Global Academic Journal of Economics and Business

Available online at https://www.gajrc.com
DOI: https://doi.org/10.36348/gajeb.2026.v08i06.004

OPEN ACCESS



ISSN: 2706-9001 (P)
ISSN: 2707-2584 (O)

Original Research Article

Project Controls Governance for Improving Delivery Performance in Saudi Industrial Infrastructure Programs

Mohammed Shahabaaz Ahmed[1*]
Research Scholar

***Corresponding Author**
Mohammed Shahabaaz Ahmed
Research Scholar

Article History
Received: 29.08.2026
Accepted: 26.10.2026
Published: 03.11.2026

Abstract: Industrial infrastructure programs depend on coordinated decisions across engineering, procurement, construction, utilities, and operational readiness. Project controls generate information about these activities, but information improves delivery only when its meaning, ownership, and route to action are established. This structured narrative review examines the governance arrangements needed to connect project controls with accountable intervention in Saudi industrial infrastructure programs. Research on project governance, megaproject delivery, organizational maturity, digital information, and Saudi construction performance is considered alongside authoritative estimating and scheduling guidance. The synthesis proposes a framework linking decision authority, controlled baselines, contractor reporting, change assessment, interface management, and independent assurance. Its central argument is that governance should be assessed through the quality and timeliness of decisions rather than the number of reports, committees, or approvals produced. Two analytical tables and two original figures translate the argument into an operating model and an evaluation approach. An arithmetic illustration shows how unresolved decisions can accumulate when review capacity remains below incoming demand. The proposed mechanisms are relevant to complex industrial programs, but their effect has not been tested against an implementation dataset. The paper concludes that reliable governance requires traceable information, clear escalation, proportionate review, and feedback establishing whether approved actions actually address delivery constraints.

Keywords: Project Controls Governance, Industrial Infrastructure, Saudi Arabia, Contractor Oversight, Change Control, Program Delivery, Decision Authority, Assurance.

Copyright © 2026 The Author(s): This is an open-access article distributed under the terms of the Creative Commons Attribution **4.0 International License (CC BY-NC 4.0)** which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited.

1. INTRODUCTION

Industrial infrastructure programs are delivered through interconnected packages rather than isolated work fronts. Roads, utilities, process facilities, power supply, drainage, and communications may be procured separately while depending on common access, design information, and completion dates. A package can meet its internal targets yet remain unusable because another package has not delivered a necessary interface. Governing delivery therefore requires attention to how separate responsibilities combine to produce an operational outcome.

Project controls provide schedules, cost forecasts, progress measures, change records, and

risk assessments. These outputs can reveal emerging problems, but they do not determine who may authorize a response or resolve a disagreement between organizations. The practical gap arises when a technically adequate report reaches a forum that lacks authority, when decisions depend on incompatible information, or when an approved intervention is never reflected in execution. A governance arrangement must connect information production with decisions and subsequent accountability.

Research distinguishes the oversight of projects from their everyday management. It also indicates that governance extends beyond formal control mechanisms to include stakeholder orientation, leadership behavior, and alignment with organizational purpose. For industrial infrastructure, these ideas imply that approving a schedule or reviewing a dashboard is only one part of governance. Sponsors and program leaders must establish which outcomes matter, where authority lies, and how competing package priorities will be resolved.

Saudi construction research documents planning, scope, design, and coordination concerns across several project settings. These findings justify investigating how controls information supports decisions, but they do not establish the effectiveness of one standard governance model for every Saudi organization. This paper develops a proposed framework for industrial infrastructure programs without assuming that all programs share a procurement approach, operating environment, or reporting system. Its contribution is an explicit account of the mechanisms connecting governance practices with delivery performance.

2. BACKGROUND AND LITERATURE REVIEW

The governance literature addresses several related levels. One concerns the arrangements within an individual project, while another concerns the organizational systems through which projects and programs are selected, directed, and reviewed. Conceptual work links these levels with sponsorship, portfolio management, oversight, and organizational objectives. This distinction is necessary because a program controls manager may coordinate analysis and reporting while lacking authority to alter funding priorities or resolve a disputed commercial position.

Empirical studies associate governance orientation with aspects of project success, but they do not support a simple claim that adding more controls produces better outcomes. Research also examines the interaction between formal structures and the behavior of governing roles. This suggests that a procedure can operate differently depending on whether leadership encourages candid forecasts, tolerates escalation, and uses review meetings to resolve constraints. A governance diagram alone cannot establish how authority is exercised in practice.

Research on public investment frameworks describes hierarchical responsibilities and the importance of early project definition. These studies offer transferable questions about accountability and investment justification, although their national institutional settings differ from Saudi industrial delivery. Comparative infrastructure research similarly examines how governance structures influence risk allocation and stakeholder responses. Its relevance is to show that responsibility and contractual arrangements matter; it does not identify a universally superior procurement or governance model.

