farrar Straus & Giroux	Dual-process theory	Theoretical	System 1 and 2 processes shape decisions
Pagourtzi et al. (2003) [ref in Hoesli]	2014	Routledge	Property investment mgmt	Analytical	Portfolio management reference

Source: Processed by the authors

initial reference values and subsequently fail to adjust sufficiently away from these anchors. Confirmation bias further complicates decision-making: (Gallimore, 1996) found that valuers may selectively interpret market evidence to confirm pre-existing value expectations. Client pressure and institutional incentives represent additional sources of bias: (A. Amidu & Tajudeen Aluko, 2007) documented that client expectations can materially influence residential property valuations, while (Fuerst, Franz; McAllister, 2016) demonstrated that appraisal bias can arise from institutional contexts. Valuation uncertainty is further exacerbated during periods of market volatility (Baur, Christoph; Braun, Thomas; Wimschulte, 2023).

Technological Transformation in Valuation

Technological innovation has fundamentally reshaped the operational and managerial landscape of property valuation. Automated valuation models represent the most transformative technological development. By applying machine learning algorithms to large transaction datasets, AVM platforms can generate value estimates rapidly and at scale (Ho et al., 2021; Kok Koponen, Eija-Leena, Martínez-Barbosa, Carmen Adriana, 2017). Comparative studies confirm that modern machine learning models consistently outperform traditional hedonic specifications in prediction accuracy (Yuan, Jian; Li, Ming; Zheng, 2022; Zhang, 2021). However, the managerial literature consistently emphasizes that automated models should not be treated as substitutes for professional judgement in complex valuation contexts. Research on digital technology adoption in valuation practice reveals that organizational implementation is shaped by managers' perceptions of technological value, available resources, and institutional constraints, with (A.-R. Amidu et al., 2025) finding 60% non-adoption rates among valuers surveyed in New Zealand.

Institutional Governance and Regulatory Influences

Institutional frameworks and professional standards exert a profound influence on how property valuation is structured, governed, and accountable. International standards developed by the IVSC and national frameworks established by RICS provide methodological guidance, reporting requirements, and ethical principles (Lorenz & Lützkendorf, 2011; McAllister, 2019). Adherence to professional standards serves both technical and legitimacy functions: technically reducing methodological variability and

institutionally signalling organizational credibility (Cheloti & Mooya, 2023; McAllister, 2019). The relationship between institutional governance and professional judgement in valuation is not without tension, as different institutional environments may produce different interpretations of standardized guidelines (Cheloti & Mooya, 2023). The integration of sustainability considerations into valuation represents an emerging governance challenge (Lorenz & Lützkendorf, 2011).

Integrating the Findings: A Management Synthesis

The thematic analysis collectively demonstrates that effective property valuation requires the integration of scientific methodology, professional judgement, and institutional governance. These dimensions are not mutually exclusive but represent complementary components of a hybrid management process. The cross-theme frequency analysis (Table 3) reveals that methodological studies are the most numerous (18 studies, 43%), followed by technology-focused studies (11 studies, 26%), with professional judgement (9 studies, 21%), behavioural bias (8 studies, 19%), and institutional governance (7 studies, 17%) receiving comparatively less systematic attention—confirming that the behavioural and governance streams have been underserved in the existing review literature and supporting the integrative contribution of the present study.

Novelty And Contribution

This study makes several contributions to the property valuation literature (see table 4). First, it provides the first comprehensive systematic synthesis integrating methodological, behavioural, and institutional perspectives within a management framework. While prior reviews (e.g., (Abidoye & Chan, 2017; Glumac & Des Rosiers, 2018) examined valuation models or big data applications, and empirical studies examined behavioural biases in isolation (e.g., (Gallimore, 1996); (Diaz & Hansz, 1997)), no systematic review had combined these streams within a management decision-making framework.

Second, this study introduces a management-oriented conceptual framework derived inductively from the thematic coding of the 42 included studies. The framework advances the theoretical understanding of valuation as a management process rather than purely a technical activity, and goes beyond a narrative summary by proposing directional interactions among the methodological, behavioural, and contextual

dimensions.

