

# Integrated Regional Development Planning for Tourism Megaprojects in Saudi Arabia: Coordinating Infrastructure, Utilities, Stakeholders and Project Delivery to Advance Vision 2030

WAQAS MOHAMMAD

*Abstract- Saudi Arabia's tourism megaprojects are intended to do more than create isolated visitor destinations. They are expected to reshape regional economies, extend infrastructure networks, protect sensitive landscapes and heritage, mobilise private investment, and generate employment consistent with Vision 2030. These ambitions create a planning problem that is regional rather than site bounded: airports, roads, water, energy, cooling, waste systems, digital networks, housing, logistics and environmental limits interact across multiple projects and jurisdictions. This review synthesises thirty DOI-verified studies published from 2020 to 2025 to examine how those interdependencies can be governed and delivered. A structured critical integrative review was used to connect Saudi tourism and urban-development evidence with transferable research on megaproject governance, stakeholder coordination, project controls and delivery models. The synthesis identifies four recurring weaknesses: planning packages that optimise local assets without testing regional capacity, late resolution of utility and interface dependencies, fragmented decision rights among public and private actors, and project controls that measure package progress more readily than regional benefit. In response, the paper proposes an integrated regional development planning framework built around common demand assumptions, carrying-capacity envelopes, corridor and utility strategies, explicit interface ownership, lifecycle stage gates, shared data and benefit indicators. The framework shifts the unit of planning from the individual megaproject to the connected destination region.*

**Keywords:** Saudi Arabia; Vision 2030; tourism megaprojects; regional development; infrastructure planning; utilities; stakeholder governance; project delivery; interface management; sustainable tourism

## I. INTRODUCTION

Tourism has become a prominent instrument of economic diversification in Saudi Arabia, with large

destination programmes in the Red Sea and AIUla illustrating a move from conventional attraction development towards territorial transformation. Research on the Red Sea has shown that tourism development can be planned alongside conservation when spatial decisions are explicitly tested against ecological outcomes, while comparative work on AIUla and coastal giga-projects emphasises destination design, heritage, landscape and sustainability as connected components of development [1,3]. Tourism-sector evidence also links long-run tourism growth to environmental performance, confirming that growth cannot be treated independently from resource and emissions choices [2]. More recent studies of AIUla add the local-enterprise and community dimensions: tourism development changes land use, entrepreneurship, cultural production and resident relationships with place [4-6]. These findings suggest that a tourism megaproject is not simply a collection of hotels and attractions. It is a regional development system whose performance depends on the capacity and sequencing of many other systems.

The planning challenge becomes more difficult because Saudi megaprojects are delivered at exceptional scale and speed. Urban evidence from Jeddah and Riyadh repeatedly identifies infrastructure adequacy, governance alignment, environmental quality, mobility and quality of life as interdependent rather than separable issues [7-15]. Saudi construction research similarly reports that disconnected pre-construction activities, unavailable infrastructure and utilities, weak controls and change orders can erode time, cost and occupancy outcomes [16-18]. International megaproject scholarship explains why these problems persist: governance objectives

compete, stakeholder concerns change across the lifecycle, contractual mechanisms interact with collaborative behaviour, and front-end uncertainty can be amplified when responsibilities and interfaces are not stabilised early [19-28]. Consequently, the decisive question is not whether each asset can be designed efficiently. It is whether the regional portfolio can be planned so that transport, utilities, ecosystems, communities, operators and construction packages mature together.

Existing literature provides useful components but remains fragmented across tourism, urban planning, sustainability and project management. Tourism studies often concentrate on destination attractiveness, visitor behaviour or conservation; urban studies examine city-level sustainability; project-management studies concentrate on governance and delivery performance. Fewer studies connect these perspectives at the regional scale where tourism megaprojects simultaneously create demand for infrastructure, alter settlement patterns, compete for utility capacity, influence ecological carrying capacity and generate interfaces among multiple owners. This review addresses that gap by treating integrated regional development planning as the mechanism that translates a national tourism ambition into coordinated spatial, infrastructure and delivery decisions.

## II. AIM AND OBJECTIVES

The aim of this review is to develop an integrated regional development planning framework for tourism megaprojects in Saudi Arabia that links spatial planning, infrastructure and utility capacity, stakeholder governance and project delivery to Vision 2030 outcomes. Five objectives guide the synthesis: first, to consolidate 2020-2025 evidence on Saudi tourism megaprojects and related urban transformation; second, to identify interdependencies among mobility, water, energy, cooling, waste, digital systems and environmental capacity; third, to examine how decision rights and stakeholder relationships affect cross-project coordination; fourth, to evaluate front-end planning, interface control, procurement and project-control mechanisms that reduce fragmentation and rework; and fifth, to propose stage gates and performance indicators through which regional

benefits can be governed throughout delivery and operation. Unlike studies that compare cities or assess a single sustainability dimension, the review focuses on the interfaces between systems and on the timing of decisions that determine whether regional value can actually be realised.

## III. REVIEW METHODOLOGY

A structured critical integrative review was adopted because the research question requires synthesis across disciplines rather than aggregation of one homogeneous method or outcome. The evidence window was restricted to 2020-2025 so that the review reflects the contemporary phase of Saudi tourism and infrastructure transformation. Searches and citation checks focused on combinations of Saudi Arabia, tourism, giga-project, megaproject, regional planning, infrastructure, utilities, sustainable destination, stakeholder governance, project governance, project controls, construction delivery, mobility and urban sustainability. The final evidence set contains thirty English-language scholarly publications with resolvable DOI records. Priority was given to studies that either examine Saudi tourism and urban development directly or provide transferable evidence on governance, stakeholder dynamics, front-end uncertainty and megaproject delivery. Pre-2020 publications, duplicate records, non-scholarly commentary and sources without a verifiable DOI were excluded from the core set.