Megaproject research identifies a broad set of performance difficulties and emphasizes the interaction of organizations, production systems, supply chains, and institutions. Reviews of project management also question narrow interpretations of success based only on delivery metrics. An industrial infrastructure program can satisfy selected cost and schedule measures while failing to achieve the required operating capacity or service reliability. Governance must therefore connect control measures with the intended use of completed assets.

A further evidence stream concerns the maturity of earned value management systems and the information practices supporting digital delivery. These studies explain why reporting reliability depends on planning, data, leadership, and organizational processes. They complement estimating and scheduling guidance that emphasizes credible assumptions and traceable updates. Together, the literature supports a process in which controls information is assessed, challenged, authorized, acted upon, and reviewed. The present framework brings those steps together without attributing a numerical performance benefit to an untested design.

3. Research Aim Objectives and Questions

The aim is to develop an evidence-informed governance framework that connects project controls with timely and accountable decisions in Saudi industrial infrastructure programs. Five objectives guide the study: define the boundary between governance and controls execution; identify minimum requirements for reliable program information; explain how authority, change, and interface decisions should be organized; develop a proportionate assurance and escalation process; and

specify evidence for evaluating the proposed framework in operational use.

Three research questions organize the synthesis. RQ1 asks which governance mechanisms allow project controls information to support coordinated delivery decisions. RQ2 asks how organizations can maintain accountability without creating approval congestion or duplicating contractor responsibilities. RQ3 asks how improvement should be evaluated when governance practices and project conditions change simultaneously. Delivery performance is understood to include cost, schedule, scope, quality, and operational readiness, with attention to the intended benefits of the infrastructure.

4. REVIEW METHODOLOGY

A structured narrative review was conducted through targeted searches of scholarly publisher pages, institutional publication records, and authoritative technical guidance in October 2026. Search concepts included project governance, program governance, governance and project success, infrastructure risk allocation, decision authority, project controls maturity, Saudi construction performance, and digital project delivery. Foundational publications were retained where they clarified governance concepts or addressed mechanisms still relevant to current practice. Later studies were considered for developments in implementation and organizational maturity.

Material was included when it directly addressed governance arrangements, information reliability, performance interpretation, organizational behavior, or a relevant Saudi construction setting. Peer-reviewed research was distinguished from professional guidance. Publications about public-sector frameworks outside Saudi Arabia were used for transferable analytical questions rather than treated as local requirements. Studies of buildings or transport infrastructure were similarly interpreted with attention to differences from industrial facilities. Untraceable case claims, unsupported performance percentages, and promotional statements were excluded.

The review used a thematic source matrix covering authority, baseline and forecast integrity, contractor oversight, change and interface decisions, assurance, and organizational learning. Appraisal considered the provenance of each source, the nature of the available evidence, its methodological limitations, and the scope of any proposed transfer. Public abstracts and accessible text supported only claims visible in those materials. No exhaustive database export, independently replicated screening, or pooled statistical analysis was performed, so the study is not presented as a systematic review.

The synthesis produces a proposed operating model, two analytical tables, and an arithmetic illustration of decision accumulation. No interviews, site observations, measured implementation gains, or invented screening counts are reported. The illustration uses explicit assumptions to explain a capacity relationship and does not represent a Saudi program. The resulting contribution is conceptual and practical: it identifies testable mechanisms and the records needed to evaluate them, while leaving causal effectiveness to future field research.

5. THEMATIC FINDINGS AND ANALYSIS

5.1 Defining Governance and Controls Responsibilities

Governance establishes the conditions under which decisions are made. These conditions include approved objectives, delegated authority, investment constraints, review arrangements, and escalation obligations. Project controls support the process by maintaining comparable plans, measuring status, assessing likely outcomes, and explaining deviations. Delivery managers remain responsible for executing approved work. Clear distinctions among these functions help prevent the controls team from becoming responsible for every issue it reports without possessing the authority to resolve it.

A useful starting point is a decision register rather than an organization chart alone. The register identifies recurring decisions such as baseline approval, forecast acceptance, change authorization, interface prioritization, and handover acceptance. For each decision, it specifies the required evidence, accountable authority, consulted functions, permitted delegation, and escalation route. The register should also identify who communicates the decision to affected packages and verifies its implementation. A meeting attendance list does not provide these assurances.

The proposed framework assigns overall program purpose and funding decisions to the sponsor or an authorized governing body. Program leadership coordinates cross-package priorities. Project and package managers execute within their delegation, while controls maintain analytical integrity and assurance functions test selected evidence. These are functional responsibilities, not mandatory job titles. Their allocation should reflect the actual contractual and corporate arrangements, including any project management consultancy or integrated management team supporting the organization.

