Supplementary Materials

Understanding Complexity in Construction Project Management: A Systematic Review and Integrative Framework Linking Complexity, Project Dynamics, Management Approaches, and Performance

Walter Antonio Abujder Ochoa; Angela Gabriela Torrico Arce; Oriana Palma Calabokis; Vladimir A. Ballesteros-Ballesteros; Alfredo Iarozinski Neto

Table S1 provides the extended summary of the 136 unique sources included in the final evidence base. Reference numbers correspond exactly to the reference list in the submitted manuscript. Reference [37] is the PRISMA 2020 reporting guideline and is therefore not part of the 136-source evidence base. Reference [39] was identified through the supplementary literature update performed after the original Scopus search and was incorporated into the qualitative synthesis, but not retrospectively into the original bibliometric dataset.

Table S1. Extended summary and traceability of the 136 sources included in the systematic review.

Ref.	Study / source	Source type / evidence role	Complexity focus / approach	Contribution to the qualitative synthesis	Main-text citation location(s)
[1]	S. Bertelsen (2003). Complexity–Construction in a new Perspective	Conference paper / proceedings; Construction / AEC evidence	Complexity theory / complexity-informed project management	Provides background, conceptual framing, or prior-review evidence supporting the rationale and scope.	Introduction
[2]	D. Murguia and A. Urbina (2018). Complex production systems: Non-linear and non-repetitive projects	Conference paper / proceedings; Construction / AEC evidence	Complexity theory / complexity-informed project management	Provides background, conceptual framing, or prior-review evidence supporting the rationale and scope.	Introduction
[3]	J. L. Fernández-Solís (2008). The systemic nature of the construction industry	Journal article / review; Construction / AEC evidence	Systems / complexity theory	Supports the systemic interpretation of construction projects as complex, interdependent, evolving systems. Supports the analysis of feedback, delays, non-linearity, emergence, or dynamic project behavior.	Introduction; 3.2 Complex systems; 3.4 Dynamic behavior
[4]	R. A. Thiétart and B. Forgues (1995). Chaos Theory and Organization	Journal article / review; Project-complexity / cross-sector evidence	Chaos theory; non-linearity and sensitivity	Supports the systemic interpretation of construction projects as complex, interdependent, evolving systems. Supports the analysis of feedback, delays, non-linearity, emergence, or dynamic project behavior.	Introduction; 3.2 Complex systems; 3.4 Dynamic behavior
[5]	E. Pantazis and D. J. Gerber (2019). Beyond geometric complexity: a critical review of complexity theory and how it relates to architecture engineering and construction	Journal article / review; Construction / AEC evidence	Review / mapping of project complexity research	Provides background, conceptual framing, or prior-review evidence supporting the rationale and scope.	Introduction
[6]	M. F. Mikkelsen (2020). The Complex Project Complexity Identification of Five Ideal Research Types	Journal article / review; Project-complexity / cross-sector evidence	Project-complexity conceptualization / assessment	Provides background, conceptual framing, or prior-review evidence supporting the rationale and scope.	Introduction

Ref.	Study / source	Source type / evidence role	Complexity focus / approach	Contribution to the qualitative synthesis	Main-text citation location(s)
[7]	D. Baccarini (1996). The concept of project complexity—a review	Journal article / review; Project-complexity / cross-sector evidence	Project-complexity conceptualization / assessment	Supports the systemic interpretation of construction projects as complex, interdependent, evolving systems. Informs the identification, classification, assessment, or operationalization of project-complexity dimensions and sources.	Introduction; 3.2 Complex systems; 3.3 Dimensions / sources; 3.6 Performance; 3.7 Integrative framework
[8]	K. I. Gidado (1996). Project complexity: The focal point of construction production planning	Journal article / review; Construction / AEC evidence	Project-complexity conceptualization / assessment	Provides background, conceptual framing, or prior-review evidence supporting the rationale and scope.	Introduction
[9]	J. Bakhshi, V. Ireland, and A. Gorod (2016). Clarifying the project complexity construct: Past, present and future	Journal article / review; Project-complexity / cross-sector evidence	Project-complexity conceptualization / assessment	Informs the identification, classification, assessment, or operationalization of project-complexity dimensions and sources.	Introduction; 3.3 Dimensions / sources
[10]	M. Padalkar and S. Gopinath (2016). Are complexity and uncertainty distinct concepts in project management? A taxonomical examination from literature	Journal article / review; Project-complexity / cross-sector evidence	Complexity–uncertainty / planning	Informs the identification, classification, assessment, or operationalization of project-complexity dimensions and sources. Supports interpretation of the relationship between complexity, managerial capacity, and project performance.	Introduction; 3.3 Dimensions / sources; 3.6 Performance
[11]	L. Luo, Q. He, E. J. Jaselskis, and J. Xie (2017). Construction Project Complexity: Research Trends and Implications	Journal article / review; Construction / AEC evidence	Review / mapping of project complexity research	Supports the systemic interpretation of construction projects as complex, interdependent, evolving systems. Informs the identification, classification, assessment, or operationalization of project-complexity dimensions and sources.	Introduction; 3.2 Complex systems; 3.3 Dimensions / sources; 3.6 Performance; 3.7 Integrative framework
[12]	R. J. Chapman (1998). The role of system dynamics in understanding the impact of changes to key project personnel on design production within construction projects	Journal article / review; Construction / AEC evidence	System Dynamics; feedback and temporal interactions	Supports the systemic interpretation of construction projects as complex, interdependent, evolving systems. Informs the identification, classification, assessment, or operationalization of project-complexity dimensions and sources.	Introduction; 3.2 Complex systems; 3.3 Dimensions / sources; 3.4 Dynamic behavior; 3.6 Performance; 3.7 Integrative framework
[13]	X. Xu and P. X. W. Zou (2021). System dynamics analytical modeling approach for construction project management research: A critical review and future directions	Journal article / review; Construction / AEC evidence	System Dynamics; feedback and temporal interactions	Supports the systemic interpretation of construction projects as complex, interdependent, evolving systems. Informs the identification, classification, assessment, or operationalization of project-complexity dimensions and sources.	Introduction; 3.2 Complex systems; 3.3 Dimensions / sources; 3.4 Dynamic behavior; 3.5 Management approaches; 3.6 Performance; 3.7 Integrative framework