The review was analytical rather than merely descriptive. Each source was coded against six domains: regional and spatial development; tourism, heritage and community value; transport and access; utilities and environmental capacity; governance and stakeholder coordination; and project delivery and controls. Evidence was then compared for causal mechanisms and implementation implications. For example, a study describing unavailable utilities as a cause of delayed occupancy was coded not only as a construction problem but also as evidence of a front-end regional capacity failure [16]. Likewise, work on marine spatial planning was interpreted as evidence that ecological constraints can be converted into explicit development envelopes before detailed design [1]. Megaproject governance studies were used to

examine decision rights, accountability and stakeholder behaviour rather than to import institutional arrangements uncritically into Saudi Arabia [19-24]. This approach preserves contextual differences while extracting mechanisms that are relevant to complex destination programmes.

The synthesis deliberately avoids inventing a single numerical maturity score because the reviewed studies use different units, methods and performance measures. Instead, convergence was assessed through repeated themes and through the relationship between planning choices and delivery consequences. The resulting framework is therefore a theory-informed review output, not an empirical claim that every Saudi tourism project exhibits the same weaknesses. The quality test for inclusion was relevance to the defined mechanisms, publication within the date window and DOI validity.

#### IV. TOURISM MEGAPROJECTS AS REGIONAL DEVELOPMENT SYSTEMS

Tourism megaprojects should be understood as regional systems because their demand and impact extend well beyond the red line of a development parcel. A resort cluster creates passenger flows through airports and roads; it alters freight movements during construction and operation; it requires reliable water, power, cooling, telecommunications and waste services; it induces workforce housing and service-sector activity; and it changes the economic value of surrounding land. The Red Sea literature demonstrates the importance of embedding development within spatial conservation logic, while AlUla research shows that heritage, local enterprise and resident attachment affect the legitimacy and durability of tourism-led change [1,3-6]. These are regional questions because ecological areas, communities and supply networks do not align neatly with individual project packages. Planning that stops at project boundaries can therefore transfer costs or risks to neighbouring systems.

The same systems perspective is visible in Saudi urban research. Jeddah studies emphasise that waterfront development, mobility, governance, land use, environmental performance and infrastructure must be coordinated to achieve sustainable outcomes [7-10]. National and small-city studies similarly warn that urban strategy must connect governance capacity with locally differentiated development conditions [12,15]. Riyadh's megaproject experience illustrates how large investments can act as catalysts for quality-of-life improvements but also highlights the need to connect flagship interventions with everyday neighbourhood outcomes [13]. These findings matter for tourism regions because a destination may perform well inside its controlled precinct while producing congestion, housing pressure, infrastructure stress or uneven economic gains outside it. Regional planning must therefore assess both destination performance and distributional effects.

A practical implication is that the planning unit should be a functional destination region rather than an administrative boundary or a single project. The functional region includes origin and gateway infrastructure, employee catchments, construction logistics routes, utility production and treatment locations, ecological systems, cultural landscapes and supplier networks. This wider geography enables cumulative demand to be tested. If several tourism clusters open within similar periods, peak electricity, water, road, airport or waste demand may exceed assumptions prepared project by project. Conversely, shared regional infrastructure can produce scale economies when phasing is coordinated. The purpose is not to centralise every design decision. It is to identify the decisions whose consequences cross project boundaries and therefore require a common planning basis.

Table 1. Evidence themes and regional planning implications.

| Planning domain              | Evidence synthesis                                                                      | Regional planning implication                                                                     |
|------------------------------|-----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| Spatial / destination system | Tourism, heritage, settlement and ecological outcomes cross project boundaries [1,3-6]. | Define a functional destination region and cumulative development envelope before package design. |

| Planning domain             | Evidence synthesis                                                                                        | Regional planning implication                                                                           |
|-----------------------------|-----------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| Mobility and access         | Gateway capacity, multimodal access and land-use choices interact [7,9,13].                               | Model visitor, workforce, freight and construction flows; reserve shared corridors early.               |
| Utilities and resources     | Water, energy, waste and servicing constraints can delay occupancy and weaken sustainability [8,10,16].   | Use common demand scenarios, capacity reservations, connection dates and resilience criteria.           |
| Governance and stakeholders | Decision rights, accountability and stakeholder concerns evolve through the lifecycle [19-24].            | Maintain a lifecycle stakeholder architecture and explicit cross-project decision ownership.            |
| Delivery and controls       | Front-end uncertainty, change, controls and delivery-model alignment influence performance [17,18,26-28]. | Control integrated readiness, interface ageing and regional change impacts, not package progress alone. |
| Benefits and sustainability | Environmental, community and economic outcomes require multidimensional assessment [2,6,30].              | Track regional benefits and thresholds from planning through operation.                                 |

## V. COORDINATING INFRASTRUCTURE AND UTILITIES

Infrastructure and utility coordination is the most tangible expression of regional interdependence. Saudi project-delivery evidence shows that unavailable infrastructure and utilities can delay inspection, occupancy and benefit realisation even when buildings are substantially complete [16]. Urban sustainability studies also show that transport, water, sanitation, energy, waste and land-use performance interact in rapidly developing Saudi cities [8-10,14]. For tourism megaprojects, capacity planning should therefore begin with a single regional demand model rather than separate assumptions for each asset. Visitor peaks, employee populations, construction camps, irrigation, district cooling, mobility demand and emergency requirements should be expressed through common scenarios. The objective is to reveal simultaneous peaks, resilience requirements and phasing dependencies before procurement commitments lock in incompatible capacities.