5.2 Establishing a Common Program Control Basis

Program-level oversight requires a common basis for combining package information. Work breakdown structures, cost accounts, milestones, reporting periods, and change states should be defined before aggregation. Contractors may maintain detailed internal systems, but the program needs an agreed mapping that preserves scope and timing. A common report layout does not solve incompatible definitions of installed progress, committed cost, approved change, or forecast completion.

Baseline governance should separate original authorization, approved adjustments, current control baseline, and the latest expected outcome. A forecast is a prediction, whereas a budget is an authorization. Treating an adverse forecast as unauthorized simply because it exceeds budget can suppress early warning. Conversely, recording a revised forecast does not itself authorize additional expenditure. Governance should allow both facts to be reported clearly while directing any required funding or scope decision through the appropriate authority.

Reporting dates also require governance. The physical progress cut-off, accounting period, schedule data date, and publication date are related but distinct. A certified reporting set should explain material differences between them. Historical snapshots should be retained so that management can reconstruct the information available when it approved a decision. Without this record, subsequent corrections may make an earlier intervention appear either more informed or less reasonable than it actually was.

5.3 Governing Contractor Reporting and Performance

Contractor oversight should start with requirements that can be met and verified. Reporting obligations should specify definitions, submission dates, supporting evidence, correction procedures, and the treatment of incomplete information. The organization should avoid requiring different teams to submit overlapping reports using inconsistent templates. Repeated manual reformatting increases administrative effort while creating additional opportunities for disagreement about which version is authoritative.

Progress measurement should follow the work. Engineering deliverables, procurement milestones, physical installation, and testing each require an appropriate recognition rule. Verification should examine whether reported accomplishment is supported and whether the earning method produces a realistic relationship with completion readiness. A high expenditure percentage cannot substitute for proof of installed and accepted work. Equally, a minor documentation delay should be interpreted according to its actual effect rather than automatically treated as a major physical delay.

A performance review should distinguish a reporting defect from an execution problem. Missing codes, inconsistent periods, and duplicate records require correction of the information process. Low productivity, late equipment, and unresolved engineering require delivery action. Some issues involve both. The governance process should record the distinction and assign the right owner, since repeatedly escalating a data correction to the sponsor can be as unhelpful as treating a critical execution constraint as an analyst's reporting task.

5.4 Designing Delegation and Escalation

Delegation should give managers enough authority to manage ordinary work while reserving material exposure and strategic trade-offs for higher review. The appropriate trigger can involve cost, schedule, safety, operational effect, or the crossing of a contractual boundary. A monetary threshold alone may fail to capture a low-cost decision that controls access to a critical facility. Thresholds should therefore reflect the program's actual risk and dependency structure.

Escalation also requires a time basis. A decision can be technically correct yet arrive after its useful intervention window. The decision record should identify the date by which action is needed and the consequence of delay. Where review requires missing evidence, the record should state who must provide it and whether a temporary decision is authorized. Silence should not be interpreted as approval, and an incomplete submission should not remain indefinitely in a queue without a named response owner.

Proportionate escalation depends on distinguishing reversible operational choices from irreversible commitments. The same approval sequence need not apply to both. However, streamlining should not remove independent review where it is contractually or organizationally required. The objective is to place each decision at an appropriate level with sufficient evidence, rather than maximize approval speed in isolation. Table 1 translates these principles into a set of proposed decision responsibilities and acceptance records.

Table 1: Proposed governance responsibilities and decision evidence

Decision area	Accountable function	Required evidence
Program direction	Sponsor or authorized governing body	Objectives, funding basis and intended operating benefit
Control baseline	Delegated program authority	Authorized scope, schedule and budget reconciliation
Forecast acceptance	Designated delivery authority	Remaining-work assumptions and previous-forecast bridge
Material change	Authority specified by delegation	Technical, cost, schedule and interface assessment
Interface priority	Program integration authority	Delivering and receiving obligations with required-by date
Handover acceptance	Authorized receiving function	Agreed functionality, testing and operating evidence
Assurance closure	Finding owner with reviewer verification	Evidence that the underlying deficiency was corrected

5.5 Integrating Change Control with Forecasting

Change control should establish what changed, why it changed, which scope is affected, and how consequences propagate through cost, schedule, and readiness. A commercial variation may not capture all execution effects, while a schedule update may not represent an authorized scope adjustment. Controls should maintain links among the initiating event, technical assessment, commercial status, baseline treatment, and forecast consequence so that each forum understands the state it is reviewing.