Ref.	Study / source	Source type / evidence role	Complexity focus / approach	Contribution to the qualitative synthesis	Main-text citation location(s)
[14]	J. Zhu and A. Mostafavi (2017). Discovering complexity and emergent properties in project systems: A new approach to understanding project performance	Journal article / review; Project-complexity / cross-sector evidence	Complexity and project performance	Supports the systemic interpretation of construction projects as complex, interdependent, evolving systems. Supports the analysis of feedback, delays, non-linearity, emergence, or dynamic project behavior.	Introduction; 3.2 Complex systems; 3.4 Dynamic behavior; 3.6 Performance; 3.7 Integrative framework
[15]	E. Daniel and P. A. Daniel (2019). Megaprojects as complex adaptive systems: The Hinkley point C case	Journal article / review; Project-complexity / cross-sector evidence	Complex adaptive systems	Supports the systemic interpretation of construction projects as complex, interdependent, evolving systems. Supports the analysis of feedback, delays, non-linearity, emergence, or dynamic project behavior.	Introduction; 3.2 Complex systems; 3.4 Dynamic behavior; 3.7 Integrative framework
[16]	S. Bertelsen and L. Koskela (2003). Avoiding and managing chaos in projects	Conference paper / proceedings; Construction / AEC evidence	Chaos theory; non-linearity and sensitivity	Informs complexity-responsive management, coordination, governance, Lean, digital, or simulation-based approaches.	Introduction; 3.5 Management approaches
[17]	M. Saynisch (2010). Beyond frontiers of traditional project management: An approach to evolutionary, self-organizational principles and the complexity theory—results of the research program	Journal article / review; Project-complexity / cross-sector evidence	Organizational / managerial complexity	Provides background, conceptual framing, or prior-review evidence supporting the rationale and scope.	Introduction
[18]	P. A. Daniel and C. Daniel (2018). Complexity, uncertainty and mental models: From a paradigm of regulation to a paradigm of emergence in project management	Journal article / review; Project-complexity / cross-sector evidence	Complexity–uncertainty / planning	Supports the systemic interpretation of construction projects as complex, interdependent, evolving systems. Informs complexity-responsive management, coordination, governance, Lean, digital, or simulation-based approaches.	Introduction; 3.2 Complex systems; 3.5 Management approaches
[19]	S. Bertelsen and L. Koskela (2005). Approaches to managing complexity in project production	Conference paper / proceedings; Construction / AEC evidence	Complexity theory / complexity-informed project management	Supports the systemic interpretation of construction projects as complex, interdependent, evolving systems. Informs the identification, classification, assessment, or operationalization of project-complexity dimensions and sources.	Introduction; 3.2 Complex systems; 3.3 Dimensions / sources; 3.5 Management approaches; 3.6 Performance; 3.7 Integrative framework
[20]	N. Biton and G. Howell (2013). The journey of lean construction theory review and reinterpretation	Conference paper / proceedings; Construction / AEC evidence	Lean / production-flow complexity	Supports the systemic interpretation of construction projects as complex, interdependent, evolving systems. Informs complexity-responsive management, coordination, governance, Lean, digital, or simulation-based approaches.	Introduction; 3.2 Complex systems; 3.5 Management approaches

Ref.	Study / source	Source type / evidence role	Complexity focus / approach	Contribution to the qualitative synthesis	Main-text citation location(s)
[21]	T. A. Saurin, J. Rooke, and L. Koskela (2013). A complex systems theory perspective of lean production	Journal article / review; Project-complexity / cross-sector evidence	Lean / production-flow complexity	Informs complexity-responsive management, coordination, governance, Lean, digital, or simulation-based approaches. Contributes to the integrative framework linking complexity, project dynamics, management responses, and performance.	Introduction; 3.5 Management approaches; 3.7 Integrative framework
[22]	D. Sage, A. Dainty, and N. Brookes (2011). How actor-network theories can help in understanding project complexities	Journal article / review; Project-complexity / cross-sector evidence	Actor-Network / socio-technical complexity	Supports the systemic interpretation of construction projects as complex, interdependent, evolving systems. Informs the identification, classification, assessment, or operationalization of project-complexity dimensions and sources.	Introduction; 3.2 Complex systems; 3.3 Dimensions / sources; 3.5 Management approaches; 3.7 Integrative framework
[23]	S. F. Sujan et al. (2018). Holistic methodology to understand the complexity of collaboration in the construction process	Conference paper / proceedings; Construction / AEC evidence	Complexity theory / complexity-informed project management	Supports the systemic interpretation of construction projects as complex, interdependent, evolving systems. Informs the identification, classification, assessment, or operationalization of project-complexity dimensions and sources.	Introduction; 3.2 Complex systems; 3.3 Dimensions / sources; 3.5 Management approaches; 3.7 Integrative framework
[24]	S. Mazzetto (2024). Interdisciplinary Perspectives on Agent-Based Modeling in the Architecture, Engineering, and Construction Industry: A Comprehensive Review	Journal article / review; Construction / AEC evidence	Agent-based modeling; emergence and interaction	Supports the analysis of feedback, delays, non-linearity, emergence, or dynamic project behavior. Informs complexity-responsive management, coordination, governance, Lean, digital, or simulation-based approaches.	Introduction; 3.4 Dynamic behavior; 3.5 Management approaches; 3.7 Integrative framework
[25]	M. Karaz, J. M. C. Teixeira, and T. G. do Amaral (2024). Mitigating Making-Do Practices Using the Last Planner System and BIM: A System Dynamic Analysis	Journal article / review; Construction / AEC evidence	System Dynamics; feedback and temporal interactions	Supports the systemic interpretation of construction projects as complex, interdependent, evolving systems. Supports the analysis of feedback, delays, non-linearity, emergence, or dynamic project behavior.	Introduction; 3.2 Complex systems; 3.4 Dynamic behavior; 3.5 Management approaches; 3.7 Integrative framework
[26]	Y. Liu and A. T. Zub (2020). Research on the Application of BIM Technology in the Efficiency and Effectiveness of Construction Project Management	Conference paper / proceedings; Construction / AEC evidence	BIM / digital integration under complexity	Informs complexity-responsive management, coordination, governance, Lean, digital, or simulation-based approaches. Contributes to the integrative framework linking complexity, project dynamics, management responses, and performance.	Introduction; 3.5 Management approaches; 3.7 Integrative framework