Water illustrates why a regional model is necessary. Luxury tourism can create intensive potable-water, landscape and cooling demand in arid environments, while wastewater treatment and reuse affect ecological protection and operating cost. A project that optimises its own desalination or treatment system may still duplicate regional assets, constrain future phases or produce inefficient brine, energy and network

arrangements. Energy decisions are similarly coupled to cooling, water production, electric mobility and digital infrastructure. Waste systems depend on service routes, collection frequencies, recovery markets and seasonal occupancy. These links should be captured through resource balances that show source, network, storage, treatment, redundancy and end use for every major utility. The relevant question at an early gate is not whether a utility concept exists, but whether regional capacity, corridor access, connection responsibility and commissioning sequence are secured.

Mobility requires the same integration across scales. Jeddah research points to the limits of fragmented transport systems and the benefits of combining intelligent and sustainable mobility measures [7,9]. Tourism regions add airport transfers, visitor circulation, employee commuting, coach operations, event surges, freight and construction logistics. These flows compete for road space and may require different service standards. A corridor strategy should therefore distinguish permanent visitor mobility from temporary construction logistics, protect rights of way early, and align transport openings with destination phasing. Where regional transit or shared mobility is planned, land-use density and first-last-mile access must support it; otherwise expensive infrastructure may coexist with continued private-vehicle dependence. The same corridor planning should reserve space for utility networks and digital

connectivity, reducing later excavation, route conflict and change.

Digital infrastructure provides an opportunity to integrate these systems rather than simply automate them. Saudi smart-city research identifies digital twins and advanced data platforms as tools for energy optimisation, infrastructure management and scenario testing [11]. At regional level, the more important principle is a common information environment: agreed demand assumptions, geospatial constraints, asset interfaces, approval status, change records and

performance data should be visible to authorised actors through controlled information structures. Digital representation does not compensate for weak governance, but it can make interface dependencies explicit and reduce the persistence of contradictory baselines. Figure 1 summarises the architecture proposed by this review: the tourism megaproject is positioned within a network of regional land, mobility, utilities, communities, digital information and delivery governance, with two-way dependencies rather than a one-directional supply relationship.

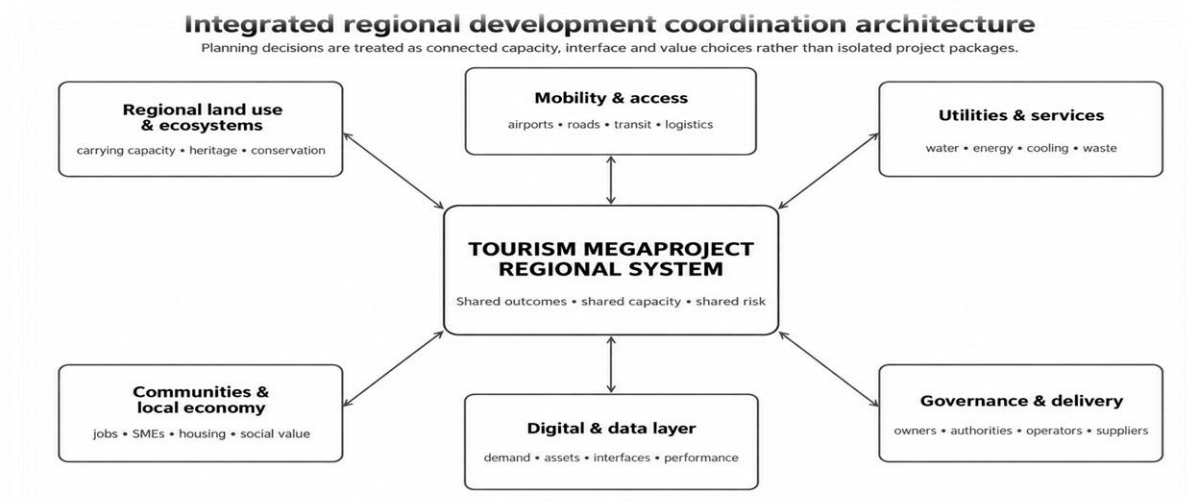


Figure 1. Integrated regional development coordination architecture proposed by this review.

## VI. STAKEHOLDER AND INSTITUTIONAL COORDINATION

Stakeholder coordination is often described as engagement, yet megaproject evidence shows that the deeper issue is governance: who has authority to decide, who carries risk, who supplies information, and how competing objectives are reconciled. Governance frameworks can create tensions among efficiency, accountability and legitimacy, particularly when programmes must move quickly while remaining responsive to public and institutional interests [20]. Public infrastructure research also shows that project governance improves performance partly through effective stakeholder management [19]. For tourism regions, this means consultation alone is insufficient. A planning framework needs a map of decision rights across ministries, regional and

municipal authorities, destination developers, utility providers, transport bodies, environmental and heritage authorities, operators, contractors, investors and affected communities.

Stakeholder relationships also evolve. Longitudinal megaproject studies demonstrate that public concerns and conflicts change between planning, construction and handover, and that different stakeholder groups become critical at different moments [22,23]. A static stakeholder register prepared at project initiation is therefore inadequate. Tourism programmes should maintain a lifecycle stakeholder architecture linked to specific interfaces and gates. For example, environmental authorities may hold decisive influence over early carrying-capacity and corridor choices, utilities become central during capacity reservation and connection design, operators become increasingly

important before design freeze and commissioning, and communities may experience different concerns as employment, access, land use and construction impacts change. Governance must follow those changing dependencies.

