OPERACIONALIZANDO A ARQUITETURA DE PESQUISA BASEADA EM FRAMEWORKS: UM CICLO DE VIDA PARA DESENHAR, GOVERNAR E EVOLUIR INSTÂNCIAS DE FRAMEWORK

OPERATIONALIZING FRAMEWORK-BASED RESEARCH ARCHITECTURE: A LIFECYCLE FOR DESIGNING, GOVERNING, AND EVOLVING FRAMEWORK INSTANCES

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Objetivo do estudo
Este artigo desenvolve um ciclo de vida operacional para a Arquitetura de Pesquisa Baseada em Frameworks (FBRA), explicando como pesquisadores desenham, governam, utilizam e evoluem instâncias de framework em pesquisas aplicadas de gestão de projetos.

Relevância/originalidade
O artigo aborda uma lacuna metodológica entre arquiteturas conceituais de pesquisa e sistemas executáveis de pesquisa, com relevância para estudos fragmentados em projetos, portfólios, PMOs, governança e setor público.

Metodologia/abordagem
Utiliza-se uma abordagem conceitual de design para refinar conceitos prévios da FBRA, definir componentes operacionais, propor etapas de ciclo de vida e demonstrar aplicação em uma instância ilustrativa de gestão de projetos municipais.

Principais resultados
O artigo apresenta um ciclo de vida em oito etapas: iniciação, delimitação, estruturação, desenho de trajetórias de pesquisa, revisão de governança, lançamento de versão, acumulação de evidências e evolução do framework.

Contribuições teóricas/metodológicas
O artigo contribui com um método operacional repetível para converter problemas aplicados de pesquisa em instâncias de framework governadas e versionadas que apoiam conhecimento cumulativo.

Contribuições sociais/para a gestão
O ciclo de vida apoia pesquisadores, PMOs, organizações públicas e decisores ao melhorar a clareza de construtos, coordenação de estudos, reutilização de evidências e tradução da pesquisa em insights gerenciais.

Palavras-chave: Arquitetura de Pesquisa Baseada em Frameworks, Instância de Framework, Pesquisa em Gestão de Projetos, Conhecimento Cumulativo, Governança da Pesquisa

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Study purpose
This paper develops an operational lifecycle for Framework-Based Research Architecture (FBRA), explaining how researchers design, govern, use, and evolve framework instances in applied project management research.

Relevance / originality
The paper addresses a methodological gap between conceptual research architectures and executable research systems, with particular relevance to fragmented project, portfolio, PMO, governance, public sector, and value-realization research.

Methodology / approach
A conceptual design approach is used to refine prior FBRA concepts, define operational components, propose lifecycle stages, and demonstrate application through an illustrative metropolitan municipal project management framework instance.

Main results
The paper presents an eight-stage lifecycle covering initiation, boundary definition, structuring, research pathway design, governance review, version release, evidence accumulation, and framework evolution.

Theoretical / methodological contributions
The paper contributes a repeatable operational method for converting applied research problems into governed, version-controlled framework instances that support cumulative knowledge development across studies and contexts.

Social / management contributions
The lifecycle supports PMOs, public-sector organizations, and decision-makers by enabling research to be structured within the complexity of metropolitan project systems, including governance, portfolio delivery, operational continuity, public value, and cross-functional dependencies.

Keywords: Framework-Based Research Architecture, Framework Instance, Project Management Research, Cumulative Knowledge, Research Governance

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1 Introduction

Applied project management research increasingly addresses phenomena that cross disciplinary, functional, and methodological boundaries (Söderlund, 2011; Svejvig & Andersen, 2015; Van de Ven, 2007). Project, program, portfolio, and PMO environments are shaped by interactions among governance, leadership, organizational structure, team behavior, methods, culture, value realization, and stakeholder systems (Blomquist et al., 2010; Joslin & Müller, 2015, 2016). These interactions position project management research as an applied systems problem rather than a collection of isolated variable problems (Checkland, 1999; Meadows, 2008; Sterman, 2000). However, the field has diversified into multiple thematic and methodological streams without achieving comparable convergence around parsimonious theoretical explanations (Padalkar & Gopinath, 2016).

Much applied research nevertheless remains organized as independent studies that define their own constructs, theoretical boundaries, measurement choices, and contextual assumptions (Rousseau et al., 2008; Snyder, 2019; Tranfield et al., 2003). Individual studies may therefore be internally rigorous while remaining weakly connected to adjacent studies examining related constructs or contexts (Kunisch et al., 2023; Suddaby, 2010; Whetten, 1989). This limits the development of transferable, cumulative, and practice-relevant knowledge across applied research efforts (Bartunek & Rynes, 2014; Rynes et al., 2001; Tkachenko et al., 2017).

Joslin et al. (2026) introduced Framework-Based Research Architecture (FBRA) as a coordinating architecture through which applied research can be organized around domains, constructs, relationships, and context-specific framework instances. The foundational manuscript positions framework instances as configurations through which multiple studies can contribute to cumulative knowledge development. However, it does not specify how a framework instance should be initiated, bounded, structured, governed, released, linked to evidence, updated, and evolved. Without an explicit operational method, FBRA risks remaining a conceptual organizing architecture rather than functioning as an executable research system (Gregor & Hevner, 2013; Hevner et al., 2004; Jabareen, 2009; Peffers et al., 2007).

This paper addresses that gap by developing an operational lifecycle for FBRA framework instances. Its purpose is to specify the stages, components, governance controls, evidence-integration mechanisms, and versioning logic required to design and evolve framework instances. The central research question is:

How can Framework-Based Research Architecture be operationalized through a governed lifecycle for designing, using, and evolving framework instances in applied project management research?