Ref.	Study / source	Source type / evidence role	Complexity focus / approach	Contribution to the qualitative synthesis	Main-text citation location(s)
[27]	M. E. Gandomkar Armaki, A. A. Shirzadi Javid, and S. Omrani (2025). Dynamic BIM-Driven Framework for Adaptive and Optimized Construction Projects Scheduling Under Uncertainty	Journal article / review; Construction / AEC evidence	BIM / digital integration under complexity	Informs complexity-responsive management, coordination, governance, Lean, digital, or simulation-based approaches. Contributes to the integrative framework linking complexity, project dynamics, management responses, and performance.	Introduction; 3.5 Management approaches; 3.7 Integrative framework
[28]	W. A. Abujder Ochoa et al. (2024). The theory of complexity and construction management: An analysis of perception and impact on the construction industry in Brazil and Bolivia	Conference paper / proceedings; Construction / AEC evidence	Complexity theory / complexity-informed project management	Provides background, conceptual framing, or prior-review evidence supporting the rationale and scope.	Introduction
[29]	L. B. de Rezende, P. Blackwell, and M. D. P. Gonçalves (2018). Research focuses, trends, and major findings on project complexity: A bibliometric network analysis of 50 years of project complexity research	Journal article / review; Project-complexity / cross-sector evidence	Review / mapping of project complexity research	Provides background, conceptual framing, or prior-review evidence supporting the rationale and scope.	Introduction
[30]	Y. Hu, A. P. C. Chan, Y. Le, and R. Jin (2015). From Construction Megaproject Management to Complex Project Management: Bibliographic Analysis	Journal article / review; Construction / AEC evidence	Complexity theory / complexity-informed project management	Provides background, conceptual framing, or prior-review evidence supporting the rationale and scope.	Introduction
[31]	H. Ghaleb et al. (2022). A Scientometric Analysis and Systematic Literature Review for Construction Project Complexity	Journal article / review; Construction / AEC evidence	Review / mapping of project complexity research	Provides background, conceptual framing, or prior-review evidence supporting the rationale and scope.	Introduction
[32]	Z. Lafhaj et al. (2024). Complexity in Construction Projects: A Literature Review	Journal article / review; Construction / AEC evidence	Review / mapping of project complexity research	Supports the systemic interpretation of construction projects as complex, interdependent, evolving systems. Informs the identification, classification, assessment, or operationalization of project-complexity dimensions and sources.	Introduction; 3.2 Complex systems; 3.3 Dimensions / sources; 3.7 Integrative framework
[33]	A. Pennanen and L. Koskela (2005). Necessary and Unnecessary Complexity in Construction	Conference paper / proceedings; Construction / AEC evidence	Necessary vs. unnecessary complexity	Informs the identification, classification, assessment, or operationalization of project-complexity dimensions and sources. Supports interpretation of the relationship between complexity, managerial capacity, and project performance.	Introduction; 3.3 Dimensions / sources; 3.6 Performance; 3.7 Integrative framework

Ref.	Study / source	Source type / evidence role	Complexity focus / approach	Contribution to the qualitative synthesis	Main-text citation location(s)
[34]	H. Maylor and N. Turner (2017). Understand, reduce, respond: project complexity management theory and practice	Journal article / review; Project-complexity / cross-sector evidence	Project-complexity conceptualization / assessment	Supports the systemic interpretation of construction projects as complex, interdependent, evolving systems. Informs the identification, classification, assessment, or operationalization of project-complexity dimensions and sources.	Introduction; 3.2 Complex systems; 3.3 Dimensions / sources; 3.5 Management approaches; 3.6 Performance; 3.7 Integrative framework
[35]	T. Brady and A. Davies (2014). Managing structural and dynamic complexity: A tale of two projects	Journal article / review; Project-complexity / cross-sector evidence	Complexity theory / complexity-informed project management	Informs the identification, classification, assessment, or operationalization of project-complexity dimensions and sources. Supports the analysis of feedback, delays, non-linearity, emergence, or dynamic project behavior.	Introduction; 3.3 Dimensions / sources; 3.4 Dynamic behavior; 3.6 Performance; 3.7 Integrative framework
[36]	T. S. Pitsis, S. Sankaran, S. Gudergan, and S. R. Clegg (2014). Governing projects under complexity: Theory and practice in project management	Journal article / review; Project-complexity / cross-sector evidence	Governance and decision-making under complexity	Informs the identification, classification, assessment, or operationalization of project-complexity dimensions and sources. Informs complexity-responsive management, coordination, governance, Lean, digital, or simulation-based approaches.	Introduction; 3.3 Dimensions / sources; 3.5 Management approaches; 3.6 Performance; 3.7 Integrative framework
[38]	W. A. Abujder Ochoa and A. Iarozinski Neto (2022). Application of complexity theory in construction industry: A review	Journal article / review; Construction / AEC evidence	Complexity theory / complexity-informed project management	Provides background, conceptual framing, or prior-review evidence supporting the rationale and scope.	Introduction
[39]	W. A. Abujder Ochoa et al. (2026). Complexity and Construction Management: An Integrated Analysis of Logistics, Organizational Processes, and Productivity	Journal article / review; Supplementary update; construction-specific evidence	Organizational / managerial complexity	Provides the post-search supplementary evidence incorporated into the qualitative synthesis. Supports interpretation of the relationship between complexity, managerial capacity, and project performance.	2.3 Study selection; 3.6 Performance; 3.7 Integrative framework
[40]	S. Lloyd (2002). Complex Systems: A Review	Conference paper / proceedings; Foundational systems / complexity source	Systems / complexity theory	Provides foundational or transferable theoretical support used in the qualitative interpretation.	2.4 Eligibility / evidence role
[41]	G. Minati; E. Pessa; I. Licata (2017). Second Generation General System Theory: Perspectives in Philosophy and Approaches in Complex Systems	Book / monograph; Foundational systems / complexity source	Systems / complexity theory	Provides foundational or transferable theoretical support used in the qualitative interpretation.	2.4 Eligibility / evidence role

Ref.	Study / source	Source type / evidence role	Complexity focus / approach	Contribution to the qualitative synthesis	Main-text citation location(s)
[42]	M. Gerber Plüss (2006). Complejidad: teoría y método	Undergraduate thesis; Foundational systems / complexity source	Complexity theory / complexity-informed project management	Provides foundational or transferable theoretical support used in the qualitative interpretation.	2.4 Eligibility / evidence role
[43]	H. A. Simon (2006). La arquitectura de la complejidad: los sistemas jerárquicos	Book chapter; Foundational systems / complexity source	Systems / hierarchical complexity	Provides foundational or transferable theoretical support used in the qualitative interpretation.	2.4 Eligibility / evidence role
[44]	E. N. Lorenz (1993). The Essence of Chaos	Book / monograph; Foundational systems / complexity source	Chaos theory; non-linearity and sensitivity	Provides foundational or transferable theoretical support used in the qualitative interpretation.	2.4 Eligibility / evidence role
[45]	H. Singh and A. Singh (2002). Principles of Complexity and Chaos Theory in Project Execution: A New Approach to Management	Journal article / review; Foundational systems / complexity source	Chaos theory; non-linearity and sensitivity	Supports the analysis of feedback, delays, non-linearity, emergence, or dynamic project behavior.	2.4 Eligibility / evidence role; 3.4 Dynamic behavior
[46]	A. Jaafari (2003). Project Management in the Age of Complexity and Change	Journal article / review; Transferable project / organizational source	Complexity theory / complexity-informed project management	Informs complexity-responsive management, coordination, governance, Lean, digital, or simulation-based approaches.	2.4 Eligibility / evidence role; 3.5 Management approaches
[47]	M. Koerner and L. Klein (2008). 'Project Management to Run' Projects as difference-towards a next practice of complex project management	Conference paper / proceedings; Transferable project / organizational source	Complexity theory / complexity-informed project management	Informs complexity-responsive management, coordination, governance, Lean, digital, or simulation-based approaches.	2.4 Eligibility / evidence role; 3.5 Management approaches
[48]	M. W. McElroy (2000). Integrating complexity theory, knowledge management and organizational learning	Journal article / review; Transferable project / organizational source	Organizational / managerial complexity	Provides foundational or transferable theoretical support used in the qualitative interpretation.	2.4 Eligibility / evidence role
[49]	A. K. Pundir, A. Pundir, G. Ganapathy, and N. Sambandam (2007). Towards a complexity framework for managing projects	Journal article / review; Transferable project / organizational source	Complexity theory / complexity-informed project management	Provides foundational or transferable theoretical support used in the qualitative interpretation.	2.4 Eligibility / evidence role
[50]	J. Wilberg, F. Elezi, I. D. Tommelein, and U. Lindemann (2015). Using a Systemic Perspective to Support Engineering Change Management	Conference paper / proceedings; Transferable project / organizational source	Systems / complexity theory	Provides foundational or transferable theoretical support used in the qualitative interpretation.	2.4 Eligibility / evidence role
[51]	T. Zink (2015). Strategies for planning complex systems development	Conference paper / proceedings; Transferable project / organizational source	Systems / complexity theory	Provides foundational or transferable theoretical support used in the qualitative interpretation.	2.4 Eligibility / evidence role