Contractual governance is necessary but not sufficient. Research on sustainable megaproject delivery indicates that formal contracts interact with collaborative citizenship behaviours and that both can influence sustainability outcomes [21]. Organisational research likewise frames megaproject governance as a network problem rather than a conventional bilateral client-contractor relationship [24]. The implication for Saudi tourism portfolios is to define cross-package obligations that contracts alone may otherwise leave between parties. An interface agreement should identify the providing party, receiving party, technical requirement, information date, decision date, physical access condition, testing responsibility and consequence of delay. Where several developers depend on a regional utility or transport asset, the same discipline should apply at programme level through service agreements and shared readiness milestones. Community value should be embedded in the governance model rather than appended as a communications theme. Studies of AIUla show that tourism can stimulate entrepreneurship and that resident attachment is related to support for greener tourism development [4,6]. Regional planning should therefore identify local business opportunities, skills pipelines, cultural-heritage responsibilities, public access and housing implications alongside capital assets. These outcomes require owners and indicators. A road opening is not in itself a regional benefit if it bypasses local economic participation or undermines valued landscapes. Conversely, local procurement and workforce targets are difficult to sustain if training, housing, mobility and supplier capacity are not planned early. Governance becomes stronger when social value is translated into deliverable interfaces and measurable commitments.

## VII. PROJECT DELIVERY, INTERFACE MANAGEMENT AND CONTROLS

Project delivery determines whether integrated plans survive contact with schedule, procurement and

construction pressure. Saudi evidence identifies recurring problems in pre-construction coordination, project controls and change management [16-18]. These issues are particularly serious in tourism megaprojects because multiple packages may be accelerated simultaneously to meet destination opening dates. If hotel construction, roads, utilities, public realm, digital systems and operator fit-out are controlled through separate schedules, each package can report acceptable progress while the destination remains unable to open. The appropriate control object is therefore the integrated readiness milestone: a facility is only ready when access, permanent utilities, life-safety systems, data, approvals, testing, staffing interfaces and surrounding public realm are collectively ready.

Front-end definition is critical because uncertainty is cheapest to resolve before irreversible commitments. Comparative megaproject research shows that delivery-model performance depends on early selection, internal consistency among contractual elements, collaborative organisation and the management of front-end uncertainty [27]. Governance studies of project owners similarly identify risks associated with inaccessible competence, unsystematic risk and inappropriate reporting [26]. For a tourism region, front-end planning should explicitly freeze a small set of regional baselines before detailed packages advance: development quantum and phasing, environmental and heritage constraints, gateway capacities, utility demand envelopes, corridor reservations, owner-operator requirements and major interface responsibilities. Design development can remain flexible within those envelopes, but changes to the baselines should trigger regional impact assessment.

Controls must also distinguish change from discovery. Change orders in Saudi public projects can create cascading effects across cost and schedule [18]. In a megaproject portfolio, a late alteration to one asset may additionally affect network capacity, procurement sequences and opening logic elsewhere. A regional change process should therefore ask four questions before approval: what cross-project interfaces are affected; whether utility or corridor capacity changes; whether another package's design or

procurement must be revised; and whether the change alters the benefits case or operating model. This is more demanding than a package-level cost assessment, but it reduces the risk that local optimisation produces programme-wide rework. Shared interface registers and integrated schedule logic make those consequences visible.

Lean and production-oriented practices can strengthen execution when adapted to megaproject conditions. Recent review evidence connects lean approaches with collaboration, risk management, supply-chain optimisation, information flow and advanced planning technologies [28]. The relevance to tourism delivery is not simply waste reduction. It is the creation of reliable handoffs across design, manufacturing, logistics, installation and commissioning. Constraint removal should therefore include external approvals, temporary and permanent utility availability, access roads, material logistics, operator decisions and information dependencies. The project-control system should measure the age of unresolved interfaces, decision lead time, readiness of predecessor systems and forecast confidence, not only earned progress. This gives management an early warning of integration risk.

#### VIII. INTEGRATED REGIONAL DEVELOPMENT PLANNING FRAMEWORK

The integrated framework proposed in this review combines regional system planning with lifecycle stage gates. At Gate 1, strategic framing translates Vision 2030 ambitions into regional outcomes: visitor economy, employment, conservation, accessibility, local enterprise and fiscal or investment objectives. At Gate 2, planners establish environmental carrying capacity, settlement logic, gateway capacity, transport corridors and utility envelopes. Gate 3 converts those envelopes into an integrated definition baseline containing demand scenarios, phasing, service standards, major interfaces and responsible owners. Gate 4 confirms cross-package design readiness before commitments become difficult to reverse. Gates 5 and 6 govern delivery and commissioning against destination-level readiness rather than isolated package completion. Gate 7 uses operational data to

refine later phases and future regional investment. Figure 2 illustrates this lifecycle logic.

The stage gates should operate as evidence-based hold points, not ceremonial approvals. Each gate requires a defined decision, accountable authority, minimum information set and consequence if evidence is incomplete. For example, an infrastructure capacity gate should not pass because a utility provider has been consulted; it should demonstrate reserved capacity, approved connection points, network phasing, land or corridor access, funding responsibility and commissioning dates compatible with destination opening. Similarly, a design-freeze gate should verify that operator requirements, authority approvals and external interfaces are sufficiently mature to prevent foreseeable redesign. This approach creates disciplined flexibility: teams may accelerate within approved parameters, but unresolved regional dependencies cannot be hidden inside optimistic package schedules.