Unapproved exposure should remain visible without being confused with approved funding. A program may need to report a potential obligation before liability or entitlement is agreed. Governance should specify how this exposure enters working forecasts, risk assessments, and management reporting. Legal and commercial judgments remain with the designated functions. Reporting an exposure is an analytical act and should not inadvertently become a contractual admission or an expenditure authorization.

A change review should examine cumulative effects as well as individual requests. Several small adjustments can consume contingency, alter critical interfaces, or erode the assumptions supporting commissioning. The review should also examine whether the same impact has been included in more than one package forecast. After approval, controls should reconcile the updated position to the previous baseline and forecast, preserving the difference between scope growth and deteriorating execution performance.

5.6 Managing Cross-Package Interfaces

Interfaces are points where one package's obligation becomes another package's prerequisite. An industrial program can require an energized power supply, accepted utility connection, access route, or control-system signal before a facility can operate. A package schedule may record the external milestone without making its ownership and acceptance criteria explicit. Program governance should maintain an interface register that identifies the delivering party, receiving party, required evidence, forecast date, and unresolved conditions.

Interface decisions should be based on the integrated completion sequence. A delay that appears minor within a supplying package can control readiness of several receiving facilities. Conversely, accelerating a package may provide little program benefit if its downstream prerequisites remain unresolved. Controls should evaluate these dependencies using the integrated schedule, while program leadership decides priorities when resources or access must be shared. This connects analytical identification of a constraint with the authority needed to resolve it.

Acceptance criteria are as important as dates. A contractor can report physical completion while the receiving organization requires tested functionality, documentation, access permissions, or operating support. These differences should be resolved before the handover window. A governance arrangement that waits until completion to define acceptance encourages disputes that cannot be corrected through schedule reporting alone. Readiness should therefore be assessed progressively through evidence appropriate to each interface and system.

5.7 Applying Assurance without Duplicating Management

Assurance tests whether the information and processes supporting decisions are dependable. It should be sufficiently independent from preparation to challenge assumptions, while remaining focused on the decisions that matter. It does not replace management responsibility for the estimate or schedule. Reviewing every record at the same depth can consume resources without improving confidence in the most material

exposures. A risk-based review should identify where error would meaningfully change the decision.

Useful assurance tests include reconciliation to accounting sources, examination of schedule logic, sampling of progress evidence, and reconstruction of an approved forecast. Reviewers should also inspect whether a dashboard's aggregation preserves scope and whether historical data have been silently restated. Digital reporting makes information accessible but can distribute an error across many readers. Governance should therefore define who certifies a reporting set and how material corrections are communicated after publication.

Findings should enter a closure process with an owner and due date. A finding is not closed because a revised procedure exists; the organization should establish whether the deficiency has been corrected in the operating process. Repeated exceptions may indicate insufficient resources, contradictory requirements, or an inappropriate control design. Assurance should provide information about these causes, allowing governing roles to improve the system rather than repeatedly request the same missing evidence.

5.8 Governing Behavior Learning and Benefits

Governance operates through behavior as well as documents. When unfavorable forecasts lead to punishment regardless of their evidential basis, teams may delay reporting exposure. When every issue is escalated without analysis, senior review can become congested. Leadership should require timely disclosure and an explanation of uncertainty while maintaining accountability for the quality of the assessment. Candid reporting and rigorous challenge are compatible when decision roles are clear.

Learning should connect completed actions with subsequent outcomes. A schedule recovery decision should be reviewed against the assumptions that justified it, including resource availability, additional cost, and unresolved dependencies. If the intervention did not work, the record should preserve why. A lessons register becomes useful when its findings alter future planning, contract requirements, or review rules. Recording general observations at close-out without changing practice provides weak evidence of organizational learning.

The program should also retain a view of intended benefits. Completion of roads, utilities, and facilities is not automatically equivalent to usable industrial capacity. The relevant operating organization should participate in defining acceptance and identifying conditions necessary for use. Governance connects these requirements with funding, delivery sequencing, and handover decisions. Figure 1 presents the proposed relationship among direction, program integration, package execution, and independent assurance.