The paper makes four contributions. First, it critically refines the foundational FBRA formulation by addressing definitional, governance, lifecycle, and evidence-integration limitations. Second, it defines a framework instance as a governed, context-specific research model rather than a passive knowledge container. Third, it proposes an eight-stage lifecycle covering initiation, boundary definition, structuring, research pathway design, governance review, version release, evidence accumulation, and evolution. Fourth, it introduces a versioned terminology register to control definitional drift across FBRA studies and framework instances (Hirsch & Levin, 1999; Suddaby, 2010).

Project management provides a suitable setting for FBRA operationalization because the field combines methodological plurality, practitioner involvement, multidisciplinary knowledge, and strong pressure for practical relevance (Blomquist et al., 2010; Packendorff, 1995; Söderlund, 2004b, 2011). These characteristics make the field vulnerable to fragmented knowledge accumulation while also creating a relevant context for testing a research architecture that coordinates studies without suppressing methodological diversity.

The remainder of the paper reviews the theoretical background, explains the conceptual design method, presents the critical refinements and operational lifecycle, describes the required governance and evidence mechanisms, illustrates the lifecycle in a metropolitan municipal context, and discusses its implications, limitations, and future research directions.

2 Theoretical Background

2.1 Fragmentation and cumulative knowledge in applied research

Applied research frequently addresses problems that span multiple domains, levels of analysis, and stakeholder systems (Gibbons et al., 1994; Van de Ven, 2007). In project management, outcomes emerge from interactions among governance arrangements, organizational structures, stakeholder interfaces, leadership behaviors, resource configurations, delivery practices, and value-realization processes (Joslin & Müller, 2015, 2016; Shenhar & Dvir, 2007). Isolated studies may therefore explain only partial mechanisms unless their constructs and relationships are connected to a broader research structure (Checkland, 1999; Meadows, 2008; Sterman, 2000). This problem is evident in project management, where practice-based heuristics and fragmented findings remain difficult to consolidate into progressively refined theoretical knowledge (Niederman et al., 2018).

Fragmentation is not caused only by the use of different theories or methods. Disciplinary specialization creates depth, methodological standards, and local research traditions, but it also shapes how problems are framed, which constructs are treated as legitimate, and which relationships are examined (Abbott, 2001; Becher & Trowler, 2001; Jacobs, 2014; Kuhn, 1996). Applied problems that cross disciplinary boundaries may consequently be decomposed into study-level fragments rather than coordinated as multi-domain research systems (Gibbons et al., 1994; Repko & Szostak, 2020).

Existing synthesis mechanisms address part of this problem. Systematic literature reviews, evidence syntheses, and meta-analyses consolidate prior findings, but they generally operate retrospectively, after studies have already established their constructs, measures, methods, and contextual assumptions (Denyer & Tranfield, 2009; Kunisch et al., 2023; Rousseau et al., 2008; Snyder, 2019; Tranfield et al., 2003). They do not normally govern how future studies should define constructs, select relationships, structure context, or return findings to a cumulative research architecture.

Interdisciplinary research also provides only a partial response. It can integrate theories, methods, and evidence within an individual study, but this integration may remain localized rather than becoming a shared structure that coordinates subsequent research (Hinkel, 2008; Klein, 1990). Integration within one study is therefore distinct from cumulative integration across a research program (Carlile, 2004; Kunisch et al., 2023).

Systems thinking offers a further conceptual basis for examining complex applied problems by emphasizing relationships, feedback, emergence, boundaries, and context (Checkland, 1999; Jackson, 2003; Meadows, 2008). Systemic approaches have also been advocated in project management research to capture interdependence, human factors, and relationships among project components that atomistic designs may overlook (Ackermann & Alexander, 2016). Systems thinking also provides conceptual and methodological resources for interpreting and intervening in complex systems (Midgley, 2000; Senge, 1990). However, using systems thinking to understand a phenomenon is not equivalent to governing how constructs, relationships, definitions, and evidence accumulate across multiple studies.

We argue that systems thinking does not, by itself, provide a research-system architecture for aligning construct definitions, coordinating studies, maintaining relationship maps, or managing cumulative evidence. A study may adopt a systems perspective while remaining disconnected from adjacent studies and shared research artifacts unless explicit cross-study coordination mechanisms are established (Joslin et al., 2026).

The resulting gap is structural rather than merely conceptual.. Applied research requires mechanisms that coordinate constructs, relationships, definitions, evidence, and context across multiple studies (Carlile, 2004; Rousseau et al., 2008; Tsoukas, 2009). FBRA addresses this gap by proposing a coordinating research architecture whose value depends on its operationalization through repeatable processes and governable artifacts.

2.2 Frameworks, construct clarity, and research architecture

Frameworks are widely used in applied research to define scope, organize concepts, clarify relationships, and guide data collection and interpretation (Jabareen, 2009; Miles et al., 2014). In complex project environments, they can represent relationships across multiple domains without requiring a single method or theoretical perspective (Cornelissen, 2017; Weick, 1995). They therefore function as cognitive and analytical devices that make complex phenomena researchable.

However, when treated primarily as study-specific artifacts, frameworks may not specify who maintains construct definitions, how evidence is incorporated after publication, how relationships are revised, or how version changes are governed (Joslin et al., 2026). This is not an inherent limitation of all frameworks, but a risk when stewardship, evidence integration, and evolution mechanisms are absent from their design (Suddaby, 2010; Whetten, 1989). A framework may consequently provide local conceptual clarity while offering limited infrastructure for cumulative knowledge development across studies (Kunisch et al., 2023; Snyder, 2019).