Performance indicators must mirror the framework. Conventional cost, time, quality and safety measures remain essential, but they do not reveal whether regional development is becoming more integrated. Additional leading indicators should include percentage of critical interfaces with named owners; average age of unresolved cross-package decisions; utility capacity secured versus phased demand; proportion of corridor land protected; readiness variance between destination assets and enabling infrastructure; approval lead-time trend; local supplier and workforce readiness; environmental threshold compliance; and benefits forecast confidence. Operational indicators should include visitor mobility mode share, water reuse, energy intensity, waste recovery, local economic participation, resident access and ecological condition where relevant. Sharifi's review of urban sustainability assessment reinforces the need for multidimensional indicators rather than reliance on environmental measures alone [30].

The framework also clarifies portfolio governance. Not every issue belongs at the highest level. Project teams should retain authority over decisions that do not materially affect regional baselines, while a regional integration board should govern cumulative

demand, shared corridors, major utility capacities, cross-project opening logic and material changes to benefits or environmental limits. This separation prevents central governance from becoming a bottleneck while preserving control over decisions with externalities. A technical integration office can maintain the common data baseline and interface

register, but ownership of each decision must remain with a named executive or statutory authority. Governance is effective when information, authority and accountability converge at the same decision point.

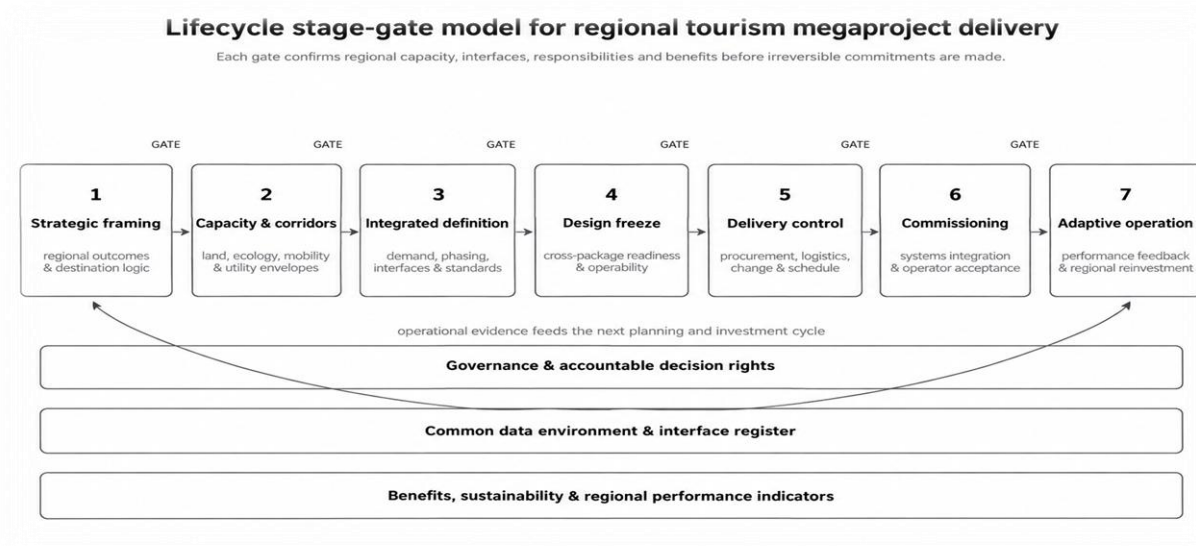


Figure 2. Lifecycle stage-gate model linking regional planning, delivery and operational feedback.

Table 2. Integrated implementation matrix for regional stage gates.

| Lifecycle stage         | Required regional decision                                                          | Lead actors                                   | Evidence / hold point                                                        | Illustrative indicators                    |
|-------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------|------------------------------------------------------------------------------|--------------------------------------------|
| 1 Strategic framing     | Agree destination-region outcomes and benefit logic.                                | National / regional sponsors; developers      | Approved outcomes map and benefits owners.                                   | Benefit ownership; baseline completeness   |
| 2 Capacity & corridors  | Set ecological limits, gateway capacity, utility envelopes and protected corridors. | Planning, environment, transport, utilities   | Capacity evidence and spatial reservations secured.                          | Capacity margin; corridor protection       |
| 3 Integrated definition | Freeze demand scenarios, phasing, service standards and major interfaces.           | Integration office; owners; operators         | Common baseline and interface register approved.                             | Critical interfaces owned; demand variance |
| 4 Design freeze         | Confirm cross-package operability and authority / operator readiness.               | Developers; designers; operators; authorities | No unresolved high-impact external dependency without executive disposition. | Decision age; approval lead time           |
| 5 Delivery control      | Manage procurement, logistics, change and integrated schedule logic.                | Programme controls; contractors; suppliers    | Changes assessed for regional capacity and opening effects.                  | Readiness variance; change propagation     |

| Lifecycle stage      | Required regional decision                                                        | Lead actors                                   | Evidence / hold point                                | Illustrative indicators                                |
|----------------------|-----------------------------------------------------------------------------------|-----------------------------------------------|------------------------------------------------------|--------------------------------------------------------|
| 6 Commissioning      | Verify systems integration, access, utilities, approvals and operator acceptance. | Commissioning authority; operators; utilities | Destination-level integrated readiness demonstrated. | System pass rate; opening confidence                   |
| 7 Adaptive operation | Compare actual demand, resource use and benefits with planning assumptions.       | Operators; regional authorities; asset owners | Operational evidence informs next phases.            | Mode share; water reuse; energy intensity; local value |