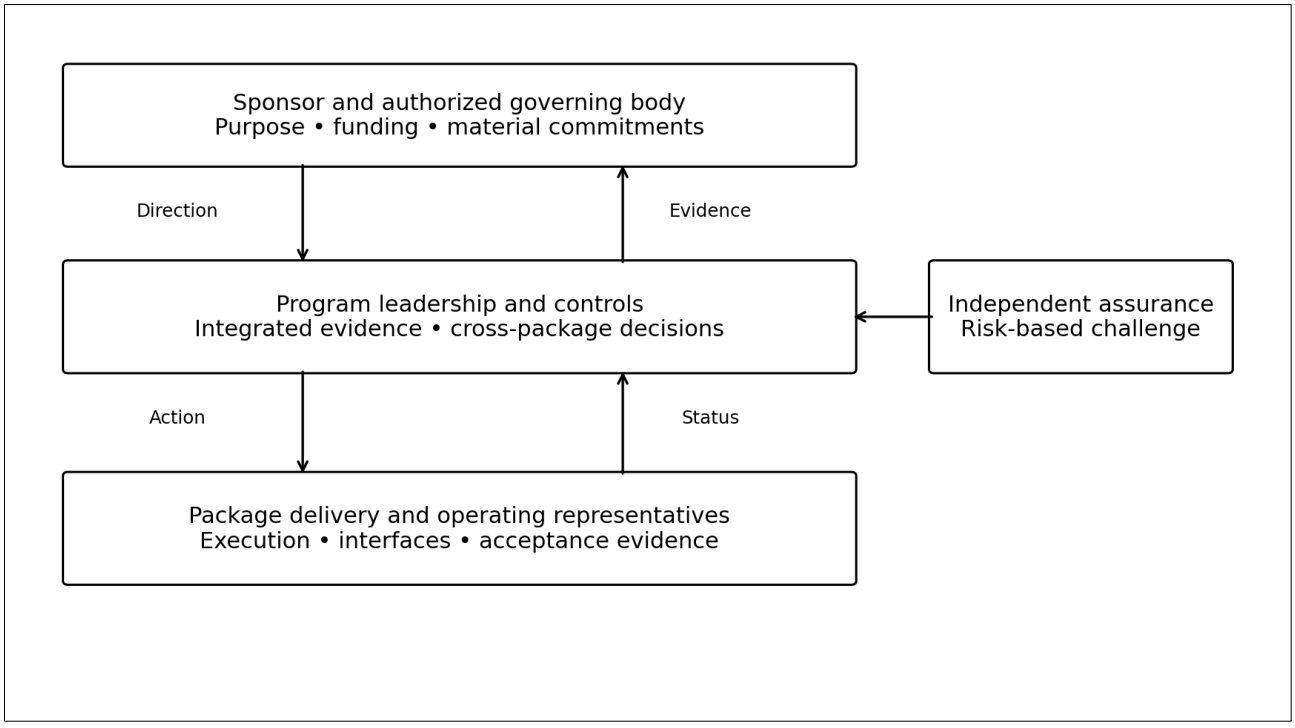


Figure 1: Proposed program controls governance architecture. Original conceptual framework; arrows indicate direction, evidence, and assurance relationships.

6. DISCUSSION AND ANALYTICAL ILLUSTRATION

The synthesis suggests that governance affects delivery through several intermediate mechanisms. Clear authority can reduce unresolved ownership; comparable information can improve interpretation; and explicit escalation can bring decisions into the period when intervention remains useful. These mechanisms are plausible but should not be mistaken for measured effects. The presence of a responsibility matrix or a reporting standard is evidence of a designed arrangement, not proof that the arrangement changes actual decisions.

A key distinction concerns control and coordination. Control establishes requirements and checks compliance, while coordination resolves dependencies among parties with different responsibilities. Industrial programs need both. Excessive attention to compliance can produce complete reporting packages while cross-package constraints remain unresolved. Conversely, informal coordination without an adequate decision record can obscure commitments and undermine accountability. The proposed model combines formal authority with a traceable process for agreeing and reviewing interventions.

An arithmetic illustration shows why decision workload matters. Assume that a review process begins with no unresolved items, receives ten comparable decisions each week, and completes eight each week. If no items are withdrawn or returned and arrival and completion rates remain constant, the unresolved total increases by two per week. After six weeks the backlog is twelve. If completion capacity instead equals the ten weekly arrivals, the assumed backlog remains zero under these simplified conditions.

Figure 2 displays this calculation. It is an instructional scenario with invented inputs, not an observation from a program or a prediction of committee performance. Real decisions differ in complexity, urgency, and evidence quality; arrival timing also varies. The illustration establishes only that a persistent imbalance between incoming work and completed decisions accumulates. Additional meetings would not necessarily solve that imbalance if the same missing information or unavailable authority prevents completion.