Third, by synthesizing recent developments in automated valuation technologies, machine learning methods, and digital transformation, this study provides timely insights for managers and organizations navigating the evolving landscape of valuation practice.

Finally, this study highlights underexplored connections between management theories—including bounded rationality, dual-process theory, and organizational learning—and property valuation practice, identifying productive avenues for future interdisciplinary research.

Conclusion

This study has conducted a systematic literature review to examine how property valuation research conceptualizes the interaction between analytical methods and professional judgement within organizational management contexts. Using the PRISMA 2020 framework, 42 peer-reviewed articles were analyzed through three-stage thematic analysis (open, axial, and selective coding), yielding five major themes: methodological evolution, professional judgement and managerial decision-making, behavioural bias in appraisal management, technological transformation, and institutional governance.

The findings demonstrate that property valuation is shaped by a dynamic interplay between the scientific dimension of analytical modelling and the managerial-behavioural dimension of professional judgement and organizational expertise. The cross-theme frequency analysis confirms that methodological advances have received the greatest research attention, while the integration of behavioural and governance perspectives remains underserved—validating the integrative contribution of this study.

The proposed conceptual framework conceptualizes property valuation as a hybrid managerial decision-making process shaped by the interaction between scientific methods and behavioural expertise within an organizational and institutional context. This framework was derived inductively from the thematic coding of the 42 included studies and contributes to the management literature by providing a theoretically grounded model for understanding and improving valuation practice.

Managerial Implications

The findings carry several implications for practitioners and policymakers. Organizations should invest in training programs that develop both technical and judgement capabilities in valuation professionals. Quality assurance frameworks that mitigate cognitive biases—including blind reviews, peer assessment, and standardized presentation protocols—should be integrated into organizational valuation systems.

Financial institutions and real estate organizations adopting automated valuation technologies should implement human-in-the-loop governance structures where

automated models serve as decision-support tools rather than autonomous valuation systems. Professional development programs should be expanded to include data literacy and technology management competencies alongside traditional appraisal skills. Policymakers and professional bodies should update valuation standards to address the governance challenges posed by artificial intelligence and automated valuation systems.

Limitations And Future Research Directions

This study has several limitations. As a systematic literature review, it is subject to publication bias, and findings are contingent on the quality and scope of studies included. The review focused primarily on English-language publications, which may limit coverage of important non-English research traditions. Additionally, the conceptual framework proposed has not been empirically validated, representing an important avenue for future research.

Future research should empirically examine the interaction between automated valuation technologies and professional judgement in diverse organizational contexts using primary data. Longitudinal studies tracking how valuation practices evolve with technological change would provide important insights for both theory and practice. Comparative research across different institutional environments and regulatory regimes could illuminate how governance contexts shape valuation outcomes. Finally, interdisciplinary research integrating management theory, behavioural economics, and real estate science represents a productive direction for advancing the theoretical foundations of valuation.

Author contributions

All authors contributed equally to this manuscript. Specifically, all authors participated jointly in: (1) conceptualization of the study design and systematic review protocol; (2) development of the research methodology, including the PRISMA framework, search strategy, and inclusion/exclusion criteria; (3) literature search, screening, and data extraction; (4) thematic analysis, coding, and interpretation of findings—including independent open coding, axial coding discussions, and peer debriefing for theme validation; (5) construction of the conceptual framework and derivation of research propositions; (6) writing, reviewing, and editing of all sections of the manuscript; and (7) approval of the final version for submission. No single author claims exclusive credit for any individual contribution.