Ref.	Study / source	Source type / evidence role	Complexity focus / approach	Contribution to the qualitative synthesis	Main-text citation location(s)
[52]	T. Cooke-Davies, S. Cicmil, L. Crawford, and K. Richardson (2007). We're not in Kansas anymore, Toto: Mapping the strange landscape of complexity theory, and its relationship to project management	Journal article / review; Transferable project / organizational source	Complexity theory / complexity-informed project management	Provides foundational or transferable theoretical support used in the qualitative interpretation.	2.4 Eligibility / evidence role
[53]	A. C. T. Smith and F. Graetz (2006). Complexity theory and organizing form dualities	Journal article / review; Transferable project / organizational source	Complexity theory / complexity-informed project management	Provides foundational or transferable theoretical support used in the qualitative interpretation.	2.4 Eligibility / evidence role
[54]	K. Liu, L. Sun, and S. Tan (2006). Modelling complex systems for project planning: A semiotics motivated method	Journal article / review; Transferable project / organizational source	Systems / complexity theory	Provides foundational or transferable theoretical support used in the qualitative interpretation.	2.4 Eligibility / evidence role
[55]	R. Poveda-Bautista, J. A. Diego-Mas, and D. Leon-Medina (2018). Measuring the Project Management Complexity: The Case of Information Technology Projects	Journal article / review; Transferable project / organizational source	Complexity theory / complexity-informed project management	Provides foundational or transferable theoretical support used in the qualitative interpretation.	2.4 Eligibility / evidence role
[56]	M. Taghipour, N. Shamami, A. Lotfi, and S. Parvaei (2020). Evaluating Project Planning and Control System in Multi-project Organizations under Fuzzy Data Approach Considering Resource Constraints (Case Study: Wind Tunnel Construction Project)	Journal article / review; Transferable project / organizational source	Complexity–uncertainty / planning	Provides foundational or transferable theoretical support used in the qualitative interpretation.	2.4 Eligibility / evidence role
[57]	S. A. Menon, M. Muchnick, C. Butler, and T. Pizur (2019). Complexity Theory: Insights from a Canadian ERP Project Implementation	Journal article / review; Transferable project / organizational source	Complexity theory / complexity-informed project management	Provides foundational or transferable theoretical support used in the qualitative interpretation.	2.4 Eligibility / evidence role
[58]	J. R. S. Cristóbal (2017). Complexity in Project Management	Conference paper / proceedings; Transferable project / organizational source	Complexity theory / complexity-informed project management	Provides foundational or transferable theoretical support used in the qualitative interpretation.	2.4 Eligibility / evidence role
[59]	M. T. Adoko, T. A. Mazzuchi, and S. Sarkani (2016). Developing a Cost Overrun Predictive Model for Complex Systems Development Projects	Journal article / review; Transferable project / organizational source	Complexity and project performance	Provides foundational or transferable theoretical support used in the qualitative interpretation.	2.4 Eligibility / evidence role
[60]	K. Houchin and D. MacLean (2005). Complexity theory and strategic change: An empirically informed critique	Journal article / review; Transferable project / organizational source	Complexity theory / complexity-informed project management	Provides foundational or transferable theoretical support used in the qualitative interpretation.	2.4 Eligibility / evidence role

Ref.	Study / source	Source type / evidence role	Complexity focus / approach	Contribution to the qualitative synthesis	Main-text citation location(s)
[61]	X. Guo, D. Vogel, Z. Zhou, X. Zhang, and H. Chen (2009). Chaos theory as a lens for interpreting blogging	Journal article / review; Transferable project / organizational source	Chaos theory; non-linearity and sensitivity	Provides foundational or transferable theoretical support used in the qualitative interpretation.	2.4 Eligibility / evidence role
[62]	A. Keene (2000). Complexity theory: The changing role of leadership	Journal article / review; Transferable project / organizational source	Organizational / managerial complexity	Provides foundational or transferable theoretical support used in the qualitative interpretation.	2.4 Eligibility / evidence role
[63]	A. C. T. Smith and C. E. Humphries (2004). Complexity Theory as a Practical Management Tool: A Critical Evaluation	Journal article / review; Transferable project / organizational source	Complexity theory / complexity-informed project management	Provides foundational or transferable theoretical support used in the qualitative interpretation.	2.4 Eligibility / evidence role
[64]	F. C. Vasconcelos and R. Ramirez (2011). Complexity in business environments	Journal article / review; Transferable project / organizational source	Complexity theory / complexity-informed project management	Provides foundational or transferable theoretical support used in the qualitative interpretation.	2.4 Eligibility / evidence role
[65]	W. Barbosa and S. F. Crispim (2006). As Teorias do Caos e da Complexidade na Gestão Estratégica	Conference paper / proceedings; Transferable project / organizational source	Complexity theory / complexity-informed project management	Provides foundational or transferable theoretical support used in the qualitative interpretation.	2.4 Eligibility / evidence role
[66]	J. R. San Cristóbal, L. Carral, E. Diaz, J. A. Fraguela, and G. Iglesias (2018). Complexity and project management: A general overview	Journal article / review; Transferable project / organizational source	Complexity theory / complexity-informed project management	Provides foundational or transferable theoretical support used in the qualitative interpretation.	2.4 Eligibility / evidence role
[67]	S. Gajić and I. Palčič (2019). A new framework for complexity analysis in international development projects – Results from a Delphi study	Journal article / review; Transferable project / organizational source	Project-complexity conceptualization / assessment	Provides foundational or transferable theoretical support used in the qualitative interpretation.	2.4 Eligibility / evidence role
[68]	S. Tywoniak, L. Ika, and C. Bredillet (2021). A Pragmatist Approach to Complexity Theorizing in Project Studies: Orders and Levels	Journal article / review; Transferable project / organizational source	Complexity theory / complexity-informed project management	Provides foundational or transferable theoretical support used in the qualitative interpretation.	2.4 Eligibility / evidence role
[69]	E. J. Vieira, H. C. Martins, and C. A. Gonçalves (2014). Aplicabilidade da Teoria do Caos a Organizações	Journal article / review; Transferable project / organizational source	Complexity theory / complexity-informed project management	Provides foundational or transferable theoretical support used in the qualitative interpretation.	2.4 Eligibility / evidence role
[70]	R. Zolin, R. Turner, and K. Remington (2009). A model of project complexity: distinguishing dimensions of complexity from severity	Conference paper / proceedings; Transferable project / organizational source	Project-complexity conceptualization / assessment	Provides foundational or transferable theoretical support used in the qualitative interpretation.	2.4 Eligibility / evidence role