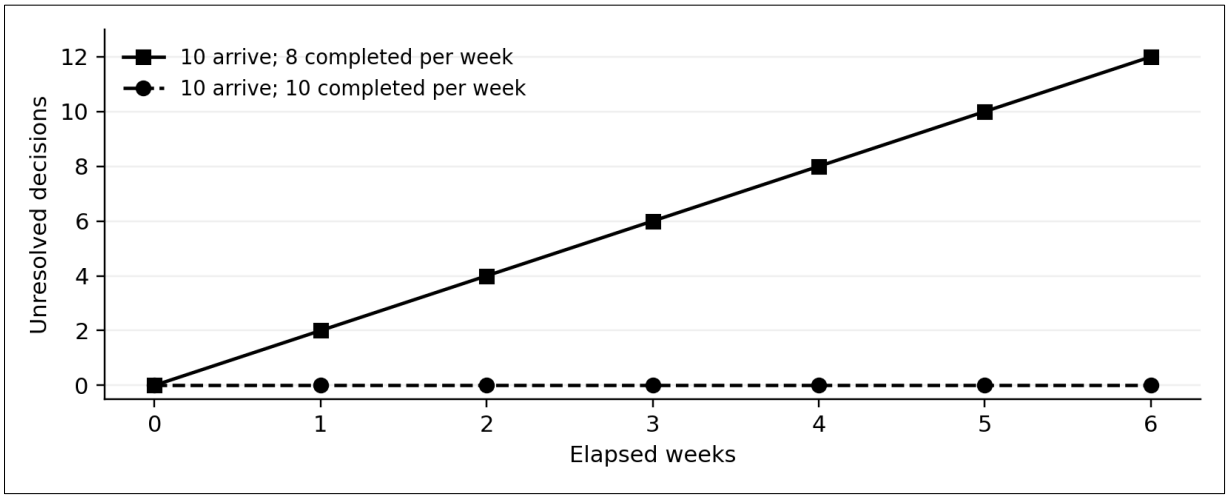


Figure 2: Illustrative accumulation of unresolved decisions. Assumed constant weekly arrivals and completions; arithmetic only, not project data

This distinction has practical implications for management reporting. Decision age should be examined alongside the reason an item remains open and its latest useful decision date. A rapidly closed administrative item and a delayed critical interface should not have equal importance simply because both count as one record. Completion statistics should also distinguish an authorized decision from rejection, deferral, withdrawal, or return for additional evidence. Otherwise, apparent throughput can improve while unresolved exposure remains unchanged.

The second concern is proportionality. More review can increase confidence but also delay the intervention being reviewed. The appropriate arrangement depends on irreversibility, exposure, dependency, and the reliability of delegated management. A mature program may authorize routine actions close to execution while retaining independent review for material commitments. A less mature package may initially require closer assurance. Governance should be adaptable, but changes in oversight should be justified and documented rather than driven by preference alone.

A third concern is evaluation. Better-governed programs may differ in leadership, resources, scope definition, or procurement strategy before the governance change is introduced. Observing improved outcomes afterward does not isolate the effect of governance. Evaluation should measure the proposed mechanisms directly and record material changes in project context. Table 2 identifies evidence that can support this analysis while distinguishing process quality from final delivery results.

Table 2: Proposed evaluation evidence for governance effectiveness

Evaluation dimension	Record or measure	Interpretation safeguard
Decision timeliness	Decision date against latest useful date	Separate urgent interfaces from routine items
Evidence quality	Rejected reports and repeated reconciliation defects	Distinguish incomplete data from adverse performance
Authority clarity	Reassignments and unresolved ownership	Verify delegation against contractual responsibility
Change integrity	Trace from event to forecast and authorization	Keep unapproved exposure distinct from funding approval
Interface readiness	Acceptance conditions met by required date	Assess usable readiness rather than physical finish alone
Assurance effectiveness	Recurrence after recorded closure	Check operating correction rather than procedure issuance
Delivery outcomes	Scope-adjusted cost, dates and operating acceptance	Record context and avoid unsupported causal attribution

7. Application to Saudi Industrial Infrastructure Programs

Application should begin with the program's contractual and operational reality. Some programs have a central delivery organization, others operate through separate package teams, and others use an integrated management arrangement. The governance design should identify which party can authorize a change, which party owns the resulting asset, and which dependencies remain outside the program's direct control. An imported template should not substitute for this assessment.

A practical implementation sequence starts with a small number of recurring decisions and their supporting information. Baseline acceptance, forecast review, material change, and critical interface resolution can provide a manageable pilot. The pilot should establish whether evidence reaches the authorized decision-maker on time, whether conflicting definitions are resolved, and whether approved actions appear in subsequent execution records. Expansion should follow demonstrated operation rather than completion of training alone.

Contractor onboarding is important because governance requirements affect everyday work. Teams need to understand the reporting calendar, earning rules, change states, escalation triggers, and evidence required for acceptance. Program leadership should also review the effort imposed by these requirements. A reporting process that demands repeated re-entry of the same information can consume the capacity needed for analysis and corrective action. Standardization should simplify coordination while preserving necessary package detail.

Saudi studies across different periods and project types support attention to planning, change, and project health, but their findings should be interpreted in context. They do not justify a current national failure rate or a guaranteed benefit from the proposed model. Each organization should establish its own starting position using actual decision records, forecast histories, reporting corrections, and interface outcomes. This allows implementation to respond to demonstrated weaknesses rather than assumptions about regional practice.