Construct clarity is central to this problem. Constructs define what is being studied, what is excluded, how concepts relate to theory, and how they may be observed or measured (Cronbach & Meehl, 1955; Suddaby, 2010). Inconsistent definitions reduce comparability even when studies appear to examine similar phenomena (Hirsch & Levin, 1999; Suddaby, 2010). This challenge is particularly relevant in project management, where practitioner concepts may enter academic research before they are theoretically stabilized (Blomquist et al., 2010; Söderlund, 2011). Earlier research identified unclear definitions and a weak theoretical foundation, while more recent critique continues to report problems involving research design, construct definition, measurement, and explanatory modeling (Anagnostopoulos, 2004; Jamshid-Nejad, 2025).

Terms such as governance, value, maturity, agility, capability, resilience, coherence, and benefits may be meaningful in practice but require explicit construct definitions before they can support cumulative research (Suddaby, 2010; Whetten, 1989). Without terminology and construct governance, the same term may denote different constructs, while different terms may denote similar ones, weakening comparison and knowledge accumulation (Hirsch & Levin, 1999; Suddaby, 2010).

A research architecture extends beyond a standalone framework because it governs how concepts and evidence are coordinated across studies. In FBRA, framework instances are the operating units of the architecture, while the architecture specifies how those instances are created, governed, linked, evidenced, versioned, and evolved across contexts (Joslin et al., 2026). FBRA is therefore framework-based but not reducible to a single framework; it provides a higher-order structure through which context-specific framework instances can contribute to cumulative knowledge development.

2.3 Design science and operational method development

The operationalization of FBRA is consistent with design science because the study develops a methodological artifact to address a defined practical and theoretical problem (Gregor & Hevner, 2013; Hevner et al., 2004). Design science research concerns the development and evaluation of artifacts such as constructs, models, methods, instantiations, and design principles (Hevner et al., 2004; March & Smith, 1995). In the present study, the artifact is an operational lifecycle for designing, governing, and evolving framework instances.

Design science is appropriate because the purpose is not only to explain research fragmentation but to propose a mechanism for reducing it in future applied research (Gregor & Hevner, 2013; Peffers et al., 2007). The lifecycle is therefore a methodological artifact rather than an empirical theory of project performance (Hevner et al., 2004; Peffers et al., 2007).

The artifact is evaluated conceptually against four author-developed criteria: logical consistency among lifecycle stages and transitions; alignment with the foundational FBRA architecture; compatibility with design science principles; and illustrative usefulness for coordinating applied project management research pathways (Gregor & Hevner, 2013; Hevner et al., 2004; Peffers et al., 2007; Whetten, 1989). These criteria synthesize the cited design science and theory-development literature rather than reproduce a standardized evaluation framework from a single source.

Conceptual evaluation is appropriate at this stage because the objective is to assess the artifact's

coherence, methodological fit, and operational plausibility before empirical validation (Gregor & Hevner, 2013; Hevner et al., 2004; March & Smith, 1995). The lifecycle also aligns with engaged scholarship by seeking to connect academic inquiry with practical decision-making while preserving methodological rigor (Bartunek & Rynes, 2014; Rynes et al., 2001; Van de Ven, 2007). A governed framework instance lifecycle is intended to combine construct clarity with context-specific adaptation in applied project management research (Suddaby, 2010; Van de Ven, 2007).

2.4 Governance, versioning, and terminology control

Governance is necessary in FBRA because cumulative research requires explicit decisions about which definitions, constructs, relationships, and evidence are incorporated into a framework instance (Joslin et al., 2026). In this context, governance refers to lifecycle control over definitions, traceability, evidence status, and version evolution rather than centralized control over researcher creativity. This distinction is important because excessive prescription may constrain theoretical innovation, whereas insufficient governance allows definitional drift and fragmentation to reappear within FBRA (Suddaby, 2010; Whetten, 1989).

Versioning is equally important because constructs and relationships may change as evidence accumulates (Hirsch & Levin, 1999; Suddaby, 2010). Terms such as framework instance may require refinement as operational use reveals ambiguities or changing scope conditions (Joslin et al., 2026). Documented versioning makes these changes transparent and supports cumulative learning by recording what changed, why it changed, and which prior formulation was superseded.

Terminology control is therefore required across FBRA studies, domains, and framework instances. When definitions evolve without explicit documentation, conceptual clarity weakens because meanings, boundaries, and relationships among key terms become difficult to compare (Hirsch & Levin, 1999; Suddaby, 2010). FBRA consequently introduces a versioned terminology register that records term versions, definitions, source studies, superseded formulations, current status, and change rationale. This register extends the logic of auditable decision trails and traceability to the governance of conceptual definitions within a research architecture (Gotel & Finkelstein, 1994; Nowell et al., 2017).

3 Materials and Methods

This study adopts a conceptual design approach to develop a lifecycle method for operationalizing FBRA framework instances (Gregor & Hevner, 2013; Hevner et al., 2004). It is conceptual rather than empirical because it develops a methodological artifact rather than testing causal relationships among project management variables (Hevner et al., 2004; Peffers et al., 2007). The resulting artifact is intended to support future conceptual and empirical research within FBRA (Gregor & Hevner, 2013; March & Smith, 1995).

The design process was guided by the six-activity Design Science Research Methodology proposed by Peffers et al. (2007), consolidated into four steps for this conceptual study. First, the foundational FBRA formulation was critically assessed to identify concepts that were sufficiently specified and those requiring refinement before operational application (Joslin et al., 2026). This step addressed problem identification and the definition of objectives for the proposed solution.

Second, operational requirements were derived from literature on research fragmentation, construct clarity, frameworks, systems thinking, cumulative knowledge, governance, and design science (Checkland, 1999; Hevner et al., 2004; Kunisch et al., 2023; Suddaby, 2010). Third, these requirements were translated into an eight-stage lifecycle for initiating, bounding, structuring, governing, releasing, accumulating evidence for, and evolving framework instances.