## IX. DISCUSSION

The synthesis changes how success should be interpreted. Tourism megaprojects are commonly judged through destination opening, visitor numbers, investment value and asset quality. Those measures are important, but regional development can fail even when individual destinations succeed commercially. Congested gateways, duplicated utilities, stranded capacity, ecological pressure, housing imbalance or weak local economic linkages can shift costs outside project boundaries. The reviewed Saudi literature repeatedly points toward integration as the missing bridge between ambition and sustainable implementation [7-16]. International megaproject research reaches a similar conclusion from a delivery perspective: governance and uncertainty must be managed across organisational interfaces throughout the lifecycle [19-28]. The common mechanism is interdependence.

A second implication concerns speed. Accelerated delivery is not inherently inconsistent with integration; the risk arises when acceleration is achieved by postponing interface decisions. Early regional baselines can increase speed because they reduce repeated negotiation over corridors, utility standards, capacity assumptions and responsibilities. Conversely, starting physical packages while gateway capacity, permanent utilities or operator requirements remain uncertain can create apparent schedule gains followed by redesign and commissioning delay. Reichenbach and Fleischer describe institutionalisation as a key barrier between transition ambition and implementation in mobility systems [29]. Tourism megaprojects face an analogous challenge: strategic ambition becomes durable only when new

coordination practices are embedded in routine approvals, contracts, data structures and decision rights.

A third implication is that sustainability should be operationalised as constraints and choices, not only aspirations. Marine spatial planning for the Red Sea demonstrates how conservation objectives can shape development zoning before build-out [1]. Regional planning can generalise that principle by converting ecological thresholds, heritage protection, water availability, mobility targets and social-value objectives into design envelopes and gate criteria. This makes trade-offs visible. If a proposed phase exceeds regional water capacity or introduces traffic beyond an agreed threshold, the response may involve phasing, demand management, additional infrastructure or a change in development quantum. The framework does not predetermine the answer; it ensures that the trade-off is made explicitly at the right scale.

Finally, the framework helps reconcile central strategic leadership with local responsiveness. Saudi transformation benefits from the ability to mobilise institutions and capital at scale, yet place-specific evidence from AlUla and Jeddah shows that heritage, community, mobility and environmental conditions require local adaptation [4-10]. Regional governance should therefore combine a stable national outcomes framework with locally specific capacity limits, stakeholder arrangements and delivery sequences. The objective is neither to copy a generic international megaproject model nor to treat every destination as unique. It is to use transferable governance mechanisms while grounding capacity, value and environmental decisions in the characteristics of the Saudi region concerned.

X. POLICY AND MANAGERIAL  
IMPLICATIONS

For policy makers, the principal recommendation is to require an integrated regional development baseline before major tourism phases receive full delivery commitment. That baseline should be spatially explicit and should combine land use, environmental constraints, transport, utility capacity, community implications, phasing and benefits. Where several developers or public entities operate within one functional region, a single authoritative set of demand assumptions and corridor reservations should be maintained. Approvals should reference that baseline so that cumulative impacts are not assessed repeatedly through disconnected project submissions. National and regional authorities can also standardise the minimum evidence required at stage gates while allowing technical solutions to vary by destination.

For owners and programme leaders, governance should be organised around interfaces and readiness. A regional integration board, supported by a technical integration office, should focus on the limited set of decisions that cross ownership or project boundaries. Integrated schedules should link commercial opening milestones to enabling infrastructure and commissioning logic. Procurement strategies should allocate interface responsibilities explicitly and require data compatibility across major suppliers. Project controls should report decision latency, capacity risk and readiness variance alongside cost and schedule. This strengthens management attention on the conditions that create destination opening rather than on package progress in isolation.

For operators, utilities and community-facing organisations, earlier participation is essential. Operator requirements affect servicing, logistics, energy, digital platforms, back-of-house movement and commissioning; utility providers need reliable demand and phasing data before connections can be secured; communities and local businesses need time to build skills and supply capacity. Bringing these actors into front-end definition reduces the likelihood that late operational realities overturn design assumptions. The benefit is not simply fewer changes.

XI. LIMITATIONS AND FUTURE RESEARCH

This review has three limitations. First, it synthesises published scholarship and therefore cannot observe confidential programme baselines, current commercial interfaces or unpublished performance data from Saudi giga-projects. Second, the evidence base intentionally combines Saudi-specific tourism and urban studies with international megaproject research. The transferable mechanisms are useful, but governance arrangements should be validated against Saudi institutional responsibilities before implementation. Third, the 2020-2025 window captures the contemporary transformation period but limits historical comparison. Future research should test the proposed framework empirically across two or more tourism regions, measure whether stage-gate maturity predicts schedule and commissioning performance, and examine how regional utility capacity and visitor demand evolve after opening. Longitudinal studies could also evaluate whether local enterprise, workforce, environmental and mobility outcomes track the benefits cases established during planning.