Ref.	Study / source	Source type / evidence role	Complexity focus / approach	Contribution to the qualitative synthesis	Main-text citation location(s)
[71]	J. Bakhshi, V. Ireland, and G. Corral de Zubielqui (2015). Exploring project complexities: a critical review of the literature	Conference paper / proceedings; Transferable project / organizational source	Review / mapping of project complexity research	Provides foundational or transferable theoretical support used in the qualitative interpretation.	2.4 Eligibility / evidence role
[72]	M. F. Mikkelsen (2021). Perceived project complexity: a survey among practitioners of project management	Journal article / review; Transferable project / organizational source	Project-complexity conceptualization / assessment	Provides foundational or transferable theoretical support used in the qualitative interpretation.	2.4 Eligibility / evidence role
[73]	E. Anselmo (2005). Modelo de gestão não-linear: a teoria do caos e complexidade aplicada à gestão de empresas de alto crescimento em ambientes dinâmicos e imprevisíveis	Doctoral thesis; Transferable project / organizational source	Complexity theory / complexity-informed project management	Provides foundational or transferable theoretical support used in the qualitative interpretation.	2.4 Eligibility / evidence role
[74]	P.-J. Charrel; D. Galarreta (Eds.) (2007). Project Management and Risk Management in Complex Projects: Studies in Organizational Semiotics	Book / monograph; Transferable project / organizational source	Organizational / managerial complexity	Provides foundational or transferable theoretical support used in the qualitative interpretation.	2.4 Eligibility / evidence role
[75]	DeliverMyStrategy (2025). Complexity Theory and Project Delivery	Professional web source; Transferable project / organizational source	Complexity theory / complexity-informed project management	Provides foundational or transferable theoretical support used in the qualitative interpretation.	2.4 Eligibility / evidence role
[76]	S. Cicmil; T. Cooke-Davies; L. Crawford; K. Richardson (2009). Exploring the Complexity of Projects: Implications of Complexity Theory for Project Management Practice	Book / monograph; Transferable project / organizational source	Complexity theory / complexity-informed project management	Informs complexity-responsive management, coordination, governance, Lean, digital, or simulation-based approaches.	2.4 Eligibility / evidence role; 3.5 Management approaches
[77]	T. O. Castillo Campoverde (2018). Multidimensional Analysis of the Interaction between the Organization, Management Practices and Performance in Construction	Doctoral thesis; Extended scholarly work on construction / architecture	Organizational / managerial complexity	Provides foundational or transferable theoretical support used in the qualitative interpretation.	2.4 Eligibility / evidence role
[78]	H. L. Wood (2010). Modelling Project Complexity at the Pre-Construction Stage	Doctoral thesis; Extended scholarly work on construction / architecture	Project-complexity conceptualization / assessment	Provides foundational or transferable theoretical support used in the qualitative interpretation.	2.4 Eligibility / evidence role
[79]	D. Obon San José (2017). La arquitectura de la complejidad: fundamentos para el método transdisciplinar	Doctoral thesis; Extended scholarly work on construction / architecture	Complexity theory / complexity-informed project management	Provides foundational or transferable theoretical support used in the qualitative interpretation.	2.4 Eligibility / evidence role
[80]	K. Gidado and H. Wood (2008). Project Complexity in Construction	Conference paper / proceedings; Construction / AEC evidence	Project-complexity conceptualization / assessment	Supports the systemic interpretation of construction projects as complex, interdependent, evolving systems.	3.2 Complex systems
[81]	C. Xiao and J. L. Fernandez-Solis (2016). Are Building Construction Delivery Systems Complicated or Complex?	Conference paper / proceedings; Construction / AEC evidence	Complexity theory / complexity-informed project management	Supports the systemic interpretation of construction projects as complex, interdependent, evolving systems.	3.2 Complex systems

Ref.	Study / source	Source type / evidence role	Complexity focus / approach	Contribution to the qualitative synthesis	Main-text citation location(s)
[82]	S. Bertelsen (2003). Construction as a complex system	Conference paper / proceedings; Construction / AEC evidence	Complexity theory / complexity-informed project management	Supports the systemic interpretation of construction projects as complex, interdependent, evolving systems.	3.2 Complex systems
[83]	H. Wood and K. Gidado (2008). An overview of complexity theory and its application to the construction industry	Conference paper / proceedings; Construction / AEC evidence	Complexity theory / complexity-informed project management	Supports the systemic interpretation of construction projects as complex, interdependent, evolving systems.	3.2 Complex systems
[84]	P. M. Allen (2008). The importance of complexity for the research agenda in the built environment	Journal article / review; Construction / AEC evidence	Complexity theory / complexity-informed project management	Supports the systemic interpretation of construction projects as complex, interdependent, evolving systems.	3.2 Complex systems
[85]	M. M. Mihić et al. (2018). Reducing risks in energy innovation projects: Complexity theory perspective	Journal article / review; Project-complexity / cross-sector evidence	Complexity theory / complexity-informed project management	Supports the systemic interpretation of construction projects as complex, interdependent, evolving systems.	3.2 Complex systems
[86]	B. Xia and A. P. C. Chan (2012). Measuring complexity for building projects: A Delphi study	Journal article / review; Construction / AEC evidence	Project-complexity conceptualization / assessment	Supports the systemic interpretation of construction projects as complex, interdependent, evolving systems. Informs the identification, classification, assessment, or operationalization of project-complexity dimensions and sources.	Introduction; 3.2 Complex systems; 3.3 Dimensions / sources; 3.6 Performance; 3.7 Integrative framework
[87]	B. Serdar Ulubeyli and A. Volkan (2023). Chaos Theory Applications in Construction Project Management	Conference paper / proceedings; Construction / AEC evidence	Chaos theory; non-linearity and sensitivity	Supports the systemic interpretation of construction projects as complex, interdependent, evolving systems. Supports the analysis of feedback, delays, non-linearity, emergence, or dynamic project behavior.	3.2 Complex systems; 3.4 Dynamic behavior
[88]	S. Bertelsen (2004). Construction management in a complexity perspective	Conference paper / proceedings; Construction / AEC evidence	Complexity theory / complexity-informed project management	Supports the systemic interpretation of construction projects as complex, interdependent, evolving systems. Informs complexity-responsive management, coordination, governance, Lean, digital, or simulation-based approaches.	3.2 Complex systems; 3.5 Management approaches
[89]	S. O. Ogunlana, H. Li, and F. A. Sukhera (2003). System Dynamics Approach to Exploring Performance Enhancement in a Construction Organization	Journal article / review; Construction / AEC evidence	System Dynamics; feedback and temporal interactions	Supports the systemic interpretation of construction projects as complex, interdependent, evolving systems. Supports the analysis of feedback, delays, non-linearity, emergence, or dynamic project behavior.	3.2 Complex systems; 3.4 Dynamic behavior; 3.5 Management approaches; 3.7 Integrative framework