The business case should include ongoing governance costs. These can involve dedicated review capacity, data stewardship, assurance, training, and maintenance of reporting systems. Potential benefits include earlier recognition of exposure and more coherent cross-package decisions, but they require measurement. The organization should avoid treating the production of additional reports as evidence of value. An assessment should ask whether decisions became more defensible, whether interventions occurred in time, and whether the program moved toward usable operating outcomes.

8. Limitations and Future Research

The review draws on sources with different units of analysis, including organizations, individual projects, public investment frameworks, and construction programs. Its targeted retrieval and partial reliance on accessible abstracts limit

coverage. The governance model is therefore an analytical proposal rather than a comprehensive standard. The arithmetic example illustrates a capacity relationship only and supplies no estimate of how actual industrial decision processes behave.

Future research should test the framework prospectively in a defined program or a set of comparable packages. Relevant records include original submissions, revisions, decision dates, required-by dates, approval authority, action ownership, and evidence of completion. Data should distinguish between a genuine decision delay and time legitimately required to obtain essential information. A common classification would allow teams to identify whether authority, evidence, coordination, or capacity is the recurring constraint.

A stronger evaluation would combine quantitative records with interviews about how review forums actually operate. Measures could include decision timeliness, repeated reporting defects, forecast restatements, interface acceptance failures, and recurrence of unresolved assurance findings. Final cost and schedule outcomes should also be recorded with scope changes identified. Observations from the same program are not independent, and apparent associations should not be described as causal without an appropriate design.

Research should also examine unintended effects. Tighter escalation may improve visibility while discouraging local initiative; extensive assurance may increase confidence while reducing review capacity; and simplified metrics may encourage teams to close easy items first. These possibilities reinforce the need to evaluate behavior alongside formal process. Comparative work across contracting arrangements and maturity levels would help establish which governance mechanisms transfer reliably and which require substantial adaptation.

9. CONCLUSION

Project controls governance connects information with authority, intervention, and accountability. In industrial infrastructure programs, this connection requires common measurement rules, clear delegation, controlled change, explicit interface ownership, and proportionate assurance. Reliable reports are necessary, but their value depends on whether governing roles use them to resolve constraints while useful choices remain available.

The proposed framework defines a practical basis for examining that relationship in Saudi industrial infrastructure programs. It preserves the distinction between designed procedures, observed decision behavior, and final delivery outcomes. Improvement should be demonstrated through traceable records showing that information was credible, decisions were timely, and approved actions addressed the intended problem. Field evaluation is required before attributing a quantified delivery benefit to the framework.

REFERENCES

- E. G. Too and P. Weaver, “The management of project management: A conceptual framework for project governance,” International Journal of Project Management, vol. 32, no. 8, pp. 1382–1394, 2014. https://doi.org/10.1016/j.ijproman.2013.07.006
- T. Ahola, I. Ruuska, K. Artto, and J. Kujala, “What is project governance and what are its origins?,” International Journal of Project Management, vol. 32, no. 8, pp. 1321–1332, 2014. https://doi.org/10.1016/j.ijproman.2013.09.005
- R. Joslin and R. Müller, “The relationship between project governance and project success,” International Journal of Project Management, vol. 34, no. 4, pp. 613–626, 2016. https://doi.org/10.1016/j.ijproman.2016.01.008
- ul Musawir, S. B. Abd-Karim, and M. S. Mohd-Danuri, “Project governance and its role in enabling organizational strategy implementation: A systematic literature review,” International Journal of Project Management, 2020. https://doi.org/10.1016/j.ijproman.2019.09.007
- R. Müller, L. Zhai, and A. Wang, “Governance and governmentality in projects: Profiles and relationships with success,” International Journal of Project Management, vol. 35, no. 3, pp. 378–392, 2017. https://doi.org/10.1016/j.ijproman.2017.01.007
- R. Müller, L. Zhai, A. Wang, and J. Shao, “A framework for governance of projects: Governmentality, governance structure and projectification,” International Journal of Project Management, vol. 34, no. 6, pp. 957–969, 2016. https://doi.org/10.1016/j.ijproman.2016.05.002
- F. Guo, Y. Chang-Richards, S. Wilkinson, and T. C. Li, “Effects of project governance structures on the management of risks in major infrastructure projects: A comparative analysis,” International Journal of Project Management, vol. 32, no. 5, pp. 815–826, 2014. https://doi.org/10.1016/j.ijproman.2013.10.001
- G. H. Volden and B. Andersen, “The hierarchy of public project governance frameworks: An empirical study of principles and practices in Norwegian ministries and agencies,” International Journal of Managing Projects in Business, vol. 11, no. 1, pp. 174–197, 2018. https://doi.org/10.1108/IJMPB-04-2017-0040