XII. CONCLUSION

Saudi Arabia's tourism megaprojects can advance Vision 2030 most effectively when they are governed as regional development systems rather than isolated construction programmes. The evidence reviewed here shows that destination quality, ecological protection, mobility, utilities, community value and delivery performance depend on decisions that cross project boundaries. The resulting framework places those interdependencies at the centre of planning. It begins with common regional outcomes and carrying-capacity envelopes, converts them into coordinated corridors and utility capacities, assigns decision and interface ownership, and uses lifecycle gates to prevent unresolved dependencies from being carried into increasingly expensive stages. During delivery, integrated readiness and change control protect opening logic; during operation, performance data feeds the next investment cycle. The central proposition is straightforward: the unit of optimisation should be the connected destination region. When common capacity, shared infrastructure, stakeholder

responsibilities and benefits are made visible early, speed and ambition can be supported by stronger delivery certainty rather than undermined by fragmentation. This approach offers a defensible pathway for turning tourism megaproject investment into durable regional value, resilient infrastructure and measurable social, environmental and economic outcomes.

## REFERENCES

- [1] V. I. Chalastani, P. Manetos, A. M. Al-Suwailem, J. A. Hale, A. P. Vijayan, J. Pagano, I. Williamson, S. D. Henshaw, R. Albaset, F. Butt, R. E. Brainard, H. Coccossis, V. K. Tsoukala, and C. M. Duarte, "Reconciling Tourism Development and Conservation Outcomes Through Marine Spatial Planning for a Saudi Giga-Project in the Red Sea (The Red Sea Project, Vision 2030)," *Frontiers in Marine Science*, vol. 7, Art. no. 168, 2020, doi: 10.3389/fmars.2020.00168. [Frontiers](#)
- [2] Iswan, A. Khan, F. K. A. Kadir, M. K. Jabor, S. N. M. Anis, and K. Zaman, "Saudi Arabia's sustainable tourism development model: New empirical insights," *International Social Science Journal*, vol. 71, pp. 109–124, 2021, doi: 10.1111/issj.12261. [Wiley](#)
- [3] L. D. Filippi and S. Mazzetto, "Comparing AIUla and The Red Sea Saudi Arabia's Giga Projects on Tourism towards a Sustainable Change in Destination Development," *Sustainability*, vol. 16, Art. no. 2117, 2024, doi: 10.3390/su16052117. [MDPI](#)
- [4] G. W. Alharthi, "Tourism and Cultural Entrepreneurship in Saudi Arabia: The Case of Family Businesses in AIUla," *Journal of Arabian Studies*, vol. 14, pp. 28–49, 2025, doi: 10.1080/21534764.2025.2452500. [Taylor & Francis](#)
- [5] M. B. Abid, A. Elawady, and R. Shamim, "Exploring AIUla, Saudi Arabia: a journey through history, heritage, resources, and tourism," *GeoJournal*, vol. 90, Art. no. 172, 2025, doi: 10.1007/s10708-025-11423-4. [Springer](#)
- [6] I. A. Elshaer, M. Alyahya, A. M. S. Azazz, and S. Fayyad, "Community Attachment to AIUla Heritage Site and Tourists' Green Consumption: The Role of Support for Green Tourism Development," *Heritage*, vol. 7, pp. 2651–2667, 2024, doi: 10.3390/heritage7060126. [MDPI](#)
- [7] S. K. Zaki and I. R. Hegazy, "Investigating the challenges and opportunities for sustainable waterfront development in Jeddah City," *International Journal of Low-Carbon Technologies*, vol. 18, pp. 809–819, 2023, doi: 10.1093/ijlct/ctad062. [Oxford Academic](#)
- [8] H. Alhubashi, M. Alamoudi, A. Imam, A. Abed, and I. Hegazy, "Jeddah strategic approaches to sustainable urban development and vision 2030 alignment," *International Journal of Low-Carbon Technologies*, vol. 19, pp. 1098–1111, 2024, doi: 10.1093/ijlct/ctae055. [Oxford Academic](#)
- [9] M. Alamoudi, A. Imam, A. Majrashi, O. Osra, and I. Hegazy, "Integrating intelligent and sustainable transportation systems in Jeddah: a multidimensional approach for urban mobility enhancement," *International Journal of Low-Carbon Technologies*, vol. 19, pp. 1301–1314, 2024, doi: 10.1093/ijlct/ctae078. [Oxford Academic](#)
- [10] I. R. Hegazy, H. A. Hammad, A. M. Munshi, A. A. Alqurashi, and I. Z. Bahreldin, "Pathways to green urbanism: evaluating Jeddah's environmental sustainability progress and prospects," *International Journal of Low-Carbon Technologies*, vol. 19, pp. 1177–1188, 2024, doi: 10.1093/ijlct/ctae051. [Oxford Academic](#)
- [11] Bahreldin, H. Samir, R. Maddah, H. Hammad, and I. Hegazy, "Leveraging advanced digital technologies for smart city development in Saudi Arabia: opportunities, challenges, and strategic pathways," *International Journal of Low-Carbon Technologies*, vol. 20, pp. 834–847, 2025, doi: 10.1093/ijlct/ctaf044. [Oxford Academic](#)
- [12] I. A. A. Alismail, A. Alqahtany, A. M. Alhamoudi, S. I. Aljoaib, and S. M. Almazroua, "Framework for Improvement of National Urban Strategy Model of Saudi Arabia by Logical