Ref.	Study / source	Source type / evidence role	Complexity focus / approach	Contribution to the qualitative synthesis	Main-text citation location(s)
[90]	M. Liu, Y. Le, Y. Hu, B. Xia, M. Skitmore, and X. Gao (2019). System dynamics modeling for construction management research: Critical review and future trends	Journal article / review; Construction / AEC evidence	System Dynamics; feedback and temporal interactions	Supports the systemic interpretation of construction projects as complex, interdependent, evolving systems. Supports the analysis of feedback, delays, non-linearity, emergence, or dynamic project behavior.	3.2 Complex systems; 3.4 Dynamic behavior; 3.5 Management approaches; 3.7 Integrative framework
[91]	Y. Zhang and S. Zhang (2016). Research on the System Dynamics Mechanism of Project Management	Conference paper / proceedings; Construction / AEC evidence	System Dynamics; feedback and temporal interactions	Supports the systemic interpretation of construction projects as complex, interdependent, evolving systems. Supports the analysis of feedback, delays, non-linearity, emergence, or dynamic project behavior.	3.2 Complex systems; 3.4 Dynamic behavior; 3.5 Management approaches
[92]	G. C. Garzón, S. M. B. Panzza, J. H. A. Castañeda, and P. A. R. Castillo (2024). THE THEORY OF COMPLEXITY, THE NEW PARADIGM OF EXPRESSION AND CONTENT OF ARCHITECTURE	Journal article / review; Construction / AEC evidence	Complexity theory / complexity-informed project management	Supports the systemic interpretation of construction projects as complex, interdependent, evolving systems.	3.2 Complex systems
[93]	J. Rooke et al. (2008). Models and metaphors: Complexity theory and through-life management in the built environment	Journal article / review; Construction / AEC evidence	Complexity theory / complexity-informed project management	Supports the systemic interpretation of construction projects as complex, interdependent, evolving systems.	3.2 Complex systems
[94]	M. Kapsali (2013). Equifinality in Project Management Exploring Causal Complexity in Projects	Journal article / review; Project-complexity / cross-sector evidence	Complexity theory / complexity-informed project management	Supports the systemic interpretation of construction projects as complex, interdependent, evolving systems. Supports the analysis of feedback, delays, non-linearity, emergence, or dynamic project behavior.	3.2 Complex systems; 3.4 Dynamic behavior
[95]	D. F. Mamédio and V. Meyer (2020). Managing project complexity: how to cope with multiple dimensions of complex systems	Journal article / review; Project-complexity / cross-sector evidence	Project-complexity conceptualization / assessment	Supports the systemic interpretation of construction projects as complex, interdependent, evolving systems.	3.2 Complex systems
[96]	H. F. Abbas and K. R. Erzaij (2019). Study of the complexity factors associated with the theory of complexity in Iraqi construction projects	Journal article / review; Construction / AEC evidence	Project-complexity conceptualization / assessment	Informs the identification, classification, assessment, or operationalization of project-complexity dimensions and sources.	3.3 Dimensions / sources
[97]	H. Wood and P. Ashton (2010). The factors of project complexity	Conference paper / proceedings; Construction / AEC evidence	Project-complexity conceptualization / assessment	Informs the identification, classification, assessment, or operationalization of project-complexity dimensions and sources.	3.3 Dimensions / sources

Ref.	Study / source	Source type / evidence role	Complexity focus / approach	Contribution to the qualitative synthesis	Main-text citation location(s)
[98]	B. Dao, S. Kermanshachi, J. Shane, S. Anderson, and E. Hare (2016). Identifying and Measuring Project Complexity	Conference paper / proceedings; Project-complexity / cross-sector evidence	Project-complexity conceptualization / assessment	Informs the identification, classification, assessment, or operationalization of project-complexity dimensions and sources. Supports interpretation of the relationship between complexity, managerial capacity, and project performance.	3.3 Dimensions / sources; 3.6 Performance
[99]	H. Wood and P. Ashton (2009). Factors of Complexity in Construction Projects	Conference paper / proceedings; Construction / AEC evidence	Project-complexity conceptualization / assessment	Informs the identification, classification, assessment, or operationalization of project-complexity dimensions and sources.	3.3 Dimensions / sources
[100]	G. Girmscheid and C. Brockmann (2008). The Inherent Complexity of Large Scale Engineering Projects	Journal article / review; Project-complexity / cross-sector evidence	Complexity theory / complexity-informed project management	Informs the identification, classification, assessment, or operationalization of project-complexity dimensions and sources.	3.3 Dimensions / sources
[101]	H. L. Wood, P. Piroozfar, and E. R. P. Farr (2013). Understanding Complexity in the AEC Industry	Conference paper / proceedings; Construction / AEC evidence	Complexity theory / complexity-informed project management	Informs the identification, classification, assessment, or operationalization of project-complexity dimensions and sources.	3.3 Dimensions / sources
[102]	L. A. Vidal and F. Marle (2008). Understanding project complexity: Implications on project management	Journal article / review; Project-complexity / cross-sector evidence	Project-complexity conceptualization / assessment	Informs the identification, classification, assessment, or operationalization of project-complexity dimensions and sources. Supports interpretation of the relationship between complexity, managerial capacity, and project performance.	Introduction; 3.3 Dimensions / sources; 3.6 Performance
[103]	S. Kermanshachi, B. Dao, J. Shane, and S. Anderson (2016). Project Complexity Indicators and Management Strategies - A Delphi Study	Conference paper / proceedings; Project-complexity / cross-sector evidence	Project-complexity conceptualization / assessment	Informs the identification, classification, assessment, or operationalization of project-complexity dimensions and sources.	3.3 Dimensions / sources
[104]	B. Dao, S. Kermanshachi, J. Shane, S. Anderson, and E. Hare (2017). Exploring and Assessing Project Complexity	Journal article / review; Project-complexity / cross-sector evidence	Project-complexity conceptualization / assessment	Informs the identification, classification, assessment, or operationalization of project-complexity dimensions and sources.	3.3 Dimensions / sources
[105]	B. Aritua, N. J. Smith, and D. Bower (2009). Construction client multi-projects - A complex adaptive systems perspective	Journal article / review; Construction / AEC evidence	Complex adaptive systems	Informs the identification, classification, assessment, or operationalization of project-complexity dimensions and sources. Supports interpretation of the relationship between complexity, managerial capacity, and project performance.	3.3 Dimensions / sources; 3.6 Performance
[106]	Q. Shi, J. Zhu, M. Hertogh, M. Bosch-Rekveldt, and Z. Sheng (2020). Exploring Decision-Making Complexity in Major Infrastructure Projects: A Case Study From China	Journal article / review; Construction / AEC evidence	Governance and decision-making under complexity	Informs the identification, classification, assessment, or operationalization of project-complexity dimensions and sources. Informs complexity-responsive management, coordination, governance, Lean, digital, or simulation-based approaches.	3.3 Dimensions / sources; 3.5 Management approaches; 3.6 Performance