Fourth, the lifecycle was demonstrated through a metropolitan municipal project management framework instance containing multiple coordinated research pathways. The illustration represents the demonstration activity of the Design Science Research Methodology, while the criteria defined in Section 2.3 provide a preliminary conceptual evaluation. Communication of the artifact is undertaken through the present paper.

The municipal illustration demonstrates operational plausibility rather than empirical validation (Gregor & Hevner, 2013; Hevner et al., 2004). Municipal infrastructure systems provide an appropriate context because project delivery depends on interactions among governance, planning, procurement, portfolio and project delivery, operations, benefits realization, and public value (National Treasury, 2020; OECD, 2017; Project Management Institute, 2016). Research also indicates that municipal service-delivery outcomes are influenced by project management capability, PMU or PMO arrangements, planning, monitoring and evaluation, skills, communication, and cross-functional coordination (Ntshangase & Msosa, 2022; Van der Waldt, 2009).

The unit of analysis is the framework instance lifecycle as a methodological artifact for organizing multiple studies within a governed research architecture. Its preliminary validity is assessed through conceptual coherence, consistency with the foundational FBRA architecture, compatibility with design science principles, and usefulness for coordinating project management research pathways (Gregor & Hevner, 2013; Hevner et al., 2004).

4 Critical Refinements of the Foundational FBRA Formulation

The foundational FBRA manuscript conceptualizes fragmentation in applied research as a structural problem and proposes an architecture organized around domains, constructs, relationships, and framework instances (Joslin et al., 2026). It also argues that interdisciplinary research, systems thinking, literature reviews, and standalone frameworks provide useful but incomplete responses to cumulative knowledge fragmentation, particularly when coordination across studies is required (Joslin et al., 2026; Kunisch et al., 2023; Snyder, 2019). The present assessment identifies seven operational limitations that require refinement before FBRA can be applied consistently across studies and contexts.

The first group of limitations concerns the definition and governance of framework instances. The foundational manuscript describes framework instances as context-specific configurations and evolving knowledge containers, but this formulation does not provide sufficient precision for their creation, maintenance, and revision (Joslin et al., 2026). Governance is also recognized as necessary, but the manuscript does not specify the roles, review criteria, approval decisions, evidence thresholds, or version-control mechanisms through which it should operate (Joslin et al., 2026). These limitations are significant because cumulative research requires construct clarity, transparent design logic, and traceability of conceptual changes (Gotel & Finkelstein, 1994; Gregor & Hevner, 2013; Hevner et al., 2004; Suddaby, 2010). The present paper therefore redefines a framework instance as a governed, context-specific research model and specifies governance as lifecycle control over definitions, relationships, evidence, and versions.

The second group concerns lifecycle, domain configuration, and context. The foundational manuscript does not provide an operational sequence for moving from an applied problem to a structured, governed, released, and evolving framework instance (Joslin et al., 2026). Its domain language may also be interpreted as implying a fixed taxonomy, while context is acknowledged without specifying how boundaries, assumptions, exclusions, dependencies, levels of analysis, and transferability conditions should be documented. These elements are necessary because research design and theory development depend on explicit boundary conditions and the circumstances under which findings may apply (Miles et al., 2014; Whetten, 1989; Yin, 2018). The present paper addresses these limitations by introducing an eight-stage lifecycle, defining domains as problem-relevant conceptual areas, and requiring explicit context and boundary specifications.

The third group concerns evidence integration and terminology evolution. Although the foundational manuscript states that findings should refine constructs and relationships and contribute to an integrated knowledge base, it does not define evidence statuses, update rules, or criteria for changing construct and relationship status (Joslin et al., 2026). It also introduces terminology that may evolve across studies and framework instances without specifying how definitional changes should be documented. The present paper therefore introduces an author-developed evidence-status taxonomy and a versioned terminology register. These mechanisms are informed by research emphasizing systematic evidence accumulation, transparent synthesis, construct clarity, and traceability of conceptual change

(Hirsch & Levin, 1999; Kunisch et al., 2023; Rousseau et al., 2008; Suddaby, 2010; Tranfield et al., 2003).

Table 1 summarizes the seven limitations, their associated risks, and the corrective actions incorporated into the proposed lifecycle.

Table 1 - *Critical Refinement of the Foundational FBRA Formulation*

Foundational issue	Risk if carried forward	Corrective action
Framework instance described as a knowledge container	Too passive; insufficient for operational use	Redefine as a governed, context-specific research model
Governance acknowledged but not specified	Governance remains rhetorical	Define governance as lifecycle control
No operational lifecycle	Researchers lack an executable method	Introduce eight-stage lifecycle
Domain language may imply fixed taxonomy	FBRA appears overly prescriptive	Use problem-domain identification
Context not operationalized	Boundaries remain vague	Require boundary, scope, assumptions, exclusions, levels
Evidence integration unspecified	Knowledge accumulation remains informal	Define evidence status and update rules
Terminology drift likely	Future papers may appear inconsistent	Introduce versioned terminology register

These refinements do not reject the foundational FBRA architecture. Rather, they operationalize its principal concepts by adding the definitions, controls, artifacts, and lifecycle mechanisms required for framework instance development, evidence accumulation, and governed evolution.

5 Definition and Lifecycle of a Framework Instance

5.1 Definition

A Framework Instance is a governed, context-specific research model within FBRA that defines the purpose, boundaries, constructs, relationships, assumptions, evidence sources, research pathways, and evolution rules for a specified applied research domain. This definition extends the foundational formulation in five respects (Joslin et al., 2026). It treats a framework instance as an active research model rather than a passive knowledge container; incorporates governance into its definition; makes boundaries and assumptions explicit; includes research pathways for coordinating future inquiry; and establishes evolution rules for revision as evidence accumulates (Hirsch & Levin, 1999; Van de Ven, 2007; Whetten, 1989).