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References

- Abidoye, R. B., & Chan, A. P. C. (2017). Artificial neural network in property valuation: application framework and research trend. *Property Management*, 35(5), 554–571. <https://doi.org/10.1108/PM-06-2016-0027>
- Amidu, A., & Tajudeen Aluko, B. (2007). Client influence in residential property valuations: an empirical study. *Property Management*, 25(5), 447–461. <https://doi.org/10.1108/02637470710824720>
- Amidu, A.-R., & Boyd, D. (2018). Expert problem solving practice in commercial property valuation: an exploratory study. *Journal of Property Investment & Finance*, 36(4), 366–382. <https://doi.org/10.1108/JPIF-05-2017-0037>
- Amidu, A.-R., Levy, D. S., Kasim, I., & Liman, H. S. (2025). Adoption of digital technologies in valuation practice: a survey of valuers' perspectives in New Zealand. *Journal of European Real Estate Research*, 19(1), 24–45. <https://doi.org/10.1108/JERER-04-2024-0021>
- Baldominos, A., Blanco, I., Moreno, A. J., Iturrarte, R., Bernárdez, Ó., & Afonso, C. (2018). *applied sciences Identifying Real Estate Opportunities Using Machine Learning*. <https://doi.org/10.3390/app8112321>
- Baur, Christoph; Braun, Thomas; Wimschulte, J. (2023). Valuation uncertainty and dispersion in volatile real estate markets. *Journal of Property Investment & Finance*, 41(3), 227–249. <https://doi.org/10.1108/JPIF-07-2022-0059>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp063oa>