Ref.	Study / source	Source type / evidence role	Complexity focus / approach	Contribution to the qualitative synthesis	Main-text citation location(s)
[107]	H. Maylor, R. Vidgen, and S. Carver (2008). Managerial Complexity in Project-Based Operations: A Grounded Model and Its Implications for Practice	Journal article / review; Project-complexity / cross-sector evidence	Complexity theory / complexity-informed project management	Informs the identification, classification, assessment, or operationalization of project-complexity dimensions and sources.	3.3 Dimensions / sources
[108]	H. F. Abbas and K. R. Erzaij (2020). Organizing Multi Construction Projects Using Complexity Theory Approach	Journal article / review; Construction / AEC evidence	Complexity theory / complexity-informed project management	Informs the identification, classification, assessment, or operationalization of project-complexity dimensions and sources.	3.3 Dimensions / sources
[109]	A. Camci and T. Kotnour (2006). Technology Complexity in Projects: Does Classical Project Management Work?	Journal article / review; Project-complexity / cross-sector evidence	Technological complexity	Informs the identification, classification, assessment, or operationalization of project-complexity dimensions and sources. Supports interpretation of the relationship between complexity, managerial capacity, and project performance.	3.3 Dimensions / sources; 3.6 Performance
[110]	D. D. Gransberg, J. S. Shane, K. Strong, and C. L. del Puerto (2013). Project Complexity Mapping in Five Dimensions for Complex Transportation Projects	Journal article / review; Project-complexity / cross-sector evidence	Project-complexity conceptualization / assessment	Informs the identification, classification, assessment, or operationalization of project-complexity dimensions and sources.	3.3 Dimensions / sources
[111]	L. Bolzan de Rezende, J. Denicol, P. Blackwell, and H. Kimura (2022). The main project complexity factors and their interdependencies in defence projects	Journal article / review; Project-complexity / cross-sector evidence	Project-complexity conceptualization / assessment	Informs the identification, classification, assessment, or operationalization of project-complexity dimensions and sources.	3.3 Dimensions / sources
[112]	H. L. Wood and P. Ashton (2010). Modelling Project Complexity	Conference paper / proceedings; Project-complexity / cross-sector evidence	Project-complexity conceptualization / assessment	Informs the identification, classification, assessment, or operationalization of project-complexity dimensions and sources.	3.3 Dimensions / sources
[113]	L. S. Cardona-Meza and G. Olivar-Tost (2017). Modeling and Simulation of Project Management through the PMBOK® Standard Using Complex Networks	Journal article / review; Project-complexity / cross-sector evidence	Complex networks / systems modeling	Supports the analysis of feedback, delays, non-linearity, emergence, or dynamic project behavior.	3.4 Dynamic behavior
[114]	J. W. Son (2022). Complexity and Dynamics in Construction Project Organizations	Journal article / review; Construction / AEC evidence	Organizational / managerial complexity	Supports the analysis of feedback, delays, non-linearity, emergence, or dynamic project behavior.	3.4 Dynamic behavior
[115]	A. Ahmadi and M. Golabchi (2013). Complexity Theory in Construction Project Time Management	Journal article / review; Construction / AEC evidence	Complexity theory / complexity-informed project management	Supports the analysis of feedback, delays, non-linearity, emergence, or dynamic project behavior.	3.4 Dynamic behavior

Ref.	Study / source	Source type / evidence role	Complexity focus / approach	Contribution to the qualitative synthesis	Main-text citation location(s)
[116]	Z. Ding, M. Zhu, V. W. Y. Tam, G. Yi, and C. N. N. Tran (2018). A system dynamics-based environmental benefit assessment model of construction waste reduction management at the design and construction stages	Journal article / review; Construction / AEC evidence	System Dynamics; feedback and temporal interactions	Supports the analysis of feedback, delays, non-linearity, emergence, or dynamic project behavior.	3.4 Dynamic behavior
[117]	N. Bugalia, Y. Maemura, and K. Ozawa (2021). A system dynamics model for near-miss reporting in complex systems	Journal article / review; Project-complexity / cross-sector evidence	System Dynamics; feedback and temporal interactions	Supports the analysis of feedback, delays, non-linearity, emergence, or dynamic project behavior.	3.4 Dynamic behavior
[118]	H. Goodarzi, M. Ehsanifar, S. M. Mirhosseini, and H. Mazaheri (2025). A Combined Modeling Approach for Delay Management in Construction Projects Based on a Two-objective Mathematical Model and System Dynamics	Journal article / review; Construction / AEC evidence	System Dynamics; feedback and temporal interactions	Supports the analysis of feedback, delays, non-linearity, emergence, or dynamic project behavior.	3.4 Dynamic behavior
[119]	J. Galacgac and A. Singh (2016). Implications of Chaos Theory in Management Science	Journal article / review; Project-complexity / cross-sector evidence	Chaos theory; non-linearity and sensitivity	Supports the analysis of feedback, delays, non-linearity, emergence, or dynamic project behavior.	3.4 Dynamic behavior
[120]	X. Lu, D. Clements-Croome, and M. Viljanen (2010). Integration of chaos theory and mathematical models in building simulation. Part I: Literature review	Journal article / review; Construction / AEC evidence	Chaos theory; non-linearity and sensitivity	Supports the analysis of feedback, delays, non-linearity, emergence, or dynamic project behavior.	3.4 Dynamic behavior
[121]	J. L. Fernandez-Solis (2013). Building construction: A deterministic non-periodic flow—A case study of chaos theories in tracking production flow	Journal article / review; Construction / AEC evidence	Lean / production-flow complexity	Supports the analysis of feedback, delays, non-linearity, emergence, or dynamic project behavior.	3.4 Dynamic behavior
[122]	L. Koskela and G. Howell (2002). The underlying theory of project management is obsolete	Conference paper / proceedings; Project-complexity / cross-sector evidence	Complexity theory / complexity-informed project management	Informs complexity-responsive management, coordination, governance, Lean, digital, or simulation-based approaches.	3.5 Management approaches
[123]	S. Kiridena and A. Sense (2016). Profiling Project Complexity: Insights from Complexity Science and Project Management Literature	Journal article / review; Project-complexity / cross-sector evidence	Project-complexity conceptualization / assessment	Informs complexity-responsive management, coordination, governance, Lean, digital, or simulation-based approaches.	3.5 Management approaches
[124]	Q. He, W. Jiang, Y. Li, and Y. Le (2009). The study on paradigm shift of project management based on complexity science-project management innovations in Shanghai 2010 EXPO construction program	Conference paper / proceedings; Construction / AEC evidence	Complexity theory / complexity-informed project management	Informs complexity-responsive management, coordination, governance, Lean, digital, or simulation-based approaches.	3.5 Management approaches