A framework instance is distinct from three related concepts. It is not an individual study because it can coordinate multiple studies and their relationships over time. It is not a standalone conceptual framework because it is governed, versioned, and linked to an integrated knowledge base. It is also not equivalent to FBRA itself, because FBRA is the higher-order architecture that governs and connects multiple framework instances across contexts (Joslin et al., 2026).

5.2 The eight-stage lifecycle

The central contribution of this paper is an eight-stage operational lifecycle for framework instances. The lifecycle supports cumulative knowledge development while allowing adaptation to specific applied problems and contexts. Figure 1 presents the lifecycle in simplified form. Its sequential and iterative logic is consistent with process-theoretical reasoning, which explains how activities, intermediate states, and temporal ordering contribute to outcomes over time (Niederman et al., 2018). FBRA does not treat the lifecycle as a substantive process theory of project behavior; rather, process theory provides a basis for specifying stages, transitions, feedback, and cumulative progression.

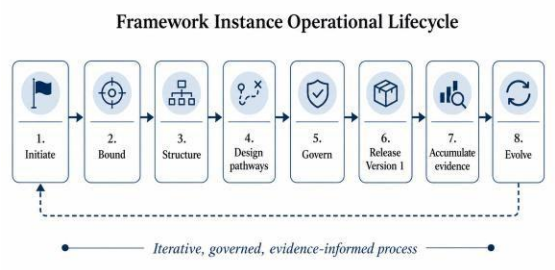


Figure 1 - Framework Instance Operational Lifecycle

Stage 1: Initiate the framework instance. This stage identifies the applied problem, problem domain, intended users, practical and theoretical relevance, and initial justification (Van de Ven, 2007; Whetten, 1989). It prevents the instance from becoming an abstract taxonomy disconnected from applied research needs (Jabareen, 2009; Miles et al., 2014). The output is an initiation statement defining why the instance is needed, what problem it addresses, and which research efforts it is intended to coordinate.

Stage 2: Bound the framework instance. This stage defines context, scope, assumptions, exclusions, dependencies, level of analysis, and transferability limits (Miles et al., 2014; Yin, 2018). Boundary definition is particularly important in project research because projects are context-specific and embedded in open systems, making the applicability of findings contingent rather than automatic (Smyth & Morris, 2007). The output is a boundary specification clarifying what is included, what is excluded, and which contextual conditions shape interpretation.

Stage 3: Structure the framework instance. This stage identifies problem-relevant domains, candidate constructs, construct definitions, preliminary relationships, supporting theories, and conceptual dependencies (Jabareen, 2009; Suddaby, 2010). It converts the applied problem into an explicit research model capable of coordinating multiple studies. The output is an initial construct register and relationship map containing definitions, assumptions, theoretical anchors, and relationship types.

Stage 4: Design research pathways. This stage translates the framework instance into research questions, study clusters, construct pathways, relationship types, evidence needs, and sequencing priorities (Whetten, 1989; Yin, 2018). It ensures that the instance functions as a mechanism for coordinated inquiry rather than only as a conceptual representation. The output is a research pathway map identifying which studies may proceed independently and how their findings will contribute to the wider framework instance.

Stage 5: Govern the framework instance. This stage reviews construct clarity, terminology, relationship logic, boundary consistency, methodological fit, evidence expectations, and version readiness (Suddaby, 2010; Whetten, 1989). It functions as a quality-control point before release of the baseline version. The output is a governance review record documenting approvals, unresolved issues, required revisions, and evidence requirements.

Stage 6: Release Version 1. This stage publishes or registers the baseline framework instance, including its purpose, boundaries, constructs, relationships, assumptions, evidence requirements, research pathways, and version record. Version 1 establishes a stable reference point rather than a final framework (Hirsch & Levin, 1999; Suddaby, 2010). The output is a version-controlled framework instance package that subsequent studies can reference, challenge, extend, or refine.

Stage 7: Accumulate evidence. This stage incorporates findings from individual studies, updates construct and relationship status, records contradictions, and identifies further research needs (Rousseau et al., 2008). Evidence is linked to specified constructs, relationships, assumptions, contexts, and versions, allowing individual findings to contribute to cumulative framework knowledge (Kunisch et al., 2023; Snyder, 2019). The output is an updated evidence register and relationship-status record.

Stage 8: Evolve the framework instance. This stage revises the instance through governed versioning when accumulated evidence indicates that constructs or relationships should be added, refined,

merged, split, forked, retired, or validated (Hirsch & Levin, 1999; Suddaby, 2010). It differentiates FBRA from static frameworks by making evolution an explicit lifecycle function (Joslin et al., 2026). The output is a revised release, such as Version 1.1, Version 2.0, or a context-specific fork.

6 Components, Governance, Evidence, and Terminology Versioning

6.1 Core components of a framework instance

A framework instance requires a standard set of components so that different instances remain comparable while being adapted to context. These components also serve as governance checkpoints because each component can be reviewed, revised, and versioned. Table 2 presents the proposed component set.

Table 2 - *Core Components of a Framework Instance*

Component	Operational purpose
Purpose statement	Defines why the instance exists
Problem-domain statement	Defines the applied problem area
Context statement	Defines setting and relevant contextual features
Boundary statement	Defines inclusion, exclusion, level of analysis, and transferability
Domain set	Defines conceptual areas inside the instance
Construct register	Defines constructs, versions, indicators, and status
Relationship map	Defines direct, mediated, moderated, associative, or exploratory links
Supporting theories	Identifies theoretical anchors
Assumptions and dependencies	Records conditions required for interpretation
Research pathways	Converts the instance into coordinated studies
Study clusters	Groups related studies
Evidence register	Records evidence linked to constructs and relationships
Governance record	Records review decisions and stewardship
Version history	Records revisions, supersessions, forks, and retirements

These components convert the framework instance from an image or conceptual diagram into an executable research object. The distinction matters because diagrams can communicate structure but cannot by themselves govern definitions, relationships, evidence, or version history (Jabareen, 2009; Miles et al., 2014). A framework instance therefore requires both visual representation and documentary infrastructure.