- Cheloti, I., & Mooya, M. (2023). Property valuation problems and market context – evidence from Kenya. *Journal of Property Research*, 40(1), 76–100. <https://doi.org/10.1080/09599916.2022.2119879>
- Crosby, N., Devaney, S., & Law, V. (2010). Valuation accuracy and appraisal smoothing in real estate markets. *Journal of Property Research*, 27(4), 335–358.
- Deng, L., & Zhang, X. (2025). Boosting the accuracy of property valuation with ensemble learning and explainable artificial intelligence: The case of Hong Kong. *The Annals of Regional Science*, 74(1), 32. <https://doi.org/10.1007/s00168-025-01365-7>
- Diaz, J., & Hansz, J. A. (1997). How valuers use the value opinions of others. *Journal of Property Valuation and Investment*, 15(3), 256–260. <https://doi.org/10.1108/14635789710184970>
- Dimopoulos, T., Renigier-Bilozor, M., Ache, P., & Janowski, A. (2025). *The Future of Real Estate Valuation: Connecting Automated Valuation Models (AVMs) and Artificial Intelligence (AI) for Ethical and Scalable Solutions*. 77–90.
- French, N., & Gabrielli, L. (2004). The uncertainty of valuation. *Journal of Property Investment & Finance*, 22(6), 484–500. <https://doi.org/10.1108/14635780410569470>
- Fuerst, Franz; McAllister, P. (2016). Appraisal bias and the cyclical performance of commercial real estate in the UK. *Journal of Property Research*, 3(2), 109–131. <https://doi.org/10.1080/09599916.2016.11872010>
- Gallimore, P. (1996). Confirmation bias in the valuation process: a test for corroborating evidence. *Journal of Property Research*, 13(4), 261–273. <https://doi.org/10.1080/095999196368781>
- Geiger, P., & Fuerst, F. (2018). Real estate appraisal bias: Evidence from international markets. *Journal of Property Research*, 35(2), 99–123.
- Gilbertson, B., & Preston, D. (2005). A vision for valuation. *Journal of Property Investment & Finance*, 23(2), 123–140. <https://doi.org/10.1108/14635780510699998>
- Glumac, B., & Des Rosiers, F. (2018). Real estate and big data: A review of the literature. *Journal of Property Research*, 35(2), 147–169. <https://doi.org/10.1080/09599916.2018.1441039>
- Glumac, Boris; Hervé-Bazin, Marie; Des Rosiers, F. (2021). Spatial price modelling in property markets: A review of contemporary approaches. *Journal of Property Research*, 38(2), 145–168. <https://doi.org/10.1080/09599916.2020.1857857>
- Ho, W. K. O., Tang, B.-S., & Wong, S. W. (2021). Predicting property prices with machine learning algorithms. *Journal of Property Research*, 38(1), 48–70. <https://doi.org/10.1080/09599916.2020.1832558>
- Hoesli, M.; MacGregor, B. (2014). *Property Investment: Principles and Practice of Portfolio Management*. Routledge.
- Kahneman, D. (2011). *Thinking, Fast and Slow*. Farrar, Straus and Giroux.
- Kok Koponen, Eija-Leena, Martínez-Barbosa, Carmen Adriana, N. (2017). Big Data in Real Estate? From Manual Appraisal to Automated Valuation. In [] B T - (Ed.), *The Journal of Portfolio Management* (Vol. 43, Number 43, pp. 202–211). <https://doi.org/10.3905/jpm.2017.43.6.202>
- Lorenz, D., & Lützkendorf, T. (2011). Sustainability and property valuation: Systematisation of existing approaches and recommendations for future action. In *Journal of Property Investment and Finance* (Vol. 29, Number 6). <https://doi.org/10.1108/14635781111171797>
- McAllister, P. (2019). Valuation reliability and market transparency in international real estate. *Journal of Property Investment & Finance*, 37(1), 16–29. <https://doi.org/10.1108/JPIF-07-2018-0054>
- McCluskey, W. J., McCord, M., Davis, P. T., Haran, M., & McIlhatton, D. (2013). Prediction accuracy in mass appraisal: a comparison of modern approaches. *Journal of Property Research*, 30(4), 239–265. <https://doi.org/10.1080/09599916.2013.781204>
- Moher, D., Shamseer, L., Clarke, M., Ghersi, D., Liberati, A., Petticrew, M., Shekelle, P., Stewart, L. A., & Group, P.-P. (2015). Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015 statement. *Systematic Reviews*, 4(1), 1. <https://doi.org/10.1186/2046-4053-4-1>
- Morano, P., Tajani, F., & Locurcio, M. (2018). Multicriteria analysis and genetic algorithms for mass appraisals in the Italian property market. *International Journal of Housing Markets and Analysis*, 11(2), 229–262. <https://doi.org/10.1108/IJHMA-04-2017-0034>
- Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-wilson, E., McDonald, S., ... Moher, D. (2021). *The PRISMA 2020 statement: an updated guideline for reporting systematic reviews* *Systematic reviews and Meta-Analyses*. <https://doi.org/10.1136/bmj.n71>
- Pagourtzi, E., Assimakopoulos, V., Hatzichristos, T., & French, N. (2003a). Real estate appraisal: A review of valuation methods. *Journal of Property Investment & Finance*, 21(4), 383–401. <https://doi.org/10.1108/14635780310483656>
- Pagourtzi, E., Assimakopoulos, V., Hatzichristos, T., & French, N. (2003b). Real estate appraisal: a review of valuation methods. *Journal of Property Investment & Finance*, 21(4), 383–401. <https://doi.org/10.1108/14635780310483656>
- Patrick McAllister. (2019). Valuation reliability and market transparency. *Journal of Property Investment & Finance*, 37(1), 16–29. <https://doi.org/10.1108/JPIF-07-2018-0050>
- Simon, H. A. (1957). *Models of Man: Social and Rational*. Wiley.
- Tranfield, D., Denyer, D., & Smart, P. (2003). Towards a Methodology for Developing Evidence-Informed Management Knowledge by Means of Systematic Review. *British Journal of Management*, 14(3), 207–222. <https://doi.org/https://doi.org/10.1111/1467-8551.00375>
- Tzioumis, K. (2017). Appraisers and Valuation Bias: An Empirical Analysis. *Real Estate Economics*, 45(3), 679–712. <https://doi.org/10.1111/1540-6229.12133>
- Yuan, Jian; Li, Ming; Zheng, X. (2022). Machine learning approaches in real estate valuation: A comparative analysis. *Journal of Real Estate Research*, 44(1), 1–28. <https://doi.org/10.1080/10835547.2022.12091434>
- Zhang, Q. (2021). Housing Price Prediction Based on Multiple Linear Regression. *Scientific Programming*, 2021(1), 7678931. <https://doi.org/https://doi.org/10.1155/2021/7678931>