Ref.	Study / source	Source type / evidence role	Complexity focus / approach	Contribution to the qualitative synthesis	Main-text citation location(s)
[125]	D. T. Patil and A. Patil (2020). Effectiveness of Complexity Science in Managing Complexity in Construction Projects	Journal article / review; Construction / AEC evidence	Complexity theory / complexity-informed project management	Informs complexity-responsive management, coordination, governance, Lean, digital, or simulation-based approaches.	3.5 Management approaches
[126]	A. J. Sohi, M. Hertogh, M. Bosch-Rekveldt, and R. Blom (2016). Does Lean & Agile Project Management Help Coping with Project Complexity?	Conference paper / proceedings; Project-complexity / cross-sector evidence	Lean / production-flow complexity	Informs complexity-responsive management, coordination, governance, Lean, digital, or simulation-based approaches.	3.5 Management approaches
[127]	A. Ramírez-Valenzuela, G. G. Gamarra-Díaz, and A. A. Erazo-Rondinel (2021). PROPOSAL MODEL FOR THE MANAGEMENT OF CONSTRUCTION BASED ON FLOWS - A COMPLEX ADAPTIVE SYSTEM	Conference paper / proceedings; Construction / AEC evidence	Complex adaptive systems	Informs complexity-responsive management, coordination, governance, Lean, digital, or simulation-based approaches.	3.5 Management approaches
[128]	C. P. Pham, P. T. Nguyen, and P. T. Phan (2022). Application of the Grey System Theory in Construction Management: A Case Study of Construction Paint Supplier Evaluation and Selection Criteria	Journal article / review; Construction / AEC evidence	Systems / complexity theory	Informs complexity-responsive management, coordination, governance, Lean, digital, or simulation-based approaches.	3.5 Management approaches
[129]	A. Raouf and S. G. Al-Ghamdi (2019). Impact of Project Delivery Systems on Cost Overruns of Green Building Projects: System Dynamics Approach	Conference paper / proceedings; Construction / AEC evidence	System Dynamics; feedback and temporal interactions	Informs complexity-responsive management, coordination, governance, Lean, digital, or simulation-based approaches.	3.5 Management approaches
[130]	M. Shafieezadeh et al. (2020). A system dynamics simulation model to evaluate project planning policies	Journal article / review; Project-complexity / cross-sector evidence	System Dynamics; feedback and temporal interactions	Informs complexity-responsive management, coordination, governance, Lean, digital, or simulation-based approaches.	3.5 Management approaches
[131]	L. Li, C. Zhang, and H. M. Li (2009). Application of System Dynamics to Strategic Project Management	Conference paper / proceedings; Project-complexity / cross-sector evidence	System Dynamics; feedback and temporal interactions	Informs complexity-responsive management, coordination, governance, Lean, digital, or simulation-based approaches.	3.5 Management approaches
[132]	Y. Lu, M. Wang, Z. Zhang, and K. Liu (2012). System design of behavior right configuration in construction project management	Journal article / review; Construction / AEC evidence	Complexity theory / complexity-informed project management	Informs complexity-responsive management, coordination, governance, Lean, digital, or simulation-based approaches.	3.5 Management approaches
[133]	A. Gorod, L. Hallo, and T. Nguyen (2018). A Systemic Approach to Complex Project Management: Integration of Command-and-Control and Network Governance	Journal article / review; Project-complexity / cross-sector evidence	Governance and decision-making under complexity	Informs complexity-responsive management, coordination, governance, Lean, digital, or simulation-based approaches. Supports interpretation of the relationship between complexity, managerial capacity, and project performance.	3.5 Management approaches; 3.6 Performance; 3.7 Integrative framework

Ref.	Study / source	Source type / evidence role	Complexity focus / approach	Contribution to the qualitative synthesis	Main-text citation location(s)
[134]	M. Nyarirangwe and O. K. Babatunde (2019). Megaproject complexity attributes and competences: Lessons from it and construction projects	Journal article / review; Construction / AEC evidence	Project-complexity conceptualization / assessment	Supports interpretation of the relationship between complexity, managerial capacity, and project performance.	3.6 Performance
[135]	W. Eber (2019). Managing Construction Projects: Developing Complexity into Complicatedness	Conference paper / proceedings; Construction / AEC evidence	Complexity theory / complexity-informed project management	Supports interpretation of the relationship between complexity, managerial capacity, and project performance.	3.6 Performance
[136]	K. A. Richardson (2008). Managing Complex Organizations: Complexity Thinking and the Science and Art of Management	Journal article / review; Project-complexity / cross-sector evidence	Organizational / managerial complexity	Supports interpretation of the relationship between complexity, managerial capacity, and project performance.	3.6 Performance
[137]	S. Austin, A. Newton, J. Steele, and P. Waskett (2002). Modelling and managing project complexity	Journal article / review; Project-complexity / cross-sector evidence	Project-complexity conceptualization / assessment	Contributes to the integrative framework linking complexity, project dynamics, management responses, and performance.	3.7 Integrative framework

Notes: Reference numbers correspond to the submitted manuscript. Reference [37] is PRISMA 2020 and is not an included source. Reference [39] is the post-search supplementary update and contributes to the qualitative synthesis only. “Main-text citation location(s)” indicates where each source is explicitly cited in the submitted manuscript.