6.2 Governance controls

Governance in FBRA operates as lifecycle control rather than managerial hierarchy. Its purpose is to maintain coherence, traceability, reusability, and openness to evidence-based revision while allowing researchers to challenge constructs, propose alternative relationships, and develop new framework instances (Van de Ven, 2007).

The lifecycle requires at least six governance controls. Definition governance regulates how terms and constructs are defined, refined, and superseded (Suddaby, 2010). Construct governance controls how constructs are added, merged, split, extended, validated, or retired (Hirsch & Levin, 1999; Suddaby, 2010). Relationship governance addresses how relationships are classified, theorized, tested, supported, contradicted, and revised (Whetten, 1989). Evidence governance establishes the evidence required to change the status of constructs or relationships (Kunisch et al., 2023; Rousseau et al., 2008). Version governance controls releases, version numbers, change records, and forks. Stewardship governance assigns responsibility for maintaining the framework instance and documenting review decisions.

Governance should also distinguish proposed concepts from empirically supported findings. Early-stage constructs and relationships may be classified as exploratory, candidate, or provisional until they achieve sufficient conceptual clarity, theoretical justification, and empirical support (Gregor & Hevner, 2013; Hirsch & Levin, 1999; Suddaby, 2010). Later governance reviews may classify them as supported,

validated, contradicted, or retired. This staged approach enables conceptual development without presenting emerging propositions as established findings.

6.3 Evidence integration

Evidence integration is the mechanism through which individual studies contribute to cumulative knowledge. In FBRA, evidence should not be stored only as study outputs but linked to specific constructs, relationships, assumptions, contexts, and versions. This linking makes it possible to identify whether a finding supports a construct definition, confirms a relationship, contradicts a pathway, or reveals a boundary condition (Kunisch et al., 2023; Snyder, 2019).

The author-developed FBRA evidence-status taxonomy comprises proposed, theoretically supported, empirically supported, partially supported, contradicted, context-bound, validated, unresolved, and retired. These categories are introduced as an operational governance mechanism for FBRA rather than as categories directly derived from the cited evidence-synthesis literature.

Categories are intended to make evidence accumulation explicit and traceable, consistent with evidence-based management and review research, which emphasize systematic accumulation, analysis, synthesis, and interpretation of evidence (Kunisch et al., 2023; Rousseau et al., 2008; Tranfield et al., 2003). Drawing on distinctions among descriptive, predictive, prescriptive, and practice theories in project management (Svejvig, 2021), FBRA should calibrate evidence expectations to the type of theoretical contribution rather than apply a single validation threshold across all research pathways.

Evidence statuses should be updated through governance review rather than informal interpretation, consistent with design science principles that emphasize explicit artifact development, evaluation, and communication of design knowledge (Gregor & Hevner, 2013; Hevner et al., 2004). Any change of status should be supported by a documented assessment of evidence quality, provenance, methodological limitations, contextual boundaries, and consistency across studies. A status of validated should not be assigned solely because of theoretical plausibility or a single empirical study.

Evidence integration also requires provenance (Rousseau et al., 2008). Each evidence entry should identify the study source, method, context, data type, level of analysis, construct version, relationship version, and limitations (Kunisch et al., 2023; Snyder, 2019). Provenance is essential because a relationship supported in one framework instance may not transfer automatically to another context (Whetten, 1989; Yin, 2018).

6.4 Versioned terminology register

The versioned terminology register is introduced to prevent definitional drift across FBRA papers and framework instances (Suddaby, 2010). The register records what version of each term is used in each paper, which definition it supersedes, and whether the term is active, provisional, retired, or replaced. Table 3 presents an initial register for the present paper.

Table 3 - *Initial FBRA Versioned Terminology Register*

Term ID	Term	Definition version	Used in	Status	Notes
FBRA-001	Framework-Based Research Architecture	v1.1	PP	AF	Builds on the FBRA architecture introduced in the foundational manuscript (Joslin et al., 2026)
FI-001	Framework Instance	v2.0	PP	AR	Replaces passive “knowledge container” framing
DOM-001	Domain	v2.0	PP	AR	Defined as problem-relevant conceptual area
CON-001	Construct	v2.0	PP	AR	Adds status, evidence, and versioning
REL-001	Relationship	v2.0	PP	AR	Adds type and evidence status
GOV-001	Governance	v1.0	PP	AN	Lifecycle control mechanism
EV-001	Evidence Register	v1.0	PP	AN	Links evidence to constructs and relationships

IKB-001	Integrated Knowledge Base	v1.0	PP	AF	Stores evidence, provenance, and version history
FRK-001	Fork	v1.0	PP	P	Context-specific divergence of framework instance
RET-001	Retirement	v1.0	PP	P	Formal removal or deactivation of construct or relationship

Note. PP = Present Paper. AR = Active Revised, AN = Active New, AF – Active Refined, P = Provisional

The register should be treated as an evolving artifact rather than a final glossary. A glossary explains current meanings, while a versioned terminology register explains how meanings change across papers and framework versions. This distinction is important because FBRA is expected to evolve as new framework instances and evidence streams are added (Joslin et al., 2026).

7 Illustrative Application: A Metropolitan Municipal Project Management Framework Instance

7.1 Rationale for the illustrative instance

A metropolitan municipal project management context was selected because it combines multiple portfolios, public-sector governance, infrastructure delivery, operational continuity, cross-functional coordination, and resident-facing value. Project-system performance therefore depends on interactions among project delivery, portfolio prioritization, PMO and governance arrangements, leadership, benefits realization, and public value (Joslin & Müller, 2016; Van de Ven, 2007).

Municipal infrastructure research further indicates that service-delivery outcomes are influenced by governance, planning, procurement, project management capability, PMO arrangements, monitoring and evaluation, skills, communication, and cross-functional coordination (National Treasury, 2020; Ntshangase & Msosa, 2022; OECD, 2017, 2019; Project Management Institute, 2016).

For illustrative purposes, the framework instance is configured around project delivery, PMO and governance structures, portfolio stability, adaptive delivery, leadership, public value, project–operations tensions, and sustainability. Its purpose is to demonstrate how FBRA can coordinate multiple studies addressing different but related components of a metropolitan municipal project system.

7.2 Generated Studies as Operational Demonstrations

The framework instance lifecycle is further supported by the emergence of companion studies generated from the same framework instance. These companion studies examine related pathways within the broader municipal project system, including structural coherence, public value, adaptive coherence, leadership, governance, project–operations balancing, and sustainability. They do not constitute final empirical validation of FBRA. Rather, they provide operational demonstration evidence that FBRA can generate research pathways, position studies within a shared framework instance, reuse constructs across studies, and support cumulative refinement of relationships over time. In this sense, generated studies function as evidence of FBRA's generativity and operational plausibility, while empirical validation of its broader effectiveness remains a future research requirement.

7.3 Stage-by-stage illustration

Stage 1: Initiation. The framework instance is initiated around the problem of fragmented municipal project systems and the need to coordinate research on delivery, governance, value, and system coherence. Intended users include researchers, doctoral candidates, PMO leaders, municipal executives, and portfolio decision-makers (Van de Ven, 2007). The initial justification is that municipal project outcomes depend on cross-domain interactions that isolated studies cannot adequately integrate (Checkland, 1999; Meadows, 2008).

Stage 2: Boundary definition. The instance is bounded around metropolitan municipal project management rather than public administration generally. Its levels of analysis include projects, portfolios, PMOs, teams, and the municipal system. National policy design, non-project municipal operations, and citizen participation mechanisms are excluded unless they directly affect project delivery, governance, or value realization.

Stage 3: Structuring. The initial domain set includes governance and PMO structure, leadership, structural coherence, portfolio volatility, delivery predictability, adaptive coherence, project–operations balancing, benefits realization, public value, and sustainability outcomes. These are problem-relevant conceptual areas rather than fixed universal categories (Suddaby, 2010; Whetten, 1989). Candidate constructs include structural coherence, endogenous portfolio volatility, delivery predictability, adaptive coherence, public value, leadership integration, governance moderation, and team tension management capability.

Stage 4: Research pathway design. The instance generates coordinated pathways examining: structural coherence, portfolio volatility, and delivery predictability; project outputs, outcomes, benefits, and public value; adaptive coherence and its relationship with delivery predictability; leadership as a driver of structural coherence, with governance as a boundary condition; and team tension management capability as a mechanism for balancing project and operational demands.

Stage 5: Governance review. Governance review assesses whether pathways use compatible definitions, whether shared constructs are applied consistently, and whether related constructs remain conceptually distinct (Suddaby, 2010). It also verifies consistent use of outputs, outcomes, benefits, and public value. Unresolved definitional tensions are recorded in the terminology register.

Stage 6: Release Version 1. Version 1 is released as a baseline research model containing documented domains, constructs, relationships, assumptions, boundaries, and evidence requirements. It does not claim that all relationships are empirically validated, because some constructs begin as proposed or theoretically supported (Gregor & Hevner, 2013; Whetten, 1989). The baseline allows studies to proceed independently while retaining cumulative linkage (Joslin et al., 2026).

Stage 7: Evidence accumulation. Completed studies contribute evidence to relevant constructs and relationships (Kunisch et al., 2023; Rousseau et al., 2008). Evidence may update the status of relationships involving structural coherence, portfolio volatility, delivery predictability, public value, or adaptive coherence, while also refining construct definitions and boundary conditions.

Stage 8: Evolution. Accumulated evidence may lead to Version 1.1, Version 2.0, or a context-specific fork. Minor revisions may clarify definitions or relationship types, whereas major revisions may add domains, divide or merge constructs, or reconfigure the framework instance for another municipal context.

7.4 Illustrative construct and relationship map

Table 4 shows how the framework instance coordinates multiple research pathways.

Table 4 - *Illustrative Research Pathways within a Metropolitan Municipal Framework Instance*

Pathway	Core constructs	Relationship logic	Contribution to framework instance
Structural coherence pathway	Structural coherence, portfolio volatility, delivery predictability	Structural coherence → portfolio volatility → predictability	Adds structural layer
Value-realization pathway	Output, primary outcome, secondary outcome, benefit, public value	Project → output → outcome → benefit → public value	Adds public value
Adaptive coherence pathway	Adaptive coherence, structural coherence, delivery predictability	Adaptive coherence → predictability; structural coherence as moderator	Adds adaptive delivery logic
Leadership pathway	Leadership, governance, structural coherence	Leadership → structural coherence; governance as moderator	Adds system-formation logic
Project–operations pathway	Paradox mindset, psychological safety, team tension management, balanced performance	Enabling conditions → TMC → balanced performance	Adds meso-level balancing logic
Sustainability pathway	PMO structural cohesiveness, sustainability outcomes	Structural cohesiveness sustainability outcomes	Adds sustainability and ESG linkage

This illustration shows why FBRA requires a lifecycle rather than only a framework diagram. The framework instance must coordinate constructs that originate in different theories, operate at different levels of analysis, and contribute to different research pathways (Van de Ven, 2007; Whetten, 1989). Without lifecycle governance, these pathways could easily drift into separate studies with inconsistent definitions and weak cumulative linkage (Suddaby, 2010).

8 Discussion

The proposed lifecycle advances FBRA by converting a conceptual research architecture into an operational method. Whereas the foundational manuscript establishes the need to coordinate applied research across domains, constructs, relationships, and framework instances, the present paper specifies how those instances can be initiated, bounded, structured, governed, released, linked to evidence, and evolved (Joslin et al., 2026).

The first contribution is the redefinition of a framework instance as a governed research model rather than a knowledge container. A container primarily stores knowledge, whereas a research model structures inquiry, controls definitions, organizes relationships, coordinates evidence accumulation, and supports revision over time (Jabareen, 2009; Miles et al., 2014). This revised definition makes framework instances active mechanisms for cumulative knowledge development.

The second contribution is the eight-stage lifecycle. It responds to calls for project research to develop middle-range explanations capable of connecting heterogeneous perspectives without presuming a universal theory of projects (Söderlund, 2004a). Conceptual frameworks can represent concepts, constructs, and relationships and may also provide procedures for their initial development (Jabareen, 2009; Kunisch et al., 2023). However, stewardship after initial development, cumulative evidence integration, construct-status management, relationship revision, and governed version evolution require explicit operational mechanisms. The proposed lifecycle addresses this requirement by treating framework instance development as an ongoing research-system process.

The third contribution is the integration of governance into the lifecycle. In FBRA, governance is a methodological mechanism for maintaining construct clarity, relationship traceability, evidence status, and version control rather than a form of centralized theoretical authority (Suddaby, 2010; Whetten, 1989). This is important because cumulative knowledge depends not only on producing additional studies but also on controlling how their findings modify the shared research structure (Kunisch et al., 2023; Rousseau et al., 2008).

The fourth contribution is the versioned terminology register, which makes definitional evolution explicit and traceable across studies and framework instances (Hirsch & Levin, 1999; Suddaby, 2010). By documenting current definitions, superseded formulations, status, and change rationale, the register reduces the risk that conceptual refinement will be mistaken for inconsistency.

For project management research, the lifecycle offers a means of coordinating topics commonly examined through distinct research streams, including governance, PMOs, portfolio management, adaptive delivery, benefits realization, leadership, sustainability, and public value (Blomquist et al., 2010; Söderlund, 2011; Svejvig & Andersen, 2015). This coordination is relevant because project studies frequently borrow concepts from neighboring disciplines, while limited cross-fertilization may leave research domains only superficially connected (Jacobsson & Söderholm, 2020). The metropolitan municipal illustration demonstrates conceptually how methodologically distinct studies can contribute to a shared framework instance while retaining their individual research questions and designs.

For practice, framework instances may provide PMOs and public-sector organizations with a structured view of how studies relate to system-level problems, which constructs and relationships are supported by evidence, and where additional inquiry is required. These implications remain provisional because the lifecycle has not yet been empirically evaluated. Its contribution to governance, portfolio, and value-realization decisions therefore depends on subsequent application and validation (Joslin & Müller, 2016).

The lifecycle may also support doctoral research programs by providing a shared architecture

within which individual studies remain academically independent while contributing to cumulative knowledge. This logic is consistent with doctoral education research emphasizing research communities, peer learning, and structured research environments alongside individual supervision (Boud & Lee, 2005; Lee, 2008; Lovitts, 2005).

Several risks require attention. FBRA should not suppress methodological plurality or prevent researchers from challenging established constructs and relationships (Söderlund, 2011; Van de Ven, 2007; Whetten, 1989). Governance and versioning should remain enabling rather than coercive or administratively burdensome (Adler & Borys, 1996; Bozeman, 1993; Gotel & Finkelstein, 1994). Evidence-status categories must also distinguish clearly among conceptual propositions, theoretical support, empirical findings, and validated relationships (Gregor & Hevner, 2013; Hevner et al., 2004). These conditions are necessary for FBRA to provide coordination without becoming overly prescriptive.

9 Conclusion and Final Considerations

This paper develops an operational lifecycle for FBRA framework instances, addressing the gap between the foundational architecture and the need for an executable method for creating, governing, and evolving context-specific research models (Joslin et al., 2026). It refines the definition of framework instance, operationalizes governance and context, introduces evidence-status logic, and establishes a versioned terminology register. These mechanisms are required for FBRA to coordinate definitions, constructs, relationships, and evidence across studies (Gregor & Hevner, 2013; Hevner et al., 2004; Rousseau et al., 2008; Suddaby, 2010).

The principal contribution is an eight-stage lifecycle covering initiation, boundary definition, structuring, research pathway design, governance review, version release, evidence accumulation, and evolution. The lifecycle positions FBRA as a governed research system rather than a static conceptual framework. The metropolitan municipal illustration demonstrates conceptually how multiple research pathways can remain methodologically distinct while contributing to a shared framework instance. It provides evidence of operational plausibility, not empirical validation (Gregor & Hevner, 2013; Hevner et al., 2004).

The study is limited by its conceptual and methodological nature. It does not test whether FBRA improves research coordination, evidence reuse, or cumulative knowledge development in practice (Hevner et al., 2004; Peffers et al., 2007). The lifecycle and its governance mechanisms therefore require application and evaluation across different sectors, contexts, research teams, and framework instances. The governance mechanisms are presented at an operational level; a complete FBRA governance model requires further development.

Future research should examine whether the lifecycle improves construct clarity, relationship traceability, cross-study comparability, and cumulative evidence integration. It should also refine governance protocols, evidence thresholds, versioning rules, and cross-instance comparison methods, while assessing the use of framework instances in doctoral programs, PMO knowledge systems, public-sector governance, and cross-context learning.

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