- Comparison with Best Practices in the World,” *Journal of Sustainability Research*, vol. 7, Art. no. e250006, 2025, doi: 10.20900/jsr20250006. [Crossref](#)
- [13] A. Klingmann, “Rescripting Riyadh: how the capital of Saudi Arabia employs urban megaprojects as catalysts to enhance the quality of life within the city's neighborhoods,” *Journal of Place Management and Development*, vol. 16, pp. 45–72, 2023, doi: 10.1108/JPMD-06-2021-0062. [Emerald](#)
- [14] M. Helmi, I. Hegazy, E. Qurnfulah, R. Maddah, and H. S. Ibrahim, “Using sustainable development indicators in developing Saudi cities - case study: Makkah city,” *International Journal of Low-Carbon Technologies*, vol. 16, pp. 1328–1340, 2021, doi: 10.1093/ijlct/ctab053. [Oxford Academic](#)
- [15] S. Alarabi and F. Alasmari, “Challenges and Opportunities for Small Cities in the Kingdom of Saudi Arabia: A Study of Expert Perceptions,” *Sustainability*, vol. 15, Art. no. 6960, 2023, doi: 10.3390/su15086960. [MDPI](#)
- [16] A. A. AlMunifi and S. Almutairi, “Lessons Learned Framework for Efficient Delivery of Construction Projects in Saudi Arabia,” *Construction Economics and Building*, vol. 21, no. 4, 2021, doi: 10.5130/AJCEB.v21i4.7858. [UTS ePRESS](#)
- [17] R. Alotaibi, M. Sohail, and R. Soetanto, “Modelling Project Control System Effectiveness in Saudi Arabian Construction Project Delivery,” *Buildings*, vol. 15, Art. no. 3426, 2025, doi: 10.3390/buildings15183426. [MDPI](#)
- [18] I. T. Alsulami, “Change Orders and Their Domino Effect: Insights from Public Construction Projects in the Kingdom of Saudi Arabia,” *Buildings*, vol. 15, Art. no. 87, 2025, doi: 10.3390/buildings15010087. [MDPI](#)
- [19] A. Khan, M. Waris, S. Panigrahi, M. R. Sajid, and F. Rana, “Improving the Performance of Public Sector Infrastructure Projects: Role of Project Governance and Stakeholder Management,” *Journal of Management in Engineering*, vol. 37, no. 2, 2021, doi: 10.1061/(ASCE)ME.1943-5479.0000886. [ASCE Library](#)
- [20] M. Brunet, “Making sense of a governance framework for megaprojects: The challenge of finding equilibrium,” *International Journal of Project Management*, vol. 39, pp. 406–416, 2021, doi: 10.1016/j.ijproman.2020.09.001. [ScienceDirect](#)
- [21] L. Ma and H. Fu, “A Governance Framework for the Sustainable Delivery of Megaprojects: The Interaction of Megaproject Citizenship Behavior and Contracts,” *Journal of Construction Engineering and Management*, vol. 148, no. 4, 2022, doi: 10.1061/(ASCE)CO.1943-7862.0002251. [ASCE Library](#)
- [22] J. Xue, G. Q. Shen, Y. Li, J. Wang, and I. Zafar, “Dynamic Stakeholder-Associated Topic Modeling on Public Concerns in Megainfrastructure Projects: Case of Hong Kong-Zhuhai-Macao Bridge,” *Journal of Management in Engineering*, vol. 36, no. 6, 2020, doi: 10.1061/(ASCE)ME.1943-5479.0000845. [ASCE Library](#)
- [23] J. Xue, G. Q. Shen, R. J. Yang, I. Zafar, and E. M. A. C. Ekanayake, “Dynamic Network Analysis of Stakeholder Conflicts in Megaprojects: Sixteen-Year Case of Hong Kong-Zhuhai-Macao Bridge,” *Journal of Construction Engineering and Management*, vol. 146, no. 9, 2020, doi: 10.1061/(ASCE)CO.1943-7862.0001895. [ASCE Library](#)
- [24] Y. Lu, Y. Li, and Q. Cui, “Organizational Behavior and Governance of Megaprojects,” *Journal of Management in Engineering*, vol. 36, no. 3, 2020, doi: 10.1061/(ASCE)ME.1943-5479.0000768. [ASCE Library](#)
- [25] T. Ma and Q. Liu, “Building success: Top-level governance strategies for transport megaprojects,” *Research in Transportation Business & Management*, vol. 62, Art. no. 101449, 2025, doi: 10.1016/j.rtbm.2025.101449. [ScienceDirect](#)
- [26] P. Farid, O. J. Klakegg, and C. Bakke, “Mega construction projects: Governance challenges for the project owner,” *Procedia Computer Science*, vol. 256, pp. 1474–1481, 2025, doi: 10.1016/j.procs.2025.02.281. [ScienceDirect](#)

- [27] K. B. Narum and S. Debnath, "Sustainable megaproject delivery and uncertainty in design-build cable-stayed bridges," *Procedia Computer Science*, vol. 256, pp. 1706–1716, 2025, doi: 10.1016/j.procs.2025.02.309. [ScienceDirect](#)
- [28] A. Ibrahim, T. Zayed, and Z. Lafhaj, "Trends and gaps in lean construction practices for construction of megaprojects: A critical review," *Alexandria Engineering Journal*, vol. 118, pp. 174–193, 2025, doi: 10.1016/j.aej.2025.01.046. [ScienceDirect](#)
- [29] M. Reichenbach and T. Fleischer, "From ambition to implementation: institutionalisation as a key challenge for a sustainable mobility transition in Germany," *Energy, Sustainability and Society*, vol. 13, Art. no. 14, 2023, doi: 10.1186/s13705-023-00392-6. [Springer](#)
- [30] A. Sharifi, "Urban sustainability assessment: An overview and bibliometric analysis," *Ecological Indicators*, vol. 121, Art. no. 107102, 2021, doi: 10.1016/j.ecolind.2020.107102. [ScienceDirect](#)