- K. Samset and G. H. Volden, "Front-end definition of projects: Ten paradoxes and some reflections regarding project management and project governance," International Journal of Project Management, vol. 34, pp. 297–313, 2016. https://doi.org/10.1016/j.ijproman.2015.01.014
- J. Denicol, A. Davies, and I. Krystallis, "What Are the Causes and Cures of Poor Megaproject Performance? A Systematic Literature Review and Research Agenda," Project Management Journal, vol. 51, no. 3, pp. 328–345, 2020. https://doi.org/10.1177/8756972819896113
- E. S. Almahmoud, H. K. Doloi, and K. Panuwatwanich, "Linking project health to project performance indicators: Multiple case studies of construction projects in Saudi Arabia," International Journal of Project Management, vol. 30, no. 3, pp. 296–307, 2012. https://doi.org/10.1016/j.ijproman.2011.07.001
- B. Seddeeq, S. Assaf, A. Abdallah, and M. A. Hassanain, 'Time and cost overrun in the Saudi Arabian oil and gas construction industry,' Buildings, vol. 9, no. 2, article 41, 2019. https://doi.org/10.3390/buildings9020041
- S. Alshihri, K. Al-Gahtani, and A. Almohsen, 'Risk Factors That Lead to Time and Cost Overruns of Building Projects in Saudi Arabia,' Buildings, vol. 12, no. 7, article 902, 2022. https://doi.org/10.3390/buildings12070902
- S. A. Assaf and S. Al-Hejji, 'Causes of delay in large construction projects,' International Journal of Project Management, vol. 24, no. 4, pp. 349–357, 2006. https://doi.org/10.1016/j.ijproman.2005.11.010
- V. Aramali, G. E. Gibson Jr., M. El Asmar, and N. Cho, 'Earned Value Management System State of Practice: Identifying Critical Subprocesses, Challenges, and Environment Factors of a High-Performing EVMS,' Journal of Management in Engineering, vol. 37, no. 4, article 04021031, 2021. https://doi.org/10.1061/(ASCE)ME.1943-5479.0000925
- V. Aramali, H. Sanboskani, G. E. Gibson Jr., M. El Asmar, and N. Cho, 'Forward-Looking State-of-the-Art Review on Earned Value Management Systems: The Disconnect between Academia and Industry,' Journal of Management in Engineering, vol. 38, no. 3, article 03122001, 2022. https://doi.org/10.1061/(ASCE)ME.1943-5479.0001019
- V. Aramali, G. E. Gibson Jr., M. El Asmar, and H. Sanboskani, 'Novel Earned Value Management System Maturity Framework and Its Relation to Project Performance,' Journal of Construction Engineering and Management, vol. 149, no. 6, article 04023031, 2023. https://doi.org/10.1061/JCEMD4.COENG-12985
- J. Whyte, "How Digital Information Transforms Project Delivery Models," Project Management Journal, vol. 50, no. 2, pp. 177–194, 2019. https://doi.org/10.1177/8756972818823304
- U.S. Government Accountability Office, Cost Estimating and Assessment Guide: Best Practices for Developing and Managing Program Costs, GAO-20-195G, 2020. https://www.gao.gov/products/gao-20-195g
- U.S. Government Accountability Office, GAO Schedule Assessment Guide: Best Practices for Project Schedules, GAO-16-89G, 2015. https://www.gao.gov/products/gao-16-89g
- ul Musawir, C. E. M. Serra, O. Zwikael, and I. Ali, "Project governance, benefit management, and project success: Towards a framework for supporting organizational strategy implementation," International Journal of Project Management, 2017. https://doi.org/10.1016/j.ijproman.2017.07.007
- P. Svejvig and P. Andersen, "Rethinking project management: A structured literature review with a critical look at the brave new world," International Journal of Project Management, vol. 33, no. 2, pp. 278–290, 2015. https://www.sciencedirect.com/science/article/abs/pii/S0263786314001008
- O. Olanipekun and M. Sutrisna, "Facilitating Digital Transformation in Construction—A Systematic Review of the Current State of the Art," Frontiers in Built Environment, vol. 7, article 660758, 2021. https://doi.org/10.3389/fbuil.2021.660758
- T. D. Oesterreich and F. Teuteberg, "Understanding the implications of digitisation and automation in the context of Industry 4.0: A triangulation approach and elements of a research agenda for the construction industry," Computers in Industry, vol. 83, pp. 121–139, 2016. https://doi.org/10.1016/j.compind.2016.09.006
- Flyvbjerg, "What You Should Know about Megaprojects and Why: An Overview," Project Management Journal, vol. 45, no. 2, pp. 6–19, 2014. https://doi.org/10.1002/pmj